Are Bidder-Initiated Takeovers Opportunistic?

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Abstract

By initiating the takeover process and paying for the target with temporarily overpriced shares, acquirers may successfully outbid even more efficient buyers. We present some first tests of this opportunistic market-timing hypothesis that requires the bidder - not the target - to initiate the deal process. The endogenous initiation-decision is treated as rational side-bets in otherwise synergistic takeovers. The empirical challenge, which we address, is to separate such opportunistic side-bets from rational payment design, where stock-financing hedges against target adverse selection. Evidence from reduced-form regressions, structural estimation, and wealth effects suggests that bidder-initiated and stock-financed takeovers primarily hedge against target adverse selection.

Keywords: Deal initiation, opportunism, efficiency loss, adverse selection, cash payment, stock payment, liquidity constraint, structural estimation

JEL Classifications: G3, G34

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Abstract

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"[The AOL TimeWarner deal] was done on terms that were insane ... AOL stock was ridiculously overvalued ... [AOL's CEO Steve Case] chose the moment, almost to the day, when his stock was most valuable and then used it as currency."
—Geoffrey Colvin, *Fortune*, February 3, 2003.[1]

1 Introduction

In principle, a potential acquirer may use private information to initiate the deal process and offer to pay for the target with temporarily overpriced shares. Analogous to insider trading in secondary equity markets, and irrespective of how the subsequent deal process plays out, self-selecting the timing of the deal increases the chance of succeeding with this opportunistic bidding strategy. Successful bidder opportunism raises a social welfare concern since the most overvalued rather than the most efficient bidder may win in the competition for the target. If unsuccessful, opportunistic bidders may still cause a wealth transfer by driving up the winner's price in second-price auctions. Also, undervalued and financially constrained firms may avoid altogether entering a costly bidding contest for the target, despite having high synergies. All of these information-based effects have the potential for distorting the important disciplinary role of what Manne (1965) labels the market for corporate control.

In this paper, we perform an empirical analysis with unprecedented power to identify whether bidder opportunism is important in takeovers. Our incremental test-power comes from conditioning the analysis on whether the bidder was in fact the party that initiated the takeover process. Recognition of the importance of endogenous trade-initiation decisions in markets with asymmetric information goes back to the seminal work of Akerlof (1970) on adverse selection in markets where used cars ("lemons") are exchanged for cash. Adverse selection as a basic economic primitive since influenced analyses of deal initiations in studies of anonymous insider trades (beginning with Jaffe, 1974), seasoned equity offerings (Myers and Majluf, 1984), dealer markets (Glosten and Milgrom, 1985), and in negotiated takeovers settings where the the bidder pays for the target with its own shares, effectively swapping "lemons" (Hansen, 1987; Eckbo, Giammarino, and Heinkel, 1990a).

Shleifer and Vishny (2003) brought early attention to the potential for bidder opportunism in takeovers

[1] In January 2000, AOL announced a stock-swap merger for Time Warner valued at $165 billion, the largest merger in U.S. history at the time. Three months later, in March of 2000, the stock market "technology bubble" burst and lowered the market value of AOL-TimeWarner by more than $100 billion. Shleifer and Vishny (2003) also characterizes the AOL takeover bid as opportunistic: "[T]he central feature of [the AOL TimeWarner] acquisition is not technological synergies, but rather the attempt by the management of the overvalued AOL to buy the hard assets of Time Warner to avoid even worse returns in the long run." (p. 308).

by suggesting that agency frictions on the target side of the deal may allow bidder opportunism to succeed: target managers may find it in their personal interest to knowingly accept overpriced bidder shares. Empirical research has examined one such potential agency channel—the incentive effect of the fact that a takeover causes immediate vesting of the target management's unvested compensation—without finding supporting evidence (Fidrmuc and Xia, 2019; Eckbo, Norli, and Thorburn, 2023). While agency frictions remain an interesting avenue in the context of opportunism, we instead focus in this paper on a more primitive and pervasive friction in takeover transactions: Information asymmetries between the transacting parties that remain unresolved throughout the deal completion process.

The type of informational friction that motivate the empirical approach of this paper also highlight a major empirical inference problem in tests of bidder opportunism: While opportunism requires mispricing, bidders prefer to pay with shares also to hedge against target adverse selection—even if the bidder shares are *correctly* priced. The reason the property of shares as a conditional payment form—its value to the target depends on the ex-post realized value of the merged firm (which payment in cash does not). A direct consequence is that some low-value targets will reject stock offers that they otherwise would have accepted if paid in cash. It is only when the target substantially undervalues the bidder that the bidder will substitute cash for stock in the deal payment.

In settings with two-sided adverse selection, which we describe in more detail in Section 2 below, bidder opportunism is best understood as rational side-bets on otherwise valuable (synergistic) takeover opportunities.[2] Unlike equilibrium models where the payment method fully reveals the bidder's true value (Eckbo, Giammarino, and Heinkel, 1990a; Liu and Bernhardt, 2021), the bet is that the target will remain sufficiently confused about this value throughout the deal process to (accidentally) accept overpriced bidder shares (Rhodes-Kropf and Viswanathan, 2004; Li, Taylor, and Wang, 2018). This raises the main challenge that we address: How to empirically identify whether a bidder uses stock-financing opportunistically, to hedge against target adverse selection, or as a combination of the two alternatives.

In general, beyond the deal parameters that are observable to the target, the likelihood that a bidder will succeed in paying for the target with overpriced shares also depends on the target-specific skill in reverse-engineering the overvaluation. As in Eckbo, Makaew, and Thorburn (2018), a major determinant for this skill is to what extent the two firms operate in related product and labor markets. They find that

[2]Positive deal synergies rule out stock-swaps as pure zero-sum games in violation of the "no-trade" theorem in economics (Milgrom and Stokey, 1982).

the likelihood of observing bidder stock in the deal payment *increases* rather than decreases with this and other information proxies. Kim, Luu, and Xu (2025) reach a similar conclusions after introducing institutional ownership concentration in the target firm as an additional information channel. Since it is more difficult to overpriced bidder shares to relatively precisely informed targets, this evidence fails to support bidder opportunism as a rationale for the stock-financed bids.

Li, Taylor, and Wang (2018) take a different approach to the empirical challenge of identifying bidder opportunism. They develop and structurally estimate the likelihood of opportunistic outcomes in a takeover model where the stock-financed bids (in equilibrium) leave the target with a positive chance of accepting overpriced shares. This risk exists because observable deal parameters are insufficient for the target to infer the true bidder value. As a result, an opportunistic low-synergy bidder may crowd out a more efficient (higher-synergy) rival. As their structural estimation produces inefficient outcomes in only 7% of their sample of takeovers, they conclude that "synergies swamp misvaluation" (p.267).

Our main contribution to the above debate is to explicitly condition tests of bidder opportunism on whether the bidder or the target initiates the deal. This endogenous self-selection naturally increases the likelihood of a stock-financed bid containing overpriced bidder shares. It also increases test power relative the extant empirical literature that up to this point has essentially treated the initiation decision as a random assignment. Furthermore, with Gorbenko and Malenko (2024), the theoretical literature on takeovers has also just started to endogenize the initiation decision. Hence, our empirical conditioning on the party that self-selects to initiate the trade helps to fill an important void in our economic understanding of the takeover process.

We analyze 2,968 acquisitions of public targets from 2000 through 2020, all sorted by deal initiation. In the process, we provides granular information on the private part of the bidding process, which extends from the time of the deal initiation to the announcement of the first public bid. Surprisingly, while it is common to associate auctions with target-initiations (Boone and Mulherin, 2007a), we find that the number of (largely non-binding) bids during the private deal process prior to the first public bid announcement is, if anything, higher in bidder- than target-initiated deals. On the other hand, we confirm earlier findings that target-initiated deals are associated with lower average offer premiums (Masulis and Simsir, 2018), and that deals involving strategic buyers tend to use stock in the deal payment more often than financial buyers (Gorbenko and Malenko, 2018).

We perform our main tests of bidder opportunism in three distinct but complementary steps. In the first step, we estimate the likelihood of observing bidder shares in the deal payment as a function of both target information proxies and the identity of the initiating party. For both bidder- and target-initiations, we find that this likelihood is significantly *higher* the more precise is the target's information about the bidder—not lower as predicted by bidder opportunism. Most important, this impact of the target information proxies is indistinguishable across bidder- and target-initiated transactions.

This finding, which is robust to the inclusion of a large number of firm- and deal characteristics, suggests that bidder private information about market mispricing is largely irrelevant to a decision to initiate the takeover process and pay for the target in shares. The same evidence is, however, consistent with rational payment design, where bidders have an incentive to pay with shares to hedge against target adverse selection. This incentive increases when facing relatively precisely informed targets since these are less likely to undervalue the bidder shares when used as acquisition currency.

In the second step of our empirical analysis, we structurally estimate the takeover model of Li, Taylor, and Wang (2018) after conditioning on the initiating party to the deal. Their model is particularly attractive in our context for three reasons: First, it provides a pooling equilibrium that in principle allows for rational opportunistic side-bets to otherwise synergistic takeover attempts. Second, it permits quantification of the difference (if any) in the potential inefficiency that arises from opportunism conditional on who initiates the deal. Third, since all events in the model take place after the deal is initiated (the model does not endogenize the deal initiation decision), any difference that we identify across subsamples of bidder- and target-initiated transactions is coming from endogenous selection and not random assignment. Interestingly, we find that conditioning on deal initiations does *not* increase the fraction of the cases where opportunistic bidders crowd out higher-synergy bidders.

In the third step, we provide new and substantial valuation-based evidence of relevance for the opportunism debate. Most important, after confirming the model assumption of positive deal synergies, we find that bidder-initiated takeovers are associated with a *positive* announcement-induced valuation effect for the bidder's close industry peers—not negative as suggested by both the model of Rhodes-Kropf and Viswanathan (2004) and the valuation evidence in Rhodes-Kropf, Robinson, and Viswanathan (2005).[3] Regardless of the party initiating the takeover, the peer-firm abnormal return averages a statistically significant 0.7%. Hence, rather than signaling overvaluation, the information in the deal announcements appears instead to reveal increased demand for an industry-specific resource (possibly driving expec-

[3]The industry peers are identified using the TNIC-3 industry relatedness scores from Hoberg and Phillips (2016).

tations of future takeover activity). Finally, we reject that the abnormal stock return (alpha) from a long-short trading strategy (long in bidder-initiated and short in target-initiated deals) is different from zero, which also fails to support bidder opportunism.

In sum, after endogenizing the deal initiation decision into our empirical tests, which include reduced-form regression analyses, structural estimation, and market revaluations, we conclude that bidder overpricing either does not exist or is effectively unraveled throughout the deal process itself. This also suggests that bidder opportunism is not a major concern in the US market for corporate control.

In the following, we begin by specifying the three testable propositions that form the bases for our empirical analysis. We then describe our deal initiation data, followed by the tests of each proposition. We end the paper after adding a brief discussion of potential structural impediments to bidder opportunism, such as legal and contractual constraints and takeover settings with largely common-value deal synergies in the data.

2 Bidder-initiations: Testable propositions

In perfect markets with symmetrically informed agents, the level and division of the merger-induced gains are the same whether the transaction is executed by means of an all–cash offer or by some combination of cash and securities of the combined firm. However, there is substantial evidence that both takeover premia and merger-induced abnormal stock returns are systematically related to the payment method.[4] In this section, we motivate three testable propositions that are all based on information asymmetries between the parties to the deal. In our subsequent empirical analysis, we treat more traditional capital structure tradeoffs that may also affect the payment method choice as regression controls.[5]

2.1 Opportunism as rational side-bets (Proposition 1)

In this section, we explain our most general proposition and its basic economic intuition. Let $\tilde{p}_b$ and p_b^* denote the market value of the bidder shares and the value of those shares conditional on the bidder's private information, respectively. While the market and the target only knows the distribution over the

[4]This empirical evidence, which began with Huang and Walkling (1987), Travlos (1987), Franks, Harris, and Mayer (1988), and Eckbo and Langohr (1989), has since been systematically confirmed in large samples (Alexandridis, Antypas, and Travlos, 2017; Eckbo, Makaew, and Thorburn, 2018; Dessaint, Eckbo, and Golubov, 2025).

[5]For example, since using stock as payment method lowers the leverage of the combined firm relative to a cash bid (unless the cash is financed with an equity issue prior to the takeover), the acquirer's leverage ratio and cash holdings are treated as such regression controls.

mean-zero random pricing error $\tilde{\epsilon}_b = \tilde{p}_b - p_b^*$, the bidder knows the value of $\tilde{\epsilon}_b$ itself. Moreover, let σ_ϵ be the standard deviation of ϵ_b, and label a target with a low σ_ϵ as being more precisely informed about the bidder than a target with a high σ_ϵ:

Proposition 1 (opportunism and rational payment design):

(i): *With bidder opportunism, bidder-initiation* <u>*decreases*</u> *the optimal fraction bidder shares relative to target-initiation, and more so the greater is the target's information precision* σ_ϵ*.*

(ii): *Absent bidder opportunism, bidder-initiation* <u>*increases*</u> *the optimal fraction bidder shares relative to target-initiation, and the more so the greater is* σ_ϵ*.*

To explain Part (i) of Proposition 1, we start with the effect of interacting the deal payment with the party that initiates the deal process. We have that

$$Prob(\tilde{\epsilon}_{bt} > 0 \mid \text{Bidder initiation}) - Prob(\tilde{\epsilon}_{bt} > 0 \mid \text{Target initiation}) > 0. \quad (1)$$

That is, relative to treating the deal initiation as a random assignment, bidder initiation causes the target to update its prior beliefs about the bidder's true value. This update in turn increases the target's precision σ_ϵ and lowers the opportunistic bidder's incentive to try to pay with overpriced shares. On the other hand, if the target initiates, the bidder increases its beliefs that the target shares may be overvalued. However, as explained next, the optimal reaction for the bidder is then to increase (not reduce) the fraction stock in the deal payment. This explanation requires understanding the concept of *expected overpayment cost* of cash and stock, respectively, which are explained in Lemma 1:

Lemma 1 (rational payment design):

Regardless of who initiates the deal, the bidder prefers to pay for the target with its own shares to hedge against target adverse selection. It will substitute cash for shares only if the target substantially undervalues those shares.[6]

Motivation: Let x_b and x_t denote the standalone values of bidder and the target, respectively. Moreover, suppose the bidder generates bidder-specific synergy gains of s and denote the with-synergy value as $\Omega = x_b + s$. Also, let $\hat{\Omega}$ be the target's beliefs given the offer (c, z), where c is the amount of cash and z is the fraction of the post-merged firm to be held by target shareholders. Suppose the bidder makes an

[6] The role of bidder cash constraints is addressed in Section 4 below.

offer that is acceptable to a target worth t^* or less, i.e.

$$z(t^* + \hat{\Omega} - c) + c \geq t^*. \tag{2}$$

Fix target beliefs $\hat{\Omega}$ and use Eq. (2) to solve for the minimum value of z that this target will accept:

$$z = \frac{t^* - c}{t^* + \hat{\Omega} - c}. \tag{3}$$

The bidder wants to maximize the value of its residual claim on the merged firm, $(1-z)(E(t|a) + \Omega - c)$. Substituting Eq. (3) into this residual claim yields the expected value $E[v|a]$ to the bidder of offering (c, z):

$$E[v|a] = (1-z)(\Omega + E[t|a] - c) = \frac{\hat{\Omega}}{\hat{\Omega} + t^* - c}(\Omega + E[t|a] - c). \tag{4}$$

This shows that the value of the bidder's residual claim is a function of both the target's beliefs, $\hat{\Omega}$, and the amount c of cash in the offer. For fixed beliefs, Eq (4) illustrates the tradeoff between z and c. To illustrate, the following compares all-cash and all-stock offers:

$$E[v|a] = \begin{cases} \Omega + E[t|a] - c & \text{if } c_j = t^* \text{ (all cash offer)} \\ \frac{\hat{\Omega}}{\hat{\Omega}+t^*}(\Omega + E[t|a]) & \text{if } c_j = 0 \text{ (all stock offer).} \end{cases} \tag{5}$$

The difference between these two offers yields:

$$E[v|a, c = t^*] - E[v|a, c = 0] \;=\; \frac{t^*}{\hat{\Omega} + t^*}[(\Omega - \hat{\Omega}) - (t^* - E[t|a])]. \tag{6}$$

Eq. (6) shows that the bidder prefers an all-cash offer only if the target's undervaluation of the bidder exceeds the expected overvaluation cost of paying with cash, i.e., when $(\Omega - \hat{\Omega}) > (t^* - E[t|a])$. Otherwise, the expression in Eq. (6) is negative and the bidder prefers payment in all-stock. Also important, the bidder strictly prefers an all-stock offer even if the target knows the true bidder value ($\hat{\Omega} = \Omega$) as the only relevant cost is now the expected overpayment cost of cash ($t^* - E[t|a] > 0$). Intuitively, while cash precommits the bidder to a payment worth t^* for all target types ex ante, payment in bidder shares conditions the value of the deal payment on the realized value of the target type ex post.[7]

[7]While Eq. (6) focuses on the tradeoff between the costs of all-cash and all-stock bids, the same tradeoff reappears when

Note also, in the above framework, opportunism is another term for adverse selection on either side of the deal. Target opportunism causes the positive expected overpayment cost of cash $t^* - E[t|a] > 0$, which pushes the bidder towards using shares in the deal payment. Bidder opportunism occurs when $\Omega - \hat{\Omega} > t^* - E[t|a] > 0$, pushing the bidder to offer stock as deal payment in the hope that the deal payment itself does not fully reveal the overvaluation. Under rational payment design, payment in bidder shares dominate all-cash offers when the expected overpayment cost of cash exceeds that of stock, i.e., when

$$\frac{t^* - E[t|a]}{\Omega - \hat{\Omega}} > 1. \tag{8}$$

That is, the expected overpayment cost of cash ($t^* - E[t|a] > 0$) pushes the target towards paying with shares unless the shares are sufficiently undervalued by the target ($\Omega - \hat{\Omega} > 0$). Hence, the lower is σ_ϵ, the greater the chance that the ratio in Eq. (8) exceeds one, which in turn lowers the optimal c^*. ■

The above analysis assumes that the probability of bid success equals one (target t^* accepts the offer). Lemma 2 below shows that Proposition 1 is robust to allowing for unsuccessful bids as well as rational equilibria in which the target is unable to fully separate bidders with different true values:

Lemma 2 (failure risk and equilibrium outcome):
The efficient payment design in Proposition 1 is (i) exacerbated by allowing for unsuccessful bids and bidder cash constraints, and (ii) holds whether the efficient payment method choice in equilibrium fully or only partially reveal the true bidder value.

Motivation: In Part (i), since bid failure is costly (it means the loss of expected synergy gains), it can be shown that allowing for unsuccessful bids tilts the efficient tradeoff between cash and stock in Proposition 1 toward payment in stock (see, e.g., Eckbo, Malenko, and Thorburn, 2025, for proof). The reason is that, as before, payment in bidder shares leads some high-valued targets accept the offer that they would otherwise have rejected if paid in cash. Since deal completion benefits both parties, this leads to a higher probability of target acceptance of the bid. As to adding a binding bidder cash constraint

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changing the amount of cash at the margin. From Eq. (4):

$$\frac{\partial E[v|a]}{\partial c} = \frac{\hat{\Omega}}{(\hat{\Omega} + t^* - c)^2}\left[(\Omega - \hat{\Omega}) - (t^* - E[t|a])\right], \tag{7}$$

Again, the two terms inside the large square bracket shows that $\partial E[v|a]/\partial c < 0$ if $t^* - E[t|a] > \Omega - \hat{\Omega}$, and the bidder prefers an incremental reduction in the fraction cash in the deal payment.

(see, e.g., Gorbenko and Malenko, 2018; Li, Taylor, and Wang, 2018), it immediately tilts the payment towards bidder shares without changing the basic principle behind the optimal payment design.

Turning to the nature of the equilibrium (Part (ii) of Proposition 2), note first that, since cash is a costly form of payment (it exacerbates the bidder's adverse selection problem), including cash in the deal payment signals to the target that it undervalues the bidder shares ($\Omega - \hat{\Omega} > t^* - E[t|a]$). In equilibrium, the target's reaction to this information is taken into account. Let $c^* = c/t^* \in [0, 1]$ denote the fraction of the total deal payment in cash. Several models prove the existence of separating equilibria in which the choice of c^* fully reveals the bidder type (that is, for two bidders j and k, $c^*_j > c^*_k$ reveals that $\Omega_j > \Omega_k$).[8]

While bidder opportunism cannot succeed in a fully revealing equilibrium, Rhodes-Kropf and Viswanathan (2004) and Li, Taylor, and Wang (2018) derive pooling equilibria in which rational targets remain somewhat confused about the true bidder value. Since pooling means that bidders may succeed with selling overpriced shares to targets, we return to the central predictions of these two models in our tests of bidder opportunism below. The point made here is that pooling equilibria are the result of the target facing more unknowns than observables, which prevents a correct valuation of c^*, not that the basic tradeoff between cash and stock is any different. ■

We next turn to Proposition 2, which explains the implication of conditioning the takeover model of Li, Taylor, and Wang (2018) on the party initiating the deal. While the test in Proposition 1 imposes few theoretical restrictions, Proposition 2 works within a specific equilibrium framework. The benefit of imposing the additional model restrictions is that they allow structural estimation of the efficiency loss (if any) when overvalued but low-synergy bidders crowd out high-synergy rivals for the target.

2.2 Bidder initiation and inefficient crowding out (Proposition 2)

Li, Taylor, and Wang (2018) model a sealed-bid, second-price auction with two synergistic bidders with private valuations of the target. While the target value is common knowledge (one-sided information asymmetry), each bidder come with three variables that are unobservable to the target: (1) the market misvaluation of the bidder's stand-alone value, (2) the synergy gains, and (3) the bidder's cash constraint.

[8] See Eckbo, Giammarino, and Heinkel (1990a) and Berkovitch and Narayanan (1990). Liu and Bernhardt (2021) assume that deal synergies are increasing in the bidder's stand-alone value x_b but at a decreasing rate. This means that a low-x_b bidder favors paying in stock (bidder adverse selection) and dislikes paying in cash (due to lower synergies). Conversely, higher bidder types select more cash and less stock, thus supporting a fully separating equilibrium. They also show that this holds for other securities of varying information sensitivity. See also DeMarzo, Kremer, and Skrzypacz (2005) for a general treatment of auction security design.

Since the target only observes the bidder market value and the fraction cash in the offer, it cannot infer these three unobservables and is vulnerable to bidder opportunism. For example, an overvalued bidder with a low synergy component may bid the same as a more efficient high synergy bidder. Or, an all-stock bid may reflect a binding cash constraint rather than market overvaluation. As the target remains confused this way, there is some positive probability that it will accept an opportunistic bid that is scored as the most valuable for the wrong reason.[9]

In this model, market misvaluation of bidder shares can create both a crowd-out and redistribution effect. Crowding out occurs when an overvalued bidder who pays with shares wins the target after defeating a more efficient (higher synergy) but less overvalued rival bidder. Redistribution occurs when an overvalued bidder loses the target to a more efficient rival bidder after the share offer forces the rival to pay a higher premium.

Proposition 2 (bidder-initiation and inefficient crowding out):
Suppose one of the two bidders in the model of Li, Taylor, and Wang (2018) selects the time of the deal initiation to coincide with private information that its shares are overpriced by the market. Then, the structurally estimated frequency of cases where the overpriced bidder crowds out a more efficient one will be higher when conditioning on the takeover being bidder-initiated.

Motivation: The argument is straightforward since, in this model, all events take place *after* the initiation decision itself. Hence, different crowding-out effects (if any) across the two subsamples of bidder- and target-initiated that are driven by the model must come from the endogenous initiation-decision (not a random assignment). Hence, a test based on the difference in the estimated fraction of inefficient takeovers across bidder- and target-initiated deals necessarily increases power to reject the putative bidder opportunism in the data. ■

Finally, we use the rational adverse selection framework to consider possible implications for the market reaction to bidder-initiated takeover announcements.

[9] After scoring the winner, the target computes the payment using the second-price settlement rule: Holding c_j constant, z_j is lowered to the point where the target deems the winning bid to be equal in value to the second-highest (losing) offer. See the Internet Appendix of Li, Taylor, and Wang (2018) for details.

2.3 Market reaction to bidder-initiations (Proposition 3)

Proposition 3 (firm- and sector-specific valuation effects):

(i): *In a bidder-initiated and stock-financed takeover, the market reacts by decreasing the value of the bidder's assets in place (adverse selection effect) while adding the value of the bidder's share of expected synergy gains. The negative adverse selection effect is decreasing in the fraction cash in the deal payment.*

(ii): *In industries where takeover synergies are sector-specific, the takeover announcements under (i) cause a positive revaluation also of the industry peers unless more than offset by a signal that the peer-firm assets are also overvalued.*

(iii): *Under bidder opportunism, a portfolio long in bidder-initiated and stock-financed merged firms and short i target-initiated ones will earn negative Jensen's alpha as the market corrects the putative bidder overvaluation.*

Motivation: Part (i) follows from the adverse selection effect of bidder-initiations discussed above, and the assumption of positive takeover synergies underlying all rational takeover models under asymmetric information. Moreover, as first theorized by Eckbo, Giammarino, and Heinkel (1990a), when cash is a costly medium of exchange relative to bidder stock, a greater proportion of the deal payment paid in cash signals (in equilibrium) greater prebid market undervaluation of the bidder. In Part (ii), takeover synergies are industry-specific, i.e., correlated across industry peers. For example, this is the case in Rhodes-Kropf and Viswanathan (2004), where this correlation causes rational targets to confuse high stock bids with high synergies rather than market overvaluation and (unknowingly) accept overpriced bidder shares. This type of sector-specific overvaluation further lowers the market reaction to bidder-initiated and stock-financed takeovers. ■

We now turn to a large-sample empirical examination of the above three propositions.

3 Proposition 1: Opportunism and rational payment design

3.1 Data and identification of the deal-initiating party

We start our sampling by selecting completed takeovers of US public targets from the SDC Platinum database from 2000–2020 to identify the initiating party. Of these, we can locate an SEC takeover filing, such as DEFM14A, PREM14A, and S4, for 3,353 targets. For each transaction, we carefully read the "background of the merger" section and classify the initiating party and other aspects of the sales process. This allows us to identify the initiating party for 2,968 public targets. The bidder is also a publicly listed firm in 1,845 of these deals. Much of the analysis requires bidder characteristics and will therefore be limited to our subset of public-to-public deals.

Our initiation classification is as follows: The takeover is classified as *target initiated* if the SEC documents reveal that the target board began the sales process by directly contacting a potential buyer or hiring an investment bank to find possible acquirers (sometimes after pressure from its shareholders). Even if an acquirer subsequently approaches the target, we classify the deal as target-initiated as long as the target board has previously started a sales process that puts the target firm in play (which, as mentioned above, also triggers the target director's "Revlon duty" to sell to the highest bid).

Second, the takeover is classified as *bidder initiated* if it is started by a potential acquirer approaching the target. Note that the initiating bidder need not be successful: the initiation may be followed by a rival bidder that ends up acquiring the target. For our purposes, the important fact is that regardless of who eventually wins the target, the deal is initiated by a bidder with the potential for being opportunistic.

Third, the takeover is classified as *jointly initiated* if the initiation occurs through joint discussions between a bidder and the target, and there is no indication that either party initiated or was a driving force behind the transaction. About ten percent of the jointly initiated transactions are described as a "merger of equals", where the acquirer and the target firm are of similar size and market value. Merger of equals are typically structured as stock swaps and leadership roles (board seats and executive positions) are often divided between the two firms to maintain a balance of power.

Figure 1 illustrates the time-series distribution of the sample deals and their three main categories of initiation: bidder, target, and jointly. Figure 2 shows the sample proportions of each initiation type, where we also separate out the two bidder-initiation categories (winning or rival bidder). In Panel A shows that, which uses the full sample of deals by both public and private bidders, 57% are bidder-initiated (45% by the winning bidder and 12% by a rival bidder), while 34% are target-initiated. The remaining 8% are jointly initiated. Panel B, which limits the sample to public bidders, shows that the sample initiation proportions are about the same also after considering public-to-public takeovers only.[10]

[10]While this paper is the first to use initiation data to address bidder opportunism, our finding that about 40% of the deals are target initiated (directly or jointly) is consistent with a growing literature documenting initiation frequencies, albeit it in generally smaller samples of takeovers than what is used in this paper. Without identifying the initiating party, Boone

3.2 Firm and auction characteristics

Table 1 shows bidder and target characteristics for the subsample of deals where both parties are publicly listed and compares them across initiation types. Acquirers in bidder-initiated deals tend to be larger, with total assets averaging \$14.4 billion vs. \$ 9.1 billion in target-initiated transactions, and a larger fraction pay dividends. However, the average acquirer has similar cash holdings, R&D levels, and M/B ratios across initiation types, undermining the notion that bidder-initiated deals are systematically driven by overvalued equity. As shown in Panel B, the targets, on average, are substantially smaller than their public acquirers (\$1.9bn vs. \$13.2bn), have lower M/B (2.86 vs. 4.23), and are less levered. However, there is no statistically significant difference in these target characteristics across bidder- and target-initiated deals. Interestingly, this observation also holds for the relative M/B of bidder and target firms, which has been a focus in much of the extant empirical debate over whether market misvaluation drives merger activity.

The auction data presented in Table 2 confirms and extends earlier evidence on the "private" part of the sales process that typically takes place prior to the first public bid announcement. We record the dates and prices of all bids reported with a bid price (cash value or exchange ratio in stock swaps) or as an offer premium. The bid prices may be an exact value (e.g., \$80.00) or a price range (\$80.00-\$82.00). We also record the payment method (all-cash, all-stock, or mixed cash-stock offers) and whether the bid is binding or non-binding, verbal, written, or a tender offer, and note the date of the signed merger agreement (if any). The table also summarizes key features of the auction process conditional on initiation type. Focusing on the subsample of public bidders in Panel B, the private phase of the auction features on average 3.5 bids, with multiple bids in 74% and multiple bidders in 31% of the deals. This evidence is consistent with Boone and Mulherin (2007a), who find that about half of all deals involve some form of private competition, even when rival bids do not materialize.[11]

Table 2 also reports an average bid-jump (incremental increase in the bid) of 4.7%. This is somewhat

and Mulherin (2007b) provide details on the private part of the sales process. In subsequent research, Atkas, de Bodt, and Roll (2010) use the identity of the initiating party in a sample 1,774 takeovers (1994–2007) to estimate bidding costs, while Masulis and Simsir (2018) and Liu and Mulherin (2018) condition on the initiating party in samples of 1,268 (1997–2012) and 388 (1981–2014), respectively, to study potential effects on final offer premiums. Fidrmuc and Xia (2019) sample 1,098 takeovers (2005–2020) and link initiations to executive incentives and compensation, while Brown Jr., Liu, and Mulherin (2023) show an increasing rate of target initiations in 1,821 deals from 1981 through 2020. The hitherto largest sample, with 4,787 cases from 1996–2014, is found in Eckbo, Norli, and Thorburn (2023), in which 47% are target initiated.

[11] For details of the private period, see also Liu and Mulherin (2018), Badawi and de Fontenay (2019), and Boone, Maeseneire, Dereeper, Luypaert, and Thuy (2024).

lower than Boone, Maeseneire, Dereeper, Luypaert, and Thuy (2024), who document an average increase of 9.6% between the first and second bids in the private phase of the auction. The difference is consistent with bidders making increasingly smaller bid jumps as the auction progresses. Interestingly, the average bid-jump of 9.6% is very similar to that reported by Betton and Eckbo (2000) for the public phase of the auction process. In their sample of 1,353 public tender offers for US listed targets from 1971–1990, where the targets receive a total of 2,335 publicly announced bids, the bid-jump from the first to the second public bid averages 10% (their Table 3).

Moreover, consistent with the evidence in Masulis and Simsir (2018), the average offer premium (measured here as the offer price divided the target stock price one month prior to the offer date) is significantly lower for target-initiated that for bidder-initiated deals, with a difference of 18.42% when both firms are listed. This difference likely reflects that target who initiates also tend to have a relatively low pre-takeover return on assets (ROA) (Masulis and Simsir, 2018; Eckbo, Norli, and Thorburn, 2023).

Surprisingly, bidder-initiated deals tend to involve a somewhat more competitive bidding process than do target-initiated deals: the mean number of bids and fraction of auctions with multiple bids are 3.7 and 0.80, respectively, for bidder-initiated transactions and 3.1 and 0.65, for target-initiated deals. The differences, which are statistically significant, challenge the notion that target-initiated processes are systematically more competitive. Moreover, the percentage of stock payment and the fraction of all-stock deals are consistently *lower* for bidder-initiated deals, with 36% vs. 49% of the offer paid in stock and 19% vs. 30% of the offers paid in stock only. This pattern resurfaces repeatedly in our regressions below.

3.3 Do uninformed targets attract opportunistic bids?

As discussed in Section 2 above, in settings with rational and value-maximizing agents, opportunistic market timing is best understood as risky side bets by otherwise synergistic bidders. The bet is whether the target, after updating its beliefs about bidder value, remains sufficiently confused to accept overpriced bidder shares. In this section we empirically test Proposition 1, which holds that opportunistic bidders will initiate a takeover and use shares as acquisition payment to take advantage of relatively uninformed targets.

We start the empirical analysis with the univariate regression in Table 3. It shows the coefficient estimates from probit estimations of the likelihood of an all-stock bid and Tobit estimation for the fraction of stock in the deal payment in the subsample of public bidders. The explanatory variable is a dummy for bidder-initiated deals (the regressions also contain an intercept, which is not tabulated). Interestingly, bidder initiation is associated with a statistically and economically significant *reduction* in the likelihood and extent of stock usage. The probit coefficient is –0.367 (t = 5.66), and the Tobit coefficient is –0.478 (t = 5.67). This result is robust to limiting the sample to bidder- and target-initiated deals (columns 2 and 5), and to bidder- and jointly-initiated deals (columns 3 and 6). The negative relationship between bidder initiation and the use of stock payment contradicts Part (i) of Proposition 1, which is the core implication of bidder opportunism. On the other hand, the same evidence is consistent with Part (ii), which is based more generally on rational payment design under asymmetric information.

Adding the firm-level controls and information variables defined in Table 4 to the regressions in Table 3, Table 5 presents our full-blown conditional estimation of the likelihood of stock payment. Columns (1) and (5) in Table 5 list the baseline model coefficients, including acquirer and target-industry characteristics. As shown, larger bidders are less likely to use stock, while a large relative deal size increases stock usage. These relationships are intuitive: larger firms tend to have more internal financing, while large deals may require equity financing. Moreover, in line with several earlier studies, bidders with a relatively high M/B ratio tend to use stock. Note also that increased competition from *private* bidders in the target's FF49 industry, increases the use of cash in the deal payment. This result is intuitive since unlisted shares are relatively illiquid. As explained in Section 2, targets tend to value a cash-offer higher than the same offer paid in stock. Hence, high competition from private bidders tend to also restrict a listed bidder's ability to pay with shares, which the data strongly bears out.

To begin testing Proposition 1, we start with columns (2) and (6), which add target information proxies that are intended to capture how precisely the target is able to estimate the true value of the bidder shares. Of the four information variables, three enter with a positive and significant sign: *Local Deal* where the target is located geographically close to the bidder (within 5 miles), *H-P Industry Relatedness* where the two firms operate in similar product and labor markets (measured by the Hoberg and Phillips (2010) similarity score), and *Recent SEO* where the bidder recently (within the past 18 months) made a seasoned equity offering to the public. These findings, while rejecting Part (i) of Proposition 2 (that bidders opportunistically pay with stock), are consistent with Part (ii): Facing a relatively well-informed target lowers the bidder's expected overpayment cost of stock (relative to a cash payment) and, therefore, increases the incentive to pay with shares.

Next, and most important, in the remaining columns in Table 5, we add a dummy for bidder initiation (columns 3 and 7), and the interaction of this dummy with the target information proxies (columns 4 and 8). As stated in Part (i) of Proposition 1, If bidder mispricing indeed drives the decision to pay with stock, this effect should be strongest when the bidder endogenously times the initiation to coincide with market misvaluation. Hence, adding the bidder-initiation dummy increases the power to detect bidder opportunism in the form of showing lower use of bidder shares for better informed targets.

First, in columns (3) and (7) of Table 5, adding the dummy for bidder-initiation confirms the earlier univariate regression result in Table 3 that bidder-initiation lowers (does not increase) the likelihood that the deal payment includes stock. Second, none of the interaction variables in columns (4) and (8) are significant. For example, the interaction variable *Local Deal x Bidder Initiated* takes a value of 0.134 with a t-value of 0.60. The insignificance of the interaction variable indicates that, relative to target-initiation, bidder-initiation does *not* amplify the role of target information about the bidder or the potential misvaluation.

The empirical results in Table 5 (columns 2 and 3 for the all-stock probability and columns 6 and 7 for the fraction stock in the deal payment) suggest that the bidder's concern with adverse selection on the target's side of the deal is more important than the target's concern about bidder opportunism. To further examine this important conclusion, we next turn to an empirical analysis of Proposition 2.

4 Proposition 2: Bidder-initiation and inefficient crowding out

In this section, we examine our Proposition 2 from Section 2.2 above. This involves structural estimation of the equilibrium model in Li, Taylor, and Wang (2018) (henceforth LTW) with our extension that conditions on the party initiating the deal. There are two main reasons for our specific focus on this model: (1) It produces a pooling equilibrium, which is necessary for the quantification of successful bidder opportunism. (2) All events in the model take place *after* the initiation decision, i.e., the model essentially treats this decision as a random assignment.[12] Hence, as stated earlier in Proposition 2, conditioning the fraction inefficient deals on whether the takeover is bidder- or target-initiated directly isolates the differential crowding-out effects (if any) that results from the participants' endogenous timing decisions.

[12] "We take the targets and acquirers as given, and we do not model the choice to participate as a target or acquirer. Therefore, the model's parameters describe the pool of firms that have already endogenously selected to be acquirers and targets." (LTW p.269).

4.1 Structural estimation procedure

The basic structure of the LTW model is as follows:

(1) Two strategic bidders compete for one target in a sealed-bid second price auction with private and independent synergy valuations.

(2) The following three moments, while privately observable to each bidder, are unobservable to the target: The market's misvaluation (ϵ_i) of the bidder, the synergy gain ($s > 0$), and the bidder's cash capacity (k).

(3) The target's value (standardized without loss of generality to 1) is commonly known (one-sided information asymmetry). The target only observes the bidder's relative size (market value M) and the mix of cash and stock in the bid.

(4) In equilibrium, given the auction format, bidders optimally bid their true valuation of the target, while the target scores bids using a Bayes rational rule that discounts equity when it infers equity is more likely to be overvalued (bidder adverse selection).

LTW demonstrate in their online Internet Appendix A.1 that the equilibrium in this sealed bid second-price auction is equivalent to the open ascending (English) auction more commonly used in the literature (see, e.g., Fishman, 1989; Gorbenko and Malenko, 2014, 2018; Dimopoulos and Saccheto, 2014). Hence, the auction setting is as if the two bidders make repeated offers with ascending values until one bidder drops out, then the remaining bidder pays the last value offered, evaluated at the expectation of the target.[13]

Since the target cannot infer the three unobservable characteristics (s, ϵ, k) from only two observables (M and the mix of cash and equity in the bid), the model produces a (Nash) pooling equilibrium in which the target may (unknowingly) accept overpriced bidder shares in the offer. That is, since the target and market only adjust for the *average* misvaluation in the group of bidders who make the same type of bids, a bid made by an acquirer with above-average over-valuation relative to its group is still inflated after the target's (and market's) adjustment. In this setting, the equity bid looks more attractive than it really is, allowing the bidder to profit from paying with overvalued equity. Fundamentally, the target may confuse

[13]See LTW for the exact scoring rule used by the target to rank the two competing bidders.

such as opportunistic stock-financed offer with one that is correctly priced and where the bidder pays for the deal with shares due to a lack of access to cash (an unobservable liquidity constraint).

Table 6 summarizes key steps in the structural SMM (Simulated Method of Moments) estimation procedure. To make our results directly comparable to those of LTW, we employ their computer routines (generously supplied to us). The estimation uses eight data moments to exactly identify the eight unobservable model parameters $\Theta = (\mu_s, \sigma_s, \mu_e, \sigma_\epsilon, \mu_k, \sigma_k, \rho_{sM}, \rho_{kM})$, and the acquirer characteristics are treated as an independent realization from the joint Normal distribution:

$$(s, \epsilon, k, M) \sim F(N_s(\mu_s, \sigma_s), N_\epsilon(\mu_e, \sigma_\epsilon), N_k(\mu_k, \sigma_k), M(.); \rho_{sM}, \rho_{kM}). \tag{9}$$

The three *synergy-parameters* $(\mu_s, \sigma_s, \rho_{sM})$ are identified from the mean and variance of the offer premium (OP) and the correlation between s and M. The latter is identified as a_1 in the cross-sectional regression specified under part I.(1) of Table 6. This correlation is empirically motivated by evidence that larger acquirers often pay higher premiums (e.g., Alexandridis, Fuller, Terhaar, and Travlos, 2013), which suggests a possible positive correlation between the acquirer's size and deal synergies (also borne out by our data). The three bidder *cash-constraint* parameters $(\mu_k, \sigma_k, \rho_{kM})$ are identified from the mean and variance of fraction bidder's cash holding $(Cash)$ and the regression parameter c_1.

Moreover, of the two *bidder misvaluation* parameters $(\mu_\epsilon, \sigma_\epsilon)$, the first is identified from the average bidder announcement return $CAR(-1, 3)$ (assumed also to be unobservable to the target). The second—the signaling effect σ_ϵ of the fraction cash in the bid—is the the regression parameter b_1 estimated using b_1 in the CAR regression also shown in part I.(1) of Table 6. Note that, since the target and market share similar beliefs about the acquirer's equity value, the market's revaluation $CAR(-1, 3)$ is internally consistent with target's own expected revaluation effect. Hence, the target need not wait to observe the market reaction before rationally scoring the bids as a function of the fraction cash.[14]

Table 7 Panel A of Table 7 shows that the offer premium averages 46.3%, with a model prediction of 49.9%. Moreover, the offer premium exhibits a strong positive correlation with the relative size of the acquirer (a slope coefficient of 0.033 with a model prediction of 0.023). In Panel B, the average fraction of the deal paid in cash is 30.6%, with a model-predicted fraction of 30.8%. Note that Panel B

[14]While the three cross-sectional regressions shown under I.(1) in Table 6 all use the same vector *Controls*, this vector is excluded in the simulations since they do not belong to the theoretical model. *Controls* includes year indicators, targets' Fama–French 48 industry indicators, and five target characteristics: logarithm of market capitalization, market leverage, market-to-book ratio of equity, return on assets, and cash-to-assets ratio.

also shows that bidder-initiated deals have a *higher* fraction of cash in the deal payment than do target-initiated transactions: 69.9% versus 56.4%, respectively. As for the acquirer announcement returns in Panel C, $CAR(-1,3)$, which is estimated as in Table 10 in Section 5 below, averages -1.5%. Interestingly, the average $CAR(-1,3)$ is *lower* (-1.1%) for bidder-initiated deals than for target-initiated transactions (-2.1%). As discussed further in Section 5 below, with successful bidder opportunism one expects the opposite result.

4.2 Do bidder-initiations cause inefficient deals?

We are now in a position to address (1) *the fraction inefficient outcomes* (when the low-synergy but overpriced bidder wins the auction) and (2) *the redistribution effect* (as an overpriced loser forces the winner to pay a higher second-price). Table 8 shows the fraction inefficient outcomes and average synergy loss for the total sample. The synergy loss is computed as the difference in simulated synergy gains between the inefficient winner and the more efficient loser. Note also that the computation of this synergy loss does not requires simulation of a separate counterfactual economy: the inefficiency computation just reuse the the baseline simulations.

In Panel A of Table 8, inefficient deal outcomes on average occurs in only 6.10% of the simulations. The table also quantifies the average efficiency loss due to opportunism, either as a percent of the target's pretakeover (standalone) market value (Panel B) or the losing bidder's higher synergy (Panel C). In Panel B, the simulated synergy loss in efficient deals averages 10.10% of the target size and 19.20% of the highest synergy. In Panel C, where the loss is computed as a percent of all deals, the average loss is only 0.62% of the target size and 1.17% of the highest synergy.[15]

Turning to Proposition 2, recall that, due to the self-selection, inefficient outcomes are more likely among takeovers initiated by a bidder than by the target. Since endogenous self-selection occurs prior to the start of he deal process, the proposition holds across a wide variety of specific sales processes (including the one modeled by LTW). This is because the sales process itself only affects the extent to which the target detects the putative bidder mispricing (if any). We therefore benchmark the risk of accepting overpriced bidder shares with the deal outcome in target-initiated deals. This benchmark provides a lower bound on the likelihood of opportunism in bidder-initiated deals.

[15]Notwithstanding the different sample periods, the total sample results in Table 8 corresponds closely to those reported by LTW. For example, our 6.10% inefficient deals correspond to 7.01% reported by LTW in their Table 5. Moreover, our 0.62% average synergy loss across all deals correspond to LTW's 0.63% in the same table.

In addition to reporting statistics for the full sample (columns 1-2), Table 9 splits the total sample into bidder- and target-initiated deals, respectively, (columns 3-6). Notice first that, while the subsample results are all close to the full-sample, the average percent of inefficient deals in Panel A is, if anything, *lower* in bidder-initiated transactions than in target-initiated ones: 6.27% versus 7.37%, respectively. Moreover, the average simulated loss in inefficient deals is also somewhat lower (and never higher) for bidder-initiated transactions than in target-initiated ones. These estimates suggest that bidders use stock as acquisition currency primarily for efficiency reasons rather than to get away with selling overpriced shares to the target.

Figure 3 shows the redistribution effect (the effect of misvaluation on a bidder's takeover gains), defined as the difference in bidder gains between the estimated (with misvaluation, $\sigma_\epsilon > 0$) and counterfactual (without misvaluation, $\sigma_\epsilon = 0$) economy. The sample is split by deals initiated by the bidder (Panel A) and the target (Panel B), and by low-synergy (left graph, $s = 0.4$) and high-synergy (right graph, $s = 0.8$) bidders. Thus, the simulations in Figure 3 assumes a fixed synergy level, while the earlier simulations treated synergy as a random variable, $s \sim N_s(\mu_s, \sigma_s)$, truncated at zero. Moreover, each graph also shows the effect for bidders with zero, intermediate, and sufficient cash holdings, who can pay, respectively, 0%, 50% and 100% of the offer price in cash. Each curve describes how the redistribution effect varies with bidder i's misvaluation, ceteris paribus. A bidder's misvaluation ϵ_1 (x-axis) is measured as the number of standard deviations from the sample mean.

As expected, the wealth redistribution is in- creasing in bidder misvaluation. Moreover, cash capacity helps undervalued and fairly valued bidders to avoid the adverse effects of opportunistic bidders. For example, relative to the benchmark economy, in the two right panels, high synergy bidders with either a zero intermediate cash capacity has substantial more to gain the lower is the degree of misvaluation. Also, misvaluation causes a substantial redistribution of merger gains from undervalued to overvalued acquirers. The most important message from Figure 3, however, is that the simulated wealth redistribution is nearly identical whether the deal is bidder-initiated or target-initiated. According to our Proposition 2, this outcome is inconsistent with the bidders selecting the time of the deal initiation to coincide with private information that the shares are overpriced by the market.[16]

[16]LTW find that their simulation results are highly robust to a number of alternative model assumptions. Since the initiation decision studied here are outside of their model, this robustness also extends to the conditional simulation results reported here.

5 Proposition 3: Valuation effects by deal initiation

In this section, we examine Proposition 3, which addresses firm- and sector-specific valuation effects and long-run performance following takeover initiations. This market reaction helps to further document the empirical relevance of rational equilibria involving synergistic acquirers who may opportunistically self-select the timing of the deal process in order to benefit from market mispricing.

5.1 Bidder and target announcement returns

With rational agents, positive deal synergies is necessary to fund the bidder's expected overpayment cost under target adverse selection (and thus to satisfy the classical no-trade theorem in Milgrom and Stokey, 1982). While the existence of positive synergy gains has been supported by recent large-sample studies, we begin by verifying the existence of positive expected takeover synergies also in our unique sample with data on deal initiations.[17]

We use the conditional event parameters γ_i^j $(j = 1, 2, 3)$ in the following four-factor return-generating process below to isolate the daily abnormal stock returns of the successful merger bid for target i. The total estimation period runs from day $t = -297$ where day 0 is the first public announcement of the first public bid for the target firm to the effective merger date. The latter, which is specific to each target firm, is capped here at $t = 180$ days (9 months) after day 0:

$$R_{it} - R_{ft} = \alpha_i + \sum_{k=1}^{4} \beta_{ki} F_{kt} + \sum_{j=1}^{3} \gamma_{ji} d_{jt} + \epsilon_{it} \tag{10}$$

R_{it} and R_{mt} are the daily stock returns to firm (or portfolio) i (from CRSP) and the value-weighted (CRSP) market portfolio, respectively, and R_{ft} is the daily risk-free (using the US three-month Treasury bill return). The four factors F_{kt} model are the excess return on the CRSP value-weighted market portfolio $(R_{mt} - R_{ft})$, Fama and French (1993)'s size and B/M factors (SMB and HML), and a momentum factor (MOM).

The three dummy variables $d_{jt},\ j \in [1, 2, 3]$, take a value of one in their respective event window and zero otherwise. The event window of main interest is (-1,+1), where γ_{2i} captures the daily market reaction to the first public offer announcement. Hence, the cumulative announcement-period abnormal

[17] See Alexandridis, Antypas, and Travlos (2017) and Dessaint, Eckbo, and Golubov (2025). Dessaint, Eckbo, and Golubov (2025) also report a gradual decline in the portion of total deal synergies that are bidder-specific.

return is $CAR_{2i} = 3\gamma_{2i}$, which is the main focus of our analysis and tabulated below (the two remaining event periods, the average estimates of CAR_{1i} and CAR_{3i} are reported in Internet Appendix). The first event period is covered by the dummy variable $d\gamma_{1i}$, which takes a value of one over the "runup period" (-42,-2). It is included to control for partial anticipation effects. The third event period (d_{3i}) takes a value of one during the "post-announcement period" (2, min[$i's$ effective date; 180]) captures abnormal price adjustments that may occur following the first public offer announcement.[18]

Table 10 reports average three-day abnormal announcement-induced stock returns, i.e., the average $CAR_{2i} = 3\gamma 2i$, which is labeled CAR(1,1) in the table. The analysis restricts both the bidder and the target firms to be publicly listed. Confirming extant evidence based on much larger sample sizes (Dessaint, Eckbo, and Golubov, 2025), the average bidder announcement return is negative and significant ($\approx -1.5\%$), while the target realizes large and highly significant gains ($\approx 28\%$).[19] More important for the theoretical focus of this paper, Panel C confirms that total deal synergies, here measured as the value-weighted sum of the two firms' CAR-values, is positive and statistically significant ($\approx 2\%$). This supports the theoretical assumption that rational bidders who face target adverse selection finance the expected overpayment cost of the target shares from the joint synergy gains.

Even more surprising, in all panels showing bidder announcement returns (panels A-C), the rightmost column of the table (Column 4) shows that the average bidder CAR(-1,1) is significantly *greater* in bidder-initiated than in target-initiated transactions.[20] This evidence appears to contradict Part (i) of Proposition 3, which emphasizes the enhanced negative market reaction to bidders that select to initiate the deal process and pay with stock. We therefore investigate, in Table 12, the robustness of this finding using a cross-sectional regression with bidder announcement returns as dependent variable and where the right-hand side include the explanatory variables used earlier in Table 5 above. In Table 12, we also broaden the bidder event window to the five-day period (-1,3) and use the simple simple Market Model to generate abnormal performance. Moreover, as recommended by Eckbo, Maksimovic, and Williams

[18]The regression in Eq. (10) delivers the standard error of the event parameter j, σ_{ij}, that is used to form the test statistic. Hence, for the three-day event window and with a sample size of N targets, the average abnormal return is $CAR_2(-1,1) = (1/N)\sum_{i=1}^{N} 3\gamma_{2i}$, while the test-statistic $Z(CAR_2) = (1/\sqrt{N})\sum_{i=1}^{N}(\gamma_{2i}/\sigma_{2i}) \sim N(0,1)$ in large samples and if the N sample events are independent and the true parameters γ_{2i} and σ_{i2} are replaced by their OLS estimates.

[19]As discussed in the literature (see Eckbo, Malenko, and Thorburn, 2025, for a recent review), a negative short-term bidder announcement return has several possible interpretations—ranging from an adverse-selection adjustment of the bidder's stand-alone value, to merger arbitrage activity involving short-selling of bidder shares.

[20]While the SEC filings detailing the merger history (described in Section 3.1 above) are published some time after the deal-announcement date, market rumors and conference calls reveal such details about the deal early in the deal process (Dasgupta, Harford, Ma, Wang, and Xie, 2024).

(1990b), we add the inverse Mill's ration to control for the bidder's potential use of private information to select the timing of the deal initiation. This ratio is estimated from a first-stage probit regression—based on the universe of Compustat firms—of being a bidder to a takeover transaction involving two public firms in the next year.

As in Table 5, Table 12 first shows the baseline regression results (columns 1 and 5), and next, the effect of adding the target information variables (columns 2 and 6). Moreover, also as Table 5, Table 12 shows in columns (3)-(4) and (7)-(8) the effect of conditioning on the bidder initiating the transaction, both alone as a dummy variable and after interacting this dummy with M/B and *All-Stock* in the group of control variables and with all of the Target Information Proxies.

Notice first that *Inverse Mill's Ratio* is statistically insignificant and that the coefficients in columns (5)-(8) are similar to those in the columns (1)-(4). In other words, controlling for the extensive-margin probability of being involved in the type of takeover deals sampled here (where both firms are public) does not alter the conclusions. In line with the literature, acquirer returns are decreasing in the relative deal size and—consistent with the the average abnormal returns reported in Table 3 above—are on average lower for all-stock transactions. Announcement returns also tend to be lower for acquirers in the high-tech industry. The only significant information variable is the dummy for a recent SEO, which generates a negative coefficient. Most important, conditioning the bidder announcement returns on bidder initiation, and interacting the bidder-initiation dummy with the other variables, do *not* affect the coefficient estimates, which again fails to to support the bidder opportunism hypothesis in Part (i) of Proposition 3.

5.2 Sector-specific announcement returns

We next turn to Part (ii) of Proposition 3, which focuses on the potential for the deal announcements to contain economic information that is relevant not only for the deal partners but also for the bidder's close industry peers. The hypothesis is that takeovers paid with bidder shares signal market overvaluation of also peer firms in the bidder's main industry sector. The industry peers of an acquiring firm are the five firms with the highest Hoberg and Phillips (2016) industry-relatedness scores, elected from the intersection between the full Compustat population of US-domiciled companies and the firms in the TNIC-3 industry classification. For these five peer firms, the announcement return is estimated after forming a portfolio of the five firms weighted by the industry-relatedness score.

The average CAR(-1,1) to the peer-firm portfolios in Panel D of Table 10 fails to support also this opportunism hypothesis. Rather, a consistent interpretation is that these acquisitions on average signal increased demand for (and valuation of) some sector-specific resource. The signal may also be that one or more of the five peer firms themselves may be able to capture rents from engaging in future sector-specific synergistic takeover bids—an interesting topic for future research since the signal concerns the incentive to become a *bidder* rather than a target firm as is the focus of the "in play" hypothesis of Song and Walkling (2000).

For robustness, in Table 11 we expand the valuation effects of the takeover announcements for the bidder's industry peers to also include event windows (-1,3) and (-1,6). Columns (1) and (2) labeled "All rivals" use the same set of rivals as in Panel D of Table 10 above. In columns (3) and (4), the five-firm portfolios under "Same 3-Digit SIC" further restricts the Compustat population to firms in the bidder's 3-digit SIC industry, while in columns (5) and (6) the requirement is for the peers to be in the same 4-digit SIC industry. If the number of listed firms in a specific SIC industry is less than five (which happens only rarely in our sample), we use the actual number of listed peers (which happens rarely).

Panel A of Table 11 confirms the significance of the positive average five-firm portfolio return in all but column (6), where CAR(-1,6) for this seven-day window becomes insignificant after requiring the peer-firm to also overlap with the bidder's 4-digit SIC industry. In panels B and C, we gradually move towards the constraint imposed by bidder opportunism: Panel B requires bidder shares to be part of the deal payment, while Panel C also requires the cases in Panel B to be bidder-initiated. While the sample size is necessarily reduced by these additional restrictions, we can safely conclude that the peer-firm effect is not negative. In other words, there is no evidence that the bidder-initiated stock-financed takeovers in our sample signals to the bidders' close industry peers that they are overvalued.

5.3 Long-short portfolio returns by deal initiation

Finally, we turn to Part (iii) of Proposition 3, which predicts that if bidders tend to initiate takeovers when their shares are overpriced, their stock prices should subsequently reverse. Although no objective standard exists for the appropriate horizon, it must be short enough for private information to retain economic relevance. Following convention in long-run portfolio estimation following corporate events, we use a three-calendar-year window and construct calendar-time portfolios of bidder firms, sorted by deal initiation and payment method. In this setting, bidder initiation serves as a proxy for potential overvaluation, and the test is whether bidder-initiated deals underperform those initiated by targets. Bidders enter the test portfolio in the month following the bid announcement and remain in the portfolio for 36 months or until delisting, whichever comes first. Abnormal returns are estimated as the constant term α in Eq. (10) above, without the event dummies and where the time index t now runs from the month of the first takeover announcement in the sample (1/2000) to the last (12/2020).

Panel A of Table 13 reports the performance estimate α for equal-weighted portfolios, while Panel B is based on value-weighted portfolios. Columns (1)–(3) are restricted to deals in which the consideration includes stock, while columns (4)–(6) are limited to all-cash bids. If bidder initiation reflects opportunism, we would expect estimates of α to be negative and statistically significant for bidder-initiated deals, particularly when the bidder uses stock. However, the results do not support this prediction. The estimated α for bidder-initiated deals is small and statistically insignificant when the bidder pays with stock (column 1) and positive when the bidder pays with cash (column 4 of Panel A). Most important, the intercept α is statistically insignificant for the two long-short portfolios (long bidder-initiated, short target-initiated) in columns 3 and 6. Overall, the results in Table 13 offer no evidence that bidder-initiated deals reflect opportunistic use of overvalued equity.

6 Further on impediments to opportunism

The above empirical evidence addressing propositions 1-3 leaves little if any support for bidder opportunism to be of a concern in our sample of takeovers between publicly traded companies. This may be surprising given the well-known empirical evidence on price drops caused by seasoned equity offerings (reviewed extensively by Eckbo, Masulis, and Norli, 2007) and, of course, used-car sales (Akerlof, 1970). While those transactions face adverse selection on just one side of the transaction, stock swaps in takeovers are akin to swapping two "lemons", which one might think exacerbates concerns with bidder opportunism. On the other hand, as briefly discussed in this section, the nature of the synergy gains and the takeover process itself may further constrain the ability of one party to the deal from taking advantage of the other.

6.1 High degree of commonality of valuations?

Without focusing on bidder opportunism, Gorbenko and Malenko (2024) model a bidder's incentive to initiate a takeover process as a function of the degree of commonality of the synergy-value across bidders. To illustrate the concept of valuation commonality, suppose that each of two potential bidders $i \in \{1, 2\}$ receives a private signal s_i relevant to her valuation $v_i(s)$ of the target and potentially also to the rival bidder's valuation $v_{-i}(s)$. Conditional on both signals, the value of the target to bidder i is $v_i(s) = \alpha s_i + (1 - \alpha)\, s_{-i}$, where s_{-i} is the signal of the rival bidder. The parameter α measures the degree of commonality of the respective valuations of the two bidders, with $\alpha = 1$ when valuations are purely private (zero commonality). Gorbenko and Malenko (2024) show that, when bidder valuations have a sufficiently high common component, no bidders approach the seller in equilibrium (the target then initiates to alleviate its own cash constraint). At the other extreme, with pure private values, potential rival bidders do not learn from any one bidder's initiation decision, and a bidder can safely initiate without risking losing informational rents to its rivals (while still strategically time the initiation decision to maximize those rents).

Since the degree of commonality in valuations is unobservable to the econometrician, empirically judging the impact of common values on auction outcomes is difficult. However, the literature provides some insights into this latent variable. One strategy is to differentiate between financial and strategic (industrial) bidders (Martos-Vila, Rhodes-Kropf, and Harford, 2013; Gorbenko and Malenko, 2014). The idea is that, while financial bidders may be less able to generate unique synergy gains, strategic bidders integrate the target into their potentially unique operations. At the end of each of the two panels in Table 2, we show the auction statistics when the winning bidder is financial. In Panel A, which includes both public and private bidders, the percent financial winners is 24%, compared to the 4% in Panel B where all bidders are public. This difference is not unexpected since relatively few financial bidders are publicly traded.

Perhaps more important, when a financial bidder wins, there is no difference in the fractions of the deals that were bidder- or target-initiated, respectively. In other words, whether the bidder is public of private, the prevalence of winning financial bidders does not differ significantly across the initiation types (bidder or target). This is interesting since the synergy gains driving financial bidders are likely to have a greater common-value component across bidders than the case if for industrial buyers (Gorbenko and Malenko, 2014). The information in Table 2 indicates that this likely difference does not, however, impact whether the financial bidder wins the auction in either bidder-initiated or target-initiated deals. Moreover, in Table 14, we compare the payment method and offer premium between financial and non-financial public bidders. As expected, financial bidders are significantly less likely to use stock. More surprising, there is no significant difference in the offer premium across the two categories of bidders: the average (median) is approximately 50% (34%) for both.

Another approach to address the issue of commonality in valuations across potential bidders is to focus on the speed with which rival bidders enter following the first bid. Presumably, if the first bid strongly signals the presence of a valuable takeover opportunity also for other potential bidders, it cuts down on the time it takes for those rivals to prepare a bid and enter the auction. Betton and Eckbo (2000) document that, when a second (rival) bidder appears in the takeover auction, this entry occurs on average as quickly as within two weeks of the first public offer (their Figure 2). This may indicate a certain degree of commonality in rival bidder valuations, unless private noncommittal bidding rounds prior to the first public bid give rival bidders sufficient time to figure out their own private valuations of the target.

A third empirical approach to the issue of judging the uniqueness of bidder synergies is found in Dessaint, Eckbo, and Golubov (2025). They show that average acquirer returns over the past four decades, while largely constant, mask fundamental changes in its two basic components. The first component is bidder-specific, which they identify as bidder fixed effects, and the second is common across bidders. They show that controlling for bidder composition, the common component of acquirer returns has increased by five percentage points relative to the 1980s. Offsetting this increase, the average bidder-specific component has declined. They propose a simple theory of bidder-specific synergies to help interpret these opposing trends. Both in this theory and in the data, acquirer returns increase with the extent to which synergies are unique to that bidder (the composition effect reflects bidder uniqueness). Overall, their evidence is consistent with rising merger synergies that have become less bidder specific. It is possible that this evolution may reflect an increased involvement of investment banks, who routinely keep their clients updated about the potential for target investment opportunities. Such updates may also shorten the reaction time of potential rival bidders.

6.2 Legal and contractual constraints

Since legal and contractual constraints are designed to minimize information asymmetries between the two parties, they also lower the expected value of opportunism. For example, mandatory disclosure rules, such as the federal Williams Act of 1968 and its 1970 Amendment, provide the target with time and information to evaluate competing bids (Jarrell and Bradley, 1980).[21] Moreover, the so-called Revlon duty from 1986 requires target boards to protect their shareholder by selling to the highest bidder (Gilson and Kraakman, 1990).[22] As first shown by Betton and Eckbo (2000) and Boone and Mulherin (2007b), and also confirmed by our Table 2 above, both the public and private phases of the typical sales process attract multiple bids.[23]

Moreover, the risk of rival bidders free-riding on the initiation decision motivates several deal protection devices in merger contracts, such as confidentiality agreement, stand-still and non-compete provisions, breakup fees, insiders' tender-precommitment, material adverse conditions (MAC) clauses, drop-dead dates that restricts the negotiation period, and no-shop provisions that discourage the target from soliciting additional offers (for an auction-theoretic analysis of the alternative go-shop provisions, see Chen and Wang, 2023). Note also that a strategy of purchasing target shares (a toehold) in the open market prior to initiating a takeover bid may help to protect the bidder's first-mover advantage (Betton, Eckbo, and Thorburn, 2009).

7 Conclusion

A bidder who self-selects the time to initiate a takeover process may try to opportunistically pay for the target with overpriced shares. We examine this possibility against the alternative that the bidder selects to use its shares rather than cash as acquisition currency in response to the expected overpayment cost of target adverse selection. Ours is the first empirical analysis to condition the treatment effects of this payment method choice on whether the takeover is bidder- rather than target-initiated. Just as in studies of insider trading more generally, this conditioning increases power to test whether bidders use private

[21] Pub. L. No. 90-439, 82 Stat. 454 (July 29, 1969) and Pub. L. No. 91-567, 84 stat. 1497 (December 22, 1970)).

[22] Revlon v. MacAndrews and Forbes Holdings, 506 A.2d 173 (Del 1986). This duty arises when the actions of the target board indicate that it has abandoned a strategy of operating as a stand-alone company.

[23] Hansen (2001) suggests that the the bids in the private phase may help the target set a reserve price for a final public bidding round. Betton, Eckbo, and Thorburn (2009) and Chen and Wang (2023) model the "shadow" auction that exist in the period between the signing of a negotiated merger agreement and the target shareholder vote on that agreement.

information about (temporary) market mispricing when offering to pay for the target in shares.

We apply our unique conditioning information to three propositions with different empirical predictions emanating from the bidder and target being asymmetrically informed about the counterpart's true value. In the first and most general proposition (Proposition 1), we ask whether targets who are relatively uninformed about the bidder tend to attract bidder-initiated stock-financed bids. If anything, the evidence shows the opposite effect as the likelihood of a bid being stock-financed (fully or partially) *decreases* in proxies for the target's information about the bidder. Moreover, this negative effect of the information proxies does not interact with the takeover being bidder-initiated.

Second, in Proposition 2, we condition the structural estimation of the rational equilibrium model of Li, Taylor, and Wang (2018) on the party initiating the deal. While deal initiation is outside of the model, we interpret the endogenous initiation decision as a rational side-bet on an otherwise synergistic takeover opportunity. Since, targets may unknowingly accept overpriced bidder shares, if bidders have private information about market overvaluation, then the data and model moments in bidder-initiated deals should reflect a relatively high likelihood of bidder opportunism. However, we find that the percent inefficient deal outcomes in the second-price auctions (the percent of the cases where the overvalued bidder wins the target) is only about 6% regardless of whether the deal is bidder- or target-initiated.

Third, in Proposition 3, we condition the market pricing of the bidder and target firms on the deal initiation decision. We first confirm that the takeover deals in our sample are on average synergistic (not zero-sum games)—a necessary condition for deals among rational agents to include opportunistic side bets. More importantly, we also show that bidder-initiated deals on average cause investors to increase the market value of the bidder's closest industry peers by a statistically significant average 0.7% for both bidder- and target-initiated transactions. In other words, rather than signaling to investors that the bidder's industry sector may be overpriced, it appears that the market draws the opposite inference—e.g., increased demand for a sector-wide resource triggered by news of the synergistic takeover.

In sum, our multifaceted transaction-based evidence fails to support the notion that information asymmetries between the trading parties cause bidder opportunism to be a concern in takeovers between publicly traded US firms. A consistent explanation is that the takeover process itself deters bidders from timing the deal process so as to swap overpriced bidder shares for the target. Whether this deterrent effect is the result of regulatory (disclosure-related) constraints, contractual issues, or simply the nature of the source of synergy gains, is left for future research.

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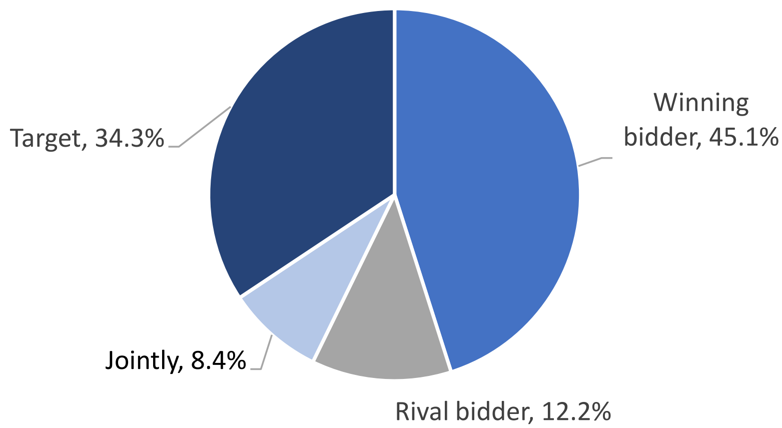
Figure 1
Annual sample distribution classified by the initiating party to the deal, 2000-2020

The sample comprises 2,968 completed takeovers of US public targets by US bidders, 2000–2020.

Figure 2
Sample proportions classified by the party that initiates the takeover process

The figure shows the sample proportions by deal initiation for the full sample of 2,968 public and private bidders (Panel A) and the subsample of 1,845 publicly traded bidders (Panel B). Deals can be initiated by the winning bidder, a rival bidder, the target firm, or the target and the bidder jointly. The sample consists of completed takeovers of US public targets by US bidders, 2000–2020.

Panel A: Full sample of public and private bidders (N=2,968)



Panel B: Subsample of public bidders (N=1,845)

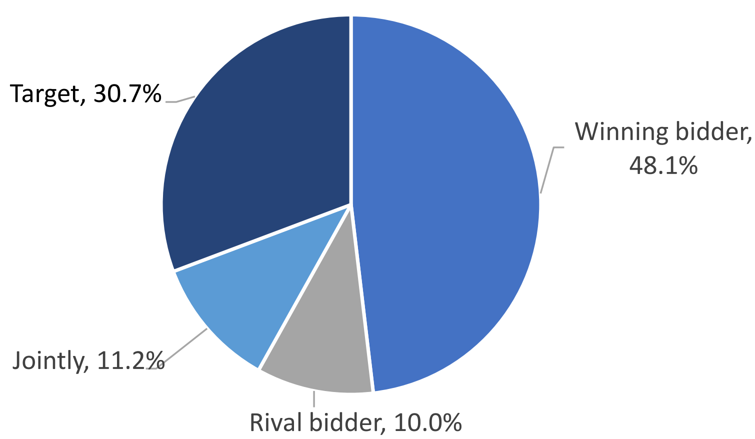
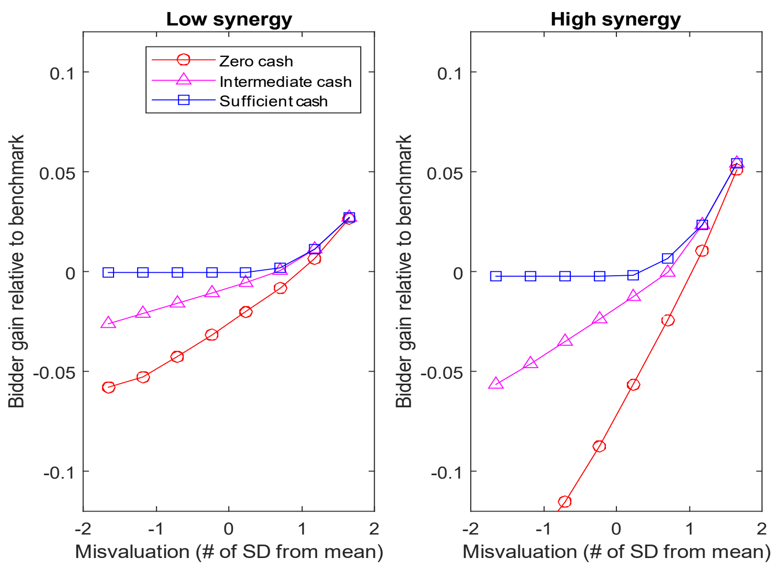


Figure 3
Simulated redistribution effects

The figure shows the redistribution effect (the effect of misvaluation on a bidders takeover gains), defined as the difference in bidder gains between the estimated (with misvaluation) and counterfactual (without misvaluation) economy. The sample is split by deals initiated by the bidder (Panel A) and target (Panel B), and by low-synergy (left graph) and high-synergy (right graph) bidders. Each graph shows the effect for bidders with zero, intermediate, and sufficient cash holdings, who can pay, respectively, 0%, 50% and 100% of the offer price in cash. Each curve describes how the redistribution effect varies with bidder i's misvaluation, ceteris paribus. A bidder's misvaluation ϵ_1 (x-axis) is measured as the number of standard deviations from the sample mean.

Panel A: Bidder-initiated deals



Panel B: Target-initiated deals

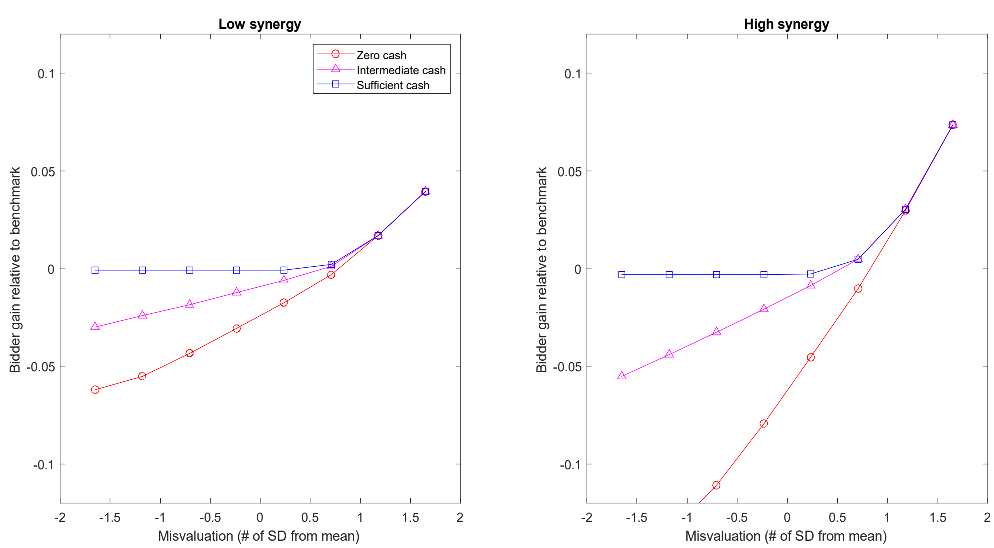


Table 1
Bidder and target characteristics by initiation

The table reports mean and median bidder and target characteristics in Panels A and B, respectively. Columns 1-3 use the full sample, while columns 4-6 limit the sample to bidder-initiated deals, and columns 7-9 to target-initiated deals. Columns 10 and 11 report the difference in mean (column 5 vs. 8) and its significance, respectively. The sample comprises completed takeovers of US public targets by US public bidders, 2000-2020. All variables are defined in Table 4. ***, **, and * denotes significance at the 1%, 5%, and 10% level, respectively.

	Full Sample			Bidder-Initiated			Target-Initiated			Bidder-Target Init.	
Variable	N	Mean	Median	N	Mean	Median	N	Mean	Median	Δ Mean	t-stat.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A: Public bidder characteristics											
Total Assets	1,574	13,190	2,581	926	15,264	3,526	648	10,227	1,548	5,037	(4.17)***
Leverage	1,543	0.11	0.12	907	0.12	0.12	636	0.11	0.12	0.00	(0.26)
Cash Holding	1,551	0.13	0.08	913	0.13	0.08	638	0.14	0.08	-0.01	(1.66)*
M/B	1,545	4.23	2.71	911	4.19	2.79	634	4.28	2.64	-0.09	(0.25)
Dividend Dummy	1,575	0.48	0.00	926	0.51	1.00	649	0.44	0.00	0.07	(2.62)***
R&D	1,575	0.05	0.02	926	0.05	0.02	649	0.06	0.02	-0.01	(1.93)*
Asset Tangibility	1,564	0.44	0.30	920	0.43	0.30	644	0.45	0.30	-0.02	(1.17)
Operating Efficiency	1,370	1.94	1.39	802	1.94	1.38	568	1.93	1.42	0.01	(0.02)
Panel B: Target characteristics (of public bidders)											
Total Assets	1,430	1,924	258	835	2,139	337	595	1,622	170	517	(1.64)
Leverage	1,414	0.04	0.00	823	0.03	0.00	591	0.04	0.01	0.00	(0.21)
Cash Holding	1,422	0.18	0.12	827	0.18	0.12	595	0.18	0.11	0.00	(0.30)
Market to Book Equity	1,405	2.86	2.00	823	2.99	2.14	582	2.67	1.87	0.33	(1.05)
Dividend Dummy	1,432	0.29	0.00	835	0.29	0.00	597	0.29	0.00	0.00	(0.08)
R&D	1,432	0.09	0.02	835	0.09	0.02	597	0.09	0.02	0.00	(0.36)
Asset Tangibility	1,418	0.46	0.31	829	0.46	0.30	589	0.48	0.34	-0.02	(0.84)
Operating Efficiency	1,243	1.99	1.60	725	1.90	1.52	518	2.13	1.77	-0.23	(0.51)

Table 2
Auction characteristics

The table reports mean and median characteristics of the auction process, split by bidder-initiated and target-initiated deals. Panel A shows the full sample of 2,971 successful acquisitions of publicly listed targets by US-domiciled bidders in manufacturing industries from 2000 through 2020. Panel B shows the subsample of 1,845 takeovers by public bidders. “(d)” indicates a binary variable, while ***, **, and * denotes significance at the 1%, 5%, and 10% level, respectively.

	Full Sample			Bidder-Initiated			Target-Initiated			Bidder-Target Init.	
Variable	N	Mean	Median	N	Mean	Median	N	Mean	Median	Δ Mean	t-stat.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A: Full sample of public and private bidders											
No. of Bids	2,968	4.16	3	1,699	4.26	4	1,269	4.03	3	0.23	(1.80)*
Multiple Bids (d)	2,968	0.80	1	1,699	0.84	1	1,269	0.75	1	0.10	(6.61)***
No. of Written Bids	2,968	2.23	1	1,699	2.22	1	1,269	2.25	1	-0.03	(0.32)
Multiple Written Bids (d)	2,968	0.48	0	1,699	0.49	0	1,269	0.47	0	0.02	(0.99)
No. of Unique Bidders	2,968	2.06	1	1,699	2.02	1	1,269	2.11	1	-0.09	(1.21)
Multiple Bidders (d)	2,968	0.40	0	1,699	0.40	0	1,269	0.40	0	0.00	(0.17)
No. of Financial Bidders	2,968	0.52	0	1,699	0.51	0	1,269	0.55	0	-0.04	(0.77)
Duration (days)	2,968	210.88	163	1,699	206.72	159	1,269	216.45	168	-9.74	(1.51)
Average Bid Jump (%)	2,057	4.07	2.28	1,268	4.37	2.62	789	3.57	1.86	0.80	(2.12)**
Fraction Stock Payment	2,798	0.27	0	1,612	0.24	0	1,186	0.31	0	-0.07	(4.53)***
All-Stock Payment (d)	2,968	0.15	0	1,699	0.12	0	1,269	0.19	0	-0.06	(4.82)***
Offer premium (one month)	2,805	52.56	33.63	1,624	61.69	36.07	1,181	40.01	29.46	21.69	(2.39)**
Financial Bidder Won Indicator	2,986	0.24	0.00	1,699	0.23	0.00	1,181	0.25	0.00	-0.02	(1.18)
Panel B: Subsample of public bidders											
No. of Bids	1,845	3.46	3	1,072	3.69	3	773	3.14	3	0.55	(3.85)***
Multiple Bids (d)	1,845	0.74	1	1,072	0.80	1	773	0.65	1	0.15	(7.33)***
No. of Written Bids	1,845	1.76	1	1,072	1.81	1	773	1.70	1	0.11	(1.00)
Multiple Written Bids (d)	1,845	0.40	0	1,072	0.42	0	773	0.38	0	0.04	(1.59)
No. of Unique Bidders	1,845	1.72	1	1,072	1.76	1	773	1.68	1	0.08	(1.06)
Multiple Bidders (d)	1,845	0.31	0	1,072	0.33	0	773	0.29	0	0.04	(1.70)*
No. of Financial Bidders	1,845	0.14	0	1,072	0.14	0	773	0.14	0	0.00	(0.06)
Duration (days)	1,845	196.08	146	1,072	191.77	140	773	202.06	153	-10.29	(1.28)
Average Bid Jump (%)	1,079	4.72	2.87	714	4.90	3.07	365	4.35	2.58	0.60	(1.06)
Fraction Stock Payment	1,753	0.41	0.26	1,023	0.36	0.00	730	0.49	0.48	-0.13	(6.02)***
All-Stock Payment (d)	1,845	0.24	0	1,072	0.19	0	773	0.30	0	-0.11	(5.74)***
Offer premium (one month)	1,737	50.52	34.22	1,025	58.07	36.92	712	39.65	28.37	18.42	(2.22)**
Financial Bidder Won Indicator	1,845	0.04	0.00	1,072	0.03	0.00	773	0.04	0.00	-0.01	(0.77)

Table 3
Univariate stock payment and initiation

The table reports the coefficient estimates from probit regression for the likelihood of an all-stock bid (columns 1-3) and Tobit regressions for the fraction of stock in the deal payment (columns 4-6). The explanatory variables are a dummy indicating that the deal is bidder-initiated and an intercept (not tabulated). Columns (1) and (4) use the full sample. Columns (2) and (5) restrict the sample to bidder- and target-initiated deals, and columns (3) and (6) to bidder- and jointly-initiated deals. The sample comprises completed takeovers of US public targets by US public bidders between 2000 and 2020. t-values are in brackets. ***, **, and * denotes significance at the 1%, 5%, and 10% level, respectively.

	Probit (y = All-stock)			Tobit (y = Fraction of stock)		
	All deals	Bidder and target init.	Bidder and jointly init.	All Deals	Bidder and target init.	Bidder and jointly init.
	(1)	(2)	(3)	(4)	(5)	(6)
Bidder Initiated	-0.367	-0.152	-0.875	-0.478	-0.178	-1.179
	(5.66)***	(2.08)**	(8.93)***	(5.67)***	(1.95)*	(9.13)***
Pseudo R-squared	0.02	0.00	0.06	0.01	0.00	0.04
N	1,845	1,639	1,278	1,753	1,552	1,224

Table 4
Variable definitions

Variable name	Variable definition and data source
Deal characteristics	
Large Deal	Dummy = 1 if the ratio (deal value/bidder total assets) is in the top quartile, SDC.
All-Stock	All-stock payment (consideration structure = shares), SDC.
Bidder-Initiated	Dummy = 1 if the bidder initiated the takeover, SDC.
Bidder capital structure	
Size	Natural log of total assets, Compustat.
Leverage	Total debt / total assets, Compustat.
Cash Holding	Cash / total assets, Compustat.
M/B	Market-to-book equity ratio = (year-end closing price * number of shares outstanding) / (total assets - total liabilities), Compustat.
Dividend Dummy	Dummy = 1 if total dividends > 0, Compustat.
R&D	Research and development expense / total assets, Compustat.
Asset Tangibility	Property, plant, and equipment / total assets, Compustat.
Operating Efficiency	(Cost of goods sold + selling, general and administrative expense) / (property, plant, and equipment + total current assets - cash - total current liabilities), Compustat.
Target's information about bidder value	
Local Deal	Dummy = 1 if the bidder and the target are located within 30 miles. The distance is computed using the spherical law of cosines formula: Distance = arccos(sin(lat1).sin(lat2)+cos(lat1).cos(lat2).cos(long2-long1)), where R = radius of the earth = 3963 miles, (lat1,long1) = bidder coordinate (latitude,longtitude) in radians, and (lat2,long2) = target coordinate in radians. Firm location data are from the zip codes in SDC and their coordinates (lat,long) are from 1987 US Census Gazetteer Files.
H-P Industry Relatedness	Measure based on the TNIC-3 industry classification from Hoberg and Phillips (2016). The TNIC-3 database provides a firm-by-firm pairwise similarity score based on product descriptions from the firm 10Ks. The database covers firm pairs whose score is above a threshold matching the coarseness of three-digit SIC. We assign the relatedness score of zero to firm pairs that are not in the TNIC-3 database.
Recent SEO	Dummy = 1 if the bidder issued stock within 18 months prior to the bid, SDC.
Recent Acquirer	Dummy = 1 if the bidder announced another merger bid within 18 months before the sample bid, SDC.
Target industry characteristics	
Private Bidder Competition	Fraction of all merger bids in the target's Fama and French 49 (FF49) industry and year in which the bidder is private, SDC.
High-Tech Dummy	Dummy = 1 if the bidder is in a high-tech industry covering 47 four-digit Standard Industrial Classification (SIC) codes in the two-digit industries 28, 35, 36, 38, 48, and 73, American Electronic Association.

Table 5
Determinants of stock consideration conditional on target information proxies and bidder-initiation

The table reports the coefficient estimates from probit regressions for the likelihood of all-stock payment (columns 1-4) and Tobit regressions for the fraction of stock (columns 5-8). Columns 1 and 5 show the baseline regressions, columns 2 and 6 add information variables, and the remaining add bidder initiation. The sample comprises completed takeovers of US public targets by US public bidders, 2000–2020. All variables are defined in Table 4. An intercept is included but not reported. t-values are in brackets. ***, **, and * denotes significance at the 1%, 5%, and 10% level, respectively.

	Probit (y = all-stock)				Tobit (y = fraction of stock)			
Variable	Baseline	Information	Initiation	Interaction	Baseline	Information	Initiation	Interaction
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls								
Size	-0.181	-0.195	-0.186	-0.188	-0.233	-0.248	-0.240	-0.242
	(7.38)***	(7.36)***	(6.95)***	(6.99)***	(8.30)***	(8.39)***	(8.04)***	(8.09)***
Large Deal	0.220	0.174	0.174	0.174	0.660	0.596	0.596	0.594
	(2.41)**	(1.89)*	(1.88)*	(1.89)*	(7.07)***	(6.52)***	(6.54)***	(6.56)***
Leverage	0.037	0.006	-0.011	-0.019	0.117	0.065	0.057	0.053
	(0.25)	(0.04)	(0.08)	(0.13)	(0.65)	(0.37)	(0.32)	(0.30)
Cash Holding	0.241	0.117	0.114	0.092	0.269	0.083	0.090	0.065
	(0.64)	(0.31)	(0.30)	(0.24)	(0.64)	(0.20)	(0.22)	(0.15)
M/B	0.014	0.015	0.015	0.005	0.011	0.011	0.011	-0.002
	(2.59)***	(2.60)***	(2.61)***	(0.63)	(1.71)*	(1.71)*	(1.70)*	(0.14)
M/B x Bidder Initiated				0.018				0.02
				(1.59)				(1.58)
Dividend Dummy	0.025	0.061	0.058	0.057	-0.092	-0.056	-0.060	-0.065
	(0.26)	(0.64)	(0.60)	(0.59)	(0.93)	(0.58)	(0.61)	(0.66)
R&D	0.629	0.503	0.458	0.487	0.604	0.385	0.333	0.348
	(1.09)	(0.89)	(0.81)	(0.87)	(0.94)	(0.62)	(0.54)	(0.57)
Asset Tangibility	0.159	0.139	0.125	0.128	0.540	0.500	0.487	0.494
	(1.43)	(1.23)	(1.09)	(1.13)	(4.83)***	(4.49)***	(4.38)***	(4.45)***
Operating Efficiency	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.003
	(0.15)	(0.13)	(0.14)	(0.23)	(0.12)	(0.18)	(0.21)	(0.37)
High-Tech Dummy	-0.117	-0.085	-0.086	-0.093	-0.204	-0.161	-0.162	-0.165
	(1.17)	(0.83)	(0.84)	(0.91)	(1.96)**	(1.55)	(1.57)	(1.59)
Private Bidder Competition	-0.736	-0.682	-0.673	-0.9	-0.835	-0.753	-0.747	-0.737
	(2.62)***	(2.41)**	(2.37)**	(2.02)**	(2.96)***	(2.70)***	(2.68)***	(1.55)
Priv. Bid. Comp. x Bidder-Ini.				0.402				-0.029
				(0.70)				(0.05)
Target information proxies								
Bidder Initiated			-0.202	-0.362			-0.161	-0.255
			(2.45)**	(2.31)**			(1.89)*	(1.51)
Local Deal		0.325	0.328	0.258		0.338	0.338	0.189
		(2.93)***	(2.94)***	(1.52)		(2.86)***	(2.86)***	(0.99)
Local Deal x Bidder Ini.				0.134				0.257
				(0.60)				(1.07)
H-P Industry Relatedness		0.856	0.888	0.597		2.000	2.010	1.500
		(2.07)**	(2.13)**	(1.00)		(4.66)***	(4.67)***	(2.25)**
H-P Industry Rel. x Bidder Ini.				0.460				0.746
				(0.56)				(0.87)
Recent SEO		0.205	0.210	0.216		0.288	0.287	0.355
		(2.36)**	(2.41)**	(1.65)*		(3.25)***	(3.24)***	(2.49)**
Recent SEO x Bidder Initiated				-0.008				-0.111
				(0.05)				(0.64)
Recent Acquirer		-0.046	-0.047	0.003		0.031	0.031	0.029
		(0.37)	(0.37)	(0.01)		(0.25)	(0.26)	(0.15)
Recent Acquirer x Bidder Ini.				-0.1				0.001
				(0.42)				(0.01)
Pseudo R-squared	0.10	0.11	0.12	0.12	0.10	0.12	0.12	0.12
N	1,349	1,341	1,341	1,341	1,285	1,277	1,277	1,277

Table 6
Steps in the structural estimation

I. Identify the eight targeted moments in the SMM estimation:

(1) Parameters: $\Theta = (\mu_s, \sigma_s, \mu_e, \sigma_\epsilon, \mu_k, \sigma_k, \rho_{sM}, \rho_{kM})$, where $s \sim N(\mu_s, \sigma_s^2); \epsilon \sim N(\mu_\epsilon, \sigma_\epsilon^2); k \sim N(\mu_k, \sigma_k^2)$.

Three synergy parameters: $\mu_s, \sigma_s, \rho_{sM}$, identified from the mean and variance of the offer premium (OP) and the regression parameter a_1 from the regression: $OP_i = a_0 + a_1 log(M_i) + a_2 Controls_i + u_i$, where $Controls$ contains year FE, Fama-French-49 FE, target size, leverage, M/B, ROA, cash/assets.[b]

Two misvaluation parameters: $\mu_\epsilon, \rho_\epsilon$, identified from average bidder announcement returns [$CAR(-1,3)$] and the regression parameter b_1 from $CAR(-1,3)_i = b_0 + b_1 \log(M_i) + b_2 Controls_i + b_3 FractionCash_i + \nu_i$.[c]

Three cash-constraint parameters: $\mu_k, \sigma_k, \rho_{kM}$, identified from the mean and variance of fraction bidder's cash holding ($Cash$) and the regression parameter c_1 from $Cash_i = c_0 + c_1 \log(M_i) + b_2 Controls_i + w_i$.

II. Match simulated moments to the data moments:

(2) Form $L = 20$ simulated samples (to be conservative), each with a number of draws equal to (up to) 10 times the total sample of 1,845 takeovers with publicly listed bidders and targets.[d] In the l'th simulated sample, form the vector $\hat{m}^l(\Theta)$ of the simulated moments.[e]

(3) In each simulation, draw two rival bids from the joint distribution of types:

$$(s, \epsilon, k, M) \sim F(N_s(\mu_s, \sigma_s), N_\epsilon(\mu_e, \sigma_\epsilon), N_k(\mu_k, \sigma_k), M(.); \rho_{sM}, \rho_{kM}),$$

with the empirical distribution of M and the estimated parameters from the three regressions under item (1) above fed in.[f] Solve the model numerically for the winner/loser (see LTW's online Internet Appendix A.3.1 for the relevant model equations).

(4) With $L = 20$ simulated samples, the SMM estimator searches for the parameter vector $\hat{\Theta}$ that minimizes the distance between the moments $\hat{m}$ estimated from the data and the average model-simulated moments:

$$\hat{\Theta} = \underset{\Theta}{\text{argmin}} \left(\hat{m} - \tfrac{1}{L} \textstyle\sum_{l=1}^{L} \hat{m}^l(\Theta) \right)' W \left(\hat{m} - \tfrac{1}{L} \textstyle\sum_{l=1}^{L} \hat{m}^l(\Theta) \right).$$

W is the efficient weighting matrix, defined as the inverse of the estimated covariance of moments m. (We estimate this covariance using a Monte Carlo procedure with 1,000 samples of 500 deals each. For each sample, we compute the vector m, and then take the sample covariance across the 1,000 simulated values.)

[a] The model-parameter notation in this table is close to that of Li, Taylor, and Wang (2018).
[b] We measure the offer premium as in Table 2 (target's base-price one month prior to the offer announcement).
[c] The abnormal bidder announcement return, $CAR(-1,3)$ is estimated as in Table 10 in Section 5 below.
[d] Michaelides and Ng (2000) find that using a simulated sample ten times as large as the empirical sample generates good small-sample performance.
[e] The parameter vector Θ is held constant when generating the l'th sample of simulations. Θ changes from l to $l+1$ if the SMM optimizer proposes a new value for the next evaluation of the objective function (shown explicitly in the table). [f] In these simulations, the vector $Controls$ is set to zero because those features are outside the theoretical model.

Table 7
Observed data moments and fit of structural model

The table reports the eight observed data moments in our data used in our structural estimation and associated simulation of the model of Li, Taylor, and Wang (2018). Panel A shows the mean and conditional variance of the offer premium and its slope on relative acquirer size (log market value ratio, M). Panel B presents the mean fraction of cash and its slope on firm size. Panel C reports the mean bidder announcement return (CAR(-1,3)) and its slope on the cash share. Columns 1–5 show observed moments from 1,000 samples of 500 deals each; Columns 6–8 show corresponding moments from Li, Taylor, and Wang (2018), Table 3 Panel A. Columns 4 and 5 split the sample by bidder- and target-initiated deals, respectively. Standard errors are in parentheses. In the "Diff."-columns (3) and (8), none of the entries are statistically significant on a 10% level. The sample comprises 1,845 completed takeovers of US public targets by US public bidders (2000–2020).

	Full sample			Bidder initiations	Target initiations
Parameter in Θ	Data (1)	Model (2)	Diff. (3)	Data (4)	Data (5)
Panel A: Offer premium (to estimate bidder synergies)					
Mean (μ_s)	0.463	0.499	-0.04	0.475	0.443
	(0.015)			(0.012)	(0.011)
Conditional variance (σ_s)	0.102	0.089	0.01	0.100	0.106
	(0.012)			(0.009)	(0.009)
Slope a_1 on log(M) (ρ_{sM})[a]	0.033	0.023	0.01	0.035	0.030
	(0.014)			(0.014)	(0.010)
Panel B: Fraction of bid in cash (to estimate bidder cash constraint)					
Mean (μ_k)	0.644	0.631	0.01	0.699	0.564
	(0.019)			(0.015)	(0.013)
Conditional variance (σ_k)	0.139	0.132	0.01	0.135	0.141
	(0.010)			(0.008)	(0.007)
Slope c_1 on log(M) (ρ_{kM})[b]	0.121	0.043	0.08	0.110	0.127
	(0.013)			(0.013)	(0.009)
Panel C: Acquirer announcement return (revelation effect of fraction cash)					
Mean (μ_ϵ)	-0.015	-0.011	0.00	-0.011	-0.021
	(0.005)			(0.003)	(0.004)
Slope b_1 on Cash Frac. ($\rho_{\epsilon M}$)[c]	0.051	0.038	0.01	0.039	0.066
	(0.017)			(0.013)	(0.014)

[a] $OP_i = a_0 + a_1 log(M_i) + a_2 Controls_i + u_i$.
[b] $Cash_i = c_0 + c_1 \log(M_i) + b_2 Controls_i + w_i$.
[c] $CAR(-1,3)_i = b_0 + b_1 \log(M_i) + b_2 Controls_i + b_3 FractionCash_i + \nu_i$.

Table 8
Simulated efficiency loss: Total sample

Panel A shows the mean and median percent of the simulated deals that are inefficient, where the overvalued but lower-synergy bidder wins. Panel B shows the average synergy loss in inefficient deals only, either in percent of the pretakeover target market value or the highest synergy. Panel C repeats Panel B with the total number of deals as the basis for the computation. The total sample comprises 1,845 completed US public takeovers (2000–2020). The simulated losses are based on 1,000 samples of 500 observations using baseline parameter estimates from Table 8.

		Percentile				
	Mean	10	25	50	75	90
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Percent of deals that are inefficient						
% inefficient deals	6.10%					
Panel B: Average synergy loss in inefficient deals						
% of target size	10.10	1.03	2.74	6.72	13.73	23.85
% of synergy	19.20	1.82	5.02	12.17	26.62	47.18
Panel C: Average synergy loss in all deals						
% of target size	0.62	0.06	0.17	0.41	0.84	1.45
% of synergy	1.17	0.11	0.31	0.74	1.62	2.88

Table 9
Simulated efficiency loss: Bidder- versus target-initiated transactions

Panel A shows the mean and median percent of the simulated deals that are inefficient, where the overvalued but lower-synergy bidder wins. Panel B shows the average synergy loss in inefficient deals only, either in percent of the pretakeover target market value or the highest synergy. Panel C repeats Panel B with the total number of deals as the basis for the computation. Results are shown for the full sample, bidder-initiated cases, and target-initiated contests. The total sample comprises 1,845 completed US public takeovers (2000–2020). The simulated losses are based on 1,000 samples of 500 observations using baseline parameter estimates from Table 8.

	Full sample		Bidder-initiated		Target-initiated	
	Mean	Median	Mean	Median	Mean	Median
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Percent of deals that are inefficient						
% inefficient deals	6.10		6.27		7.37	
Panel B: Average synergy loss in inefficient deals						
% of target size	10.10	6.72	10.65	6.92	11.48	7.67
% of synergy	19.20	12.17	19.34	12.39	21.81	14.67
Panel C: Average synergy loss in all deals						
% of target size	0.62	0.41	0.67	0.43	0.85	0.56
% of synergy	1.17	0.74	1.21	0.78	1.61	1.08

Table 10
Average announcement returns to bidders, targets, and the bidder's close peers

The table reports the average three-day announcement-period stock return $CAR(-1,1)$, which is estimated as three times the second daily event parameter (γ_{2i}) in the conditional factor model, Eq. (10), in the text. The industry peers of an acquiring firm are the five firms with the highest Hoberg and Phillips (2016) industry-relatedness scores. For these peer firms, γ_{2i} is estimated after forming a portfolio of the five firms weighted by the industry-relatedness score. As explained on footnote 18 in the text, the table reports the t-statistic using the standard error of each γ_i^2 from the regression. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Sample of completed takeovers of US public targets by US public bidders, 2000-2020.

Sample		All deals (1)	Bidder-initiated (2)	Target-initiated (3)	Bidder-initiated –Target-initiated (4)
Panel A: Acquirer returns					
Full Sample	CAR(-1,1)	-0.014	-0.01	-0.02	0.01
		(10.85)***	(5.85)***	(9.94)***	(2.24)**
	N	1,552	913	639	1,552
Fraction Stock > 0	CAR(-1,1)	-0.03	-0.025	-0.036	0.012
		(19.6)***	(13.01)***	(14.79)***	(1.69)*
	N	865	471	394	865
Panel B: Target returns					
Full Sample	CAR(-1,1)	0.261	0.284	0.228	0.055
		(178.86)***	(157.72)***	(89.88)***	(3.27)***
	N	1,431	848	583	1,431
Fraction Stock > 0	CAR(-1,1)	0.184	0.216	0.144	0.072
		(99.18)***	(90.38)***	(47.87)***	(3.95)***
	N	765	421	344	765
Panel C: Combined (value-weighted) Acquirer and Target returns					
Full Sample	CAR(-1,1)	0.05	0.059	0.037	0.022
		(53.61)***	(50.54)***	(23.14)***	(2.81)***
	N	1,767	1,039	728	1,767
Fraction Stock > 0	CAR(-1,1)	0.026	0.039	0.011	0.029
		(23.54)***	(24.88)***	(7.65)***	(3.31)***
	N	964	523	441	964
Panel D: Acquirer peer-firm (relatedness-weighted) portfolio returns					
Full Sample	CAR(-1,1)	0.007	0.007	0.007	0
		(11.75)***	(9.42)***	(7.11)***	(0.10)
	N	1,577	868	709	1,577
Fraction Stock > 0	CAR(-1,1)	0.006	0.008	0.003	0.005
		(8.32)***	(8.37)***	(3.43)***	(1.56)
	N	917	447	470	917

Table 11
Average announcement returns to five-firm portfolios of acquiring firms' industry peers

The table reports average cumulative abnormal returns (CAR) for the acquirer's industry peers over two event windows relative to the M&A announcement date (day 0): (-1, 3) and (-1, 6). CAR is computed as $R_{it} - \hat{R_{it}}$, where $\hat{R_{it}}$ is the expected return estimated from the Market Model, $R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$, estimated over the window (-297, -43). R_{mt} is the CRSP value-weighted market return. Columns 1-2 identify peers using the five closest firms based on Hoberg and Phillips (2016) industry-relatedness scores. Columns 3-4 and 5-6 further restrict peers to those within the same 3-digit and 4-digit SIC codes, respectively. CARs are equally weighted (Equal Weighted) or weighted by the relative H-P relatedness score (Relatedness Weighted) for each acquirer. The sample comprises completed takeovers of US public targets by US public bidders, 2000-2020. t-values are in parentheses. ***, **, and * denotes significance at the 1%, 5%, and 10% levels, respectively.

	All rivals		Same 3-Digit SIC		Same 4-Digit SIC	
Rival weighting	CAR(-1,3)	CAR(-1,6)	CAR(-1,3)	CAR(-1,6)	CAR(-1,3)	CAR(-1,6)
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Full sample of public-to-public takeovers						
Equal Weighted	0.006	0.006	0.006	0.005	0.006	0.004
	(3.86)***	(3.26)***	(3.45)***	(2.41)**	(3.07)***	(1.63)
Relatedness Weighted	0.008	0.008	0.007	0.006	0.007	0.005
	(4.62)***	(3.92)***	(3.68)***	(2.70)***	(3.35)***	(1.94)*
N	1,387	1,387	1,207	1,207	1,024	1,024
Panel B: Takeovers with shares as part or all of the payment						
Equal Weighted	0.004	0.002	0.005	0.002	0.004	0.00
	(1.71)*	(0.83)	(1.75)*	(0.73)	(1.48)	(0.41)
Relatedness Weighted	0.005	0.003	0.006	0.004	0.005	0.002
	(2.07)**	(1.07)	(2.05)**	(1.00)	(1.79)*	(0.59)
N	755	755	662	662	565	565
Panel C: Bidder-initiated takeovers with shares as part or all of the payment						
Equal Weighted	0.002	0.001	0.007	0.005	0.003	0.001
	(0.77)	(0.31)	(1.66)*	(1.01)	(0.71)	(0.18)
Relatedness Weighted	0.005	0.003	0.008	0.006	0.004	0.002
	(1.36)	(0.85)	(1.91)*	(1.23)	(0.99)	(0.34)
N	410	410	353	353	302	302

Table 12
Bidder initiation and determinants of acquirer announcement returns

The table reports OLS coefficients estimates of bidder CAR(-1,3). CAR is computed as $R_{it} - \hat{R_{it}}$, where $\hat{R_{it}}$ is the expected return estimated from the Market Model, $R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$, estimated over the window (-297, -43). R_{mt} is the CRSP value-weighted market return. Columns 1-4 restrict the analysis to completed takeovers of US public targets by US public bidders, 2000-2020. Columns 5-8 implement a Heckman (1979) two-step procedure, with the first-stage selection probit estimated on the full Compustat universe and controlling for firm Size, Leverage, Cash Holding, M/B, Dividend Dummy, R&D, Asset Tangibility, and Operation Efficiency. Columns 1 and 5 present baseline regressions; columns 2 and 6 add information variables; the remaining columns include a bidder initiation indicator and its interactions. All variables are defined in Table 4. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	OLS				Heckman regression (2nd stage)			
	Baseline	Information	Initiation	Interaction	Baseline	Information	Initiation	Interaction
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls								
Size	0.003	0.001	0.001	0.001	-0.103	-0.047	-0.044	-0.048
	(1.62)	(0.39)	(0.28)	(0.36)	(0.64)	(0.58)	(0.54)	(0.58)
Large Deal		-0.041	-0.041	-0.04		-0.041	-0.041	-0.04
		(5.04)***	(5.01)***	(4.98)***		(6.08)***	(6.05)***	(6.03)***
Leverage	0.016	0.022	0.023	0.022	0.153	0.085	0.082	0.087
	(0.81)	(1.16)	(1.17)	(1.20)	(0.73)	(0.78)	(0.75)	(0.79)
Cash Holding	-0.008	0.021	0.021	0.021	0.139	0.089	0.084	0.09
	(0.20)	(0.51)	(0.50)	(0.50)	(0.58)	(0.73)	(0.70)	(0.73)
M/B	-0.001	-0.001	-0.001	-0.001	-0.007	-0.003	-0.003	-0.003
	(2.23)**	(1.06)	(1.05)	(0.56)	(0.81)	(0.71)	(0.68)	(0.71)
M/B x Bidder Initiated				0.000				0.000
				(0.04)				(0.04)
Dividend Dummy	0.000	-0.001	0.000	-0.001	0.067	0.029	0.027	0.03
	(0.01)	(0.10)	(0.08)	(0.14)	(0.65)	(0.57)	(0.53)	(0.57)
R&D	-0.056	-0.005	-0.004	-0.004	-0.479	-0.197	-0.184	-0.201
	(0.80)	(0.07)	(0.05)	(0.06)	(0.74)	(0.59)	(0.56)	(0.60)
Asset Tangibility	-0.008	-0.01	-0.01	-0.01	0.139	0.055	0.051	0.057
	(0.98)	(1.26)	(1.23)	(1.20)	(0.62)	(0.49)	(0.46)	(0.50)
Operating Efficiency	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.68)	(0.80)	(0.80)	(0.84)	(0.55)	(1.13)	(1.15)	(1.19)
High-Tech Dummy		-0.018	-0.018	-0.019		-0.018	-0.018	-0.018
		(2.52)**	(2.51)**	(2.62)***		(2.55)**	(2.55)**	(2.64)***
All-Stock		-0.032	-0.032	-0.029		-0.032	-0.032	-0.029
		(3.64)***	(3.62)***	(2.04)**		(4.63)***	(4.55)***	(3.05)***
All-Stock x Bidder Ini.				-0.005				-0.005
				(0.30)				(0.39)
Target information proxies								
Bidder Initiated			0.005	-0.005			0.005	-0.005
			(0.85)	(0.48)			(0.83)	(0.53)
Local Deal		0.004	0.004	0.004		0.005	0.005	0.004
		(0.46)	(0.45)	(0.21)		(0.54)	(0.54)	(0.29)
Local Deal x Bidder Ini.				0.001				0.001
				(0.05)				(0.07)
H-P Industry Relatedness		-0.017	-0.017	-0.04		-0.016	-0.017	-0.037
		(0.44)	(0.45)	(0.54)		(0.53)	(0.54)	(0.85)
H-P Ind. Rel. x Bidder Ini.				0.042				0.037
				(0.50)				(0.61)
Recent SEO		-0.014	-0.014	-0.026		-0.014	-0.014	-0.027
		(2.19)**	(2.21)**	(2.31)**		(2.38)**	(2.40)**	(2.96)***
Recent SEO x Bidder Ini.				0.02				0.021
				(1.64)				(1.81)*
Recent Acquirer		-0.011	-0.011	-0.011		-0.01	-0.01	-0.01
		(1.64)	(1.64)	(1.58)		(1.24)	(1.26)	(1.21)
Inverse Mill's Ratio					-0.572	-0.258	-0.241	-0.264
					(0.66)	(0.59)	(0.55)	(0.59)
R-squared/Chi-squared	0.02	0.08	0.08	0.08	3.82	96.95	97.95	102.04
N	1,233	1,228	1,228	1,228	119,632	119,627	119,627	119,627

Table 13
Acquirer long-run (36-month) abnormal stock return (α) by deal-initiation.

The table reports the coefficient estimates from calendar-time portfolio regressions, using monthly returns and the four-factor return-generating process shown in Table 10 (Eq. 10 in the text). The dependent variable is the monthly return on acquirer portfolios sorted by deal initiation. The explanatory variables are the Fama and French (1993) three factors ($Market$, SMB, and HML) and the Carhart (1997) momentum (UMD). $Market$ is the excess return on the value-weighted CRSP market index. The constant term α measures the abnormal stock return. Columns 3 and 6 are long bidder-initiated deals and short target-initiated deals. An acquirer enters the portfolio in the month following a bid announcement and is held for 36 months or until delisting, whichever comes first. The sample is limited to bids containing stock in columns 1-3 and all-cash bids in columns 4-6. The bidder-portfolio monthly returns are equal-weighted in Panel A and value-weighted in Panel B. The sample comprises 1,845 completed takeovers of US public targets by US public bidders, 2000-2020 (287 months in the regression). t-statistics (with robust standard errors) are in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Fraction Stock > 0			Fraction Stock = 0		
	Bidder Initiated	Target Initiated	Bidder Ini.− Target Ini.	Bidder Initiated	Target Initiated	Bidder Ini.− Target Ini.
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Equal-weighted portfolios						
α	0	-0.003	0.003	0.004	0.004	0.001
	(0.08)	(1.04)	(1.61)	(2.87)***	(2.27)**	(0.35)
Market	1.187	1.25	-0.038	0.978	1.031	-0.053
	(25.08)***	(20.55)***	(0.75)	(26.17)***	(26.28)***	(1.31)
SMB	0.664	0.897	-0.216	0.135	0.395	-0.303
	(10.38)***	(10.94)***	(3.15)***	(2.46)**	(7.46)***	(5.14)***
HML	-0.05	0.164	-0.188	0.215	0.154	0.067
	(0.87)	(2.25)**	(3.10)***	(4.76)***	(3.26)***	(1.37)
UMD	-0.25	-0.183	-0.06	-0.151	-0.172	0.01
	(6.09)***	(3.49)***	(1.37)	(4.58)***	(5.05)***	(0.27)
R^2	0.82	0.77	0.07	0.8	0.82	0.13
Panel B: Value-weighted portfolios						
α	0	-0.001	0.002	0.001	0	0.001
	(0.08)	(0.57)	(0.65)	(0.66)	(0.16)	(0.51)
Market	1.032	1.01	0.044	0.892	0.903	-0.014
	(18.32)***	(18.59)***	(0.64)	(25.25)***	(16.40)***	(0.25)
HML	0.337	-0.004	0.344	-0.252	-0.024	-0.097
	(4.43)***	(0.05)	(3.70)***	(4.86)***	(0.32)	(1.20)
SMB	-0.284	0.048	-0.316	-0.047	0.147	-0.207
	(4.19)***	(0.74)	(3.84)***	(1.09)	(2.22)**	(3.11)***
UMD	0.13	-0.061	0.2	-0.055	0.05	-0.072
	(2.65)***	(1.29)	(3.35)***	(1.75)*	(1.04)	(1.48)
R^2	0.64	0.63	0.17	0.74	0.54	0.04

Table 14
Auction characteristics: Financial v. non-financial bidders

The table reports mean and median characteristics of the auction process, split by financial and non-financial bidders. Sample of 1,845 successful acquisitions by US-domiciled public bidders of public targets in manufacturing industries from 2000 through 2020. ***, **, and * denotes significance at the 1%, 5%, and 10% level, respectively.

	Full Sample			Financial Bidder			Non-Financial Bidder			Financial–Non Financial	
Variable	N	Mean	Median	N	Mean	Median	N	Mean	Median	Δ Mean	t-stat.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Percentage of Stock Payment	1,753	0.41	0.26	66	0.24	0	1,687	0.42	0.29	-0.18	(3.21)***
Stock Payment Indicator	1,845	0.24	0	69	0.12	0	1,776	0.24	0	-0.12	(2.38)**
Premium (Month)	1,737	50.52	34.22	61	35.00	27.27	1,676	51.09	34.39	-16.09	(0.72)

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