How Deals Die

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The risk of deal breakage is central to merger agreement negotiations. Yet neither the finance nor corporate law literatures have systematically explored how and why deals fall apart. We fill this gap, making three principal contributions. First, we build a comprehensive typology of eight mergers and acquisitions outcomes. This mapping provides both normative and positive payoffs. Apart from revealing the multifaceted ways in which announced deals can be disrupted, we detail the wildly differing implications for the merging parties associated with each outcome type and thus illuminate why incorporating outcome heterogeneity is indispensable to empirical M&A research. Second, we unveil a novel dataset of 5,036 mergers and acquisitions involving U.S. public company targets signed between 1996 and 2020—a quarter-century of deals—for which we hand-collect deal documentation and hand-code deal characteristics. To our knowledge, this corpus is the first of its kind in terms of size and data integrity. We use this data to provide a sustained empirical account of how often deals break, why deals break, trends over time, and how deal breakage correlates with deal structure and other deal attributes. Finally, our findings expose significant infirmities within one of the most commonly used merger datasets, Refinitiv's (formerly Thomson Reuters's) SDC Platinum database. Our study thus adds to recent discussions about the accuracy and integrity of commercial corporate data collections.

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INTRODUCTION

Deal certainty is a critical negotiating point in mergers and acquisitions (M&A). When a U.S. public company agrees to be acquired, the closing does not happen immediately. On average it takes several months—not uncommonly, more than a year—to satisfy the necessary closing conditions (such as shareholder and regulatory approvals) and consummate the deal. Only then does the acquiror take ownership of the target company's business and pay the agreed consideration to the target company's shareholders. Parties to M&A transactions seek to negotiate contractual terms that constrain the ability of the other party to back out of or renegotiate the deal during its pendency, while preserving their own ability to do so. The most

heavily studied M&A contractual provisions—such as break-up fees,[1] reverse termination fees,[2] material adverse effect clauses,[3] and no- and go-shop provisions[4]—revolve around deal certainty.

Despite the importance of deal certainty to M&A legal practice and jurisprudence, deal breakage—the failure of signed, definitive M&A deals to reach closing on the originally agreed economic terms—has not received systematic treatment from legal or finance scholars. This paper remedies this shortcoming in the existing literature. We make three main contributions.

First, we build a comprehensive typology of eight M&A deal outcomes. Agreed M&A deals may break in seven distinct ways, with varying implications for the merging parties and their shareholders relative to completing the deal on the originally announced economic terms. Three types of breakage—alternate deals (successful topping bids for the target company), upward price adjustments, and target withdrawals—are *ex post* favorable to the target company. Two types—acquiror walkaways and downward price adjustments—are *ex post* favorable to the acquiring company. One type—mutual withdrawal—is *ex post* favorable to both parties. The final type—regulatory block—is *ex post* indeterminately favorable to the merging parties, in that one, both, or neither of the parties may prefer it to deal completion on the originally announced economic terms. We show that previous M&A research has been hampered by its failure to take outcome heterogeneity into account.

Second, we unveil a novel dataset of 5,036 mergers and acquisitions involving U.S. public company targets signed between 1996 and 2020—a quarter-century of deals. We gather both the original deal announcement and the definitive merger agreement for 99.7% of the deals in the sample and use them to hand-code deal characteristics. To our knowledge, this corpus is the first of its kind in terms of size and data integrity. We use this data to provide a sustained empirical account of how often deals break, why deals break, trends over time, and how deal breakage correlates with deal structure and other attributes.

Finally, our findings expose significant infirmities within one of the most commonly used merger datasets, Refinitiv's (formerly Thomson Reuters's) SDC Platinum database. These shortcomings are relevant to all aspects the study of M&A deal outcomes—from outcome typology, to sample construction, to outcome validation, to company and deal characteristics.

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[1] *See, e.g.,* Micah S. Officer, *Termination Fees in Mergers and Acquisitions*, 69 J. FIN. ECON. (2003).

[2] *See, e.g.,* Afra Afsharipour, *Transforming the Allocation of Deal Risk Through Reverse Termination Fees*, 63 VAND. L. REV. 1161 (2010).

[3] *See, e.g.,* David J. Denis & Antonio J. Macias, *Material Adverse Change Clauses and Acquisition Dynamics*, 48 J. FIN. & QUANT. ANALYSIS 819 (2013).

[4] Guhan Subramanian, *Go-Shops vs. No-Shops in Private Equity Deals: Evidence and Implications*, 63 BUSINESS LAWYER 729 (2008); Guhan Subramanian & Annie Zhao, *Go-Shops Revisited*, 133 HARV. L. REV. 1215 (2020).

Our study thus adds to recent discussions about the accuracy and integrity of commercial corporate data collections.[5]

The paper proceeds as follows. Part I presents our typology of deal outcomes and explains why it is crucial for M&A scholarship to take outcome heterogeneity into account. Part II describes the substantial data obstacles that have impeded research into deal outcomes—obstacles that we surmount. Part III presents a rich and textured empirical account of breakage in M&A deals involving U.S. public company targets between 1996 and 2020, providing the first detailed account of how often deals break, why deals break, trends over time, and how deal breakage correlates with deal structure and other deal attributes.

I. VARIETIES OF DEAL BREAKAGE

Deals break in different ways. This part introduces a comprehensive typology of M&A deal outcomes and explains why distinguishing between varieties of deal breakage matters for M&A scholarship.

A. Typology

As a first cut, we assign each deal exactly one outcome—a "grade" of A, B, C, D, or F—as follows:

- Alternate deal. The target company terminates the original transaction and accepts a third-party topping bid.
- Bump in consideration. The merger agreement is amended to increase the per-share consideration paid to the target company's shareholders.
- Completed. The deal is consummated on the originally announced economic terms (the modal outcome).
- Decrease in consideration. The merger agreement is amended to decrease the per-share consideration paid to the target company's shareholders.
- Failure. The deal is canceled and the target company remains independent.

Although assigning "grades" might be taken to imply that these outcomes are ordered from best to worst from the standpoint of the target company's shareholders, this is true only in a rough and qualified sense. In the first place, outcome B can be just as favorable to the target company's shareholders as outcome A. (In fact, B outcomes commonly result from third-party topping bids; the original acquiror outbids the interloper and completes the transaction at a

[5] *See especially* Jens Frankenreiter, Cathy Hwang, Yaron Nili & Eric L. Talley, *Cleaning Corporate Governance*, 170 U. PA. L. REV. 1 (2021).

higher deal price.) For many research applications, A and B outcomes can be treated interchangeably.

More important, F outcomes are heterogeneous. We divide them into four subtypes—K, T, M, and R—as follows:

- Killed by acquiror. The acquiror declines to consummate the transaction, even though the target company would prefer outcome C.
- Target withdrawal. The target company backs out of the deal and remains independent, even though the acquiror would prefer outcome C.
- Mutual withdrawal. The parties mutually agree to terminate the transaction, with both parties preferring termination to outcome C, and the target company remains independent.
- Regulatory block. Antitrust enforcers or other regulatory bodies block the transaction.

All agreed M&A deals can be assigned to one of the eight above-mentioned outcomes: A, B, C, D, K, T, M, or R. Analytically, it is useful to group the seven breakage (non-C) outcomes into four categories based on their *ex post* favorableness to the merging parties relative to deal completion: target-favorable, acquiror-favorable, mutually favorable, and indeterminately favorable.

Target-favorable. Outcomes A, B, and T are *ex post* favorable to the target company relative to outcome C. In A- and B-outcome deals, the target company's shareholders receive consideration that exceeds what the original merger agreement provided for. For example, consider Data Domain Inc.'s 2009 agreement to be acquired by NetApp Inc. for a combination of cash and stock worth $25.00 per share. After the agreement was signed and announced, EMC launched a competing bid for Data Domain. Two months later Data Domain terminated its deal with NetApp and simultaneously agreed to be acquired by EMC for $33.50 per share. We classify this deal as outcome A. In the typical A-outcome deal, the target company pays a termination fee to the original acquiror in connection with canceling the deal.

As noted above, B outcomes may arise when the original acquiror raises its bid to stave off an interloper. For example, consider Graphic Industries Inc.'s 1997 deal to be acquired by Wallace Computer for $18.50 in cash per share. Two weeks after the deal was signed, a third party, Mail-Well Inc., offered $20.00 per share for Graphic. In response, Graphic and Wallace amended their deal to a price of $21.75 per share, and the deal closed at that price. We classify this deal as outcome B.

But B outcomes may also arise in the absence of any third-party bid. These situations typically arise when there is some danger that the target company's shareholders will not approve the transaction. For example, consider Apollo Education Inc.'s 2016 deal to be acquired

by an investor group. Although the original deal price was $9.50 per share, the parties amended the price to $10.00 in the face of shareholder opposition, and the deal was consummated at that price. We classify this deal as outcome B.

Outcome T is also *ex post* favorable to the target company relative to outcome C. T outcomes typically involve changed circumstances that make the original deal less attractive to the target. For example, consider Rent-A-Center's 2018 deal to be acquired by private equity firm Vintage Capital for $15.00 per share in cash. Although the company's stock price was trading at around $10.00 before the deal was signed and announced, the company's financial condition and operating performance improved substantially during the deal's pendency. Five months after the parties signed the deal, Rent-A-Center terminated it over the acquiror's objection, and upon termination its stock price traded above the deal price of $15.00. Vintage sued unsuccessfully to force Rent-A-Center to complete the deal. We classify this deal as outcome T.

T outcomes may also arise when the target has agreed that its shareholders will receive consideration in the form of acquiror stock under a fixed exchange ratio and the acquiror's stock price declines sharply after the transaction is signed. In these cases, the target company's shareholders may be better off if the deal is canceled. For example, consider C.R. Bard Inc.'s 2001 deal to be acquired by Tyco International in a stock-for-stock transaction. While the deal was pending, Tyco and its senior management became embroiled in a corporate fraud scandal, causing its stock price to plummet. C.R. Bard backed out of the deal. We classify this deal as outcome T.

On inspection, A and T outcomes are related. Although we assign deals to outcome A only if the target company enters into an agreement to be acquired by a topping bidder *simultaneously* with cancellation of the original deal, sometimes it is clear that a target company withdrew from a deal because another buyer was waiting in the wings. We classify such deals as T outcomes even though they could plausibly be characterized as A outcomes. In a sense, A outcomes can be viewed as a subcategory of T outcomes, and for some research applications they can be grouped together.

Acquiror-favorable. Outcomes D and K are *ex post* favorable to the acquiror relative to outcome C. For example, consider ADVO Inc.'s 2006 agreement to be acquired by Valassis Communications Inc. for $37.00 per share in cash. Two months after the deal was signed and announced, Valassis filed an action for rescission, alleging that ADVO had made misrepresentations and suffered a material adverse change in its business. The parties later reached a settlement under which the deal price was amended to $33.00 per share, and the deal was ultimately completed at that price. Another example is Hibernia Corp.'s 2005 agreement to be acquired by Capital One. Hibernia was a New Orleans-based bank, and during the deal's pendency Hurricane Katrina devastated the city. The parties amended the deal to reduce the consideration. We classify these deals as outcome D.

K outcomes may arise when the target company suffers business deterioration or legal problems or when the acquiror fails to secure necessary financing or needed approval by its shareholders to complete the deal. For example, consider Titan Corp.'s 2003 agreement to be acquired by Lockheed for $22.00 in cash per share. During the deal's pendency, Titan announced that the SEC was investigating it in connection with alleged corrupt practices abroad. Although the parties initially agreed to lower the price to $20.00, Lockheed terminated the deal several months later, citing a material breach by Titan. We classify this deal as outcome K.

As scholars have documented, during the financial crisis of 2007 to 2009, a number of private equity buyers backed out of M&A deals they had signed before the crisis erupted.[6] For example, consider Penn National Gaming's 2007 agreement to be acquired by private equity firms Fortress and Centerbridge. Approximately a year after the deal was signed, the parties announced that they had terminated the deal and that Penn National Gaming would receive a reverse termination payment as well as an equity investment from the acquirors. We classify this deal as outcome K.

Mutually favorable. Outcome M is *ex post* favorable to both parties relative to a C outcome, inasmuch as both parties prefer to go their separate ways than to consummate the deal on the originally announced economic terms. M outcomes are often associated with "mergers of equals," which are low- or no-premium deals with consideration consisting mostly or entirely of stock, in which the combined company's senior management team will be drawn from both of the constituent companies. Leadership clashes may derail these deals. For example, consider Monsanto's 1998 agreement to combine with American Home Products. Four months after they signed the deal, the parties agreed to terminate the agreement by "mutual consent," stating that "the Board of Directors of each of the two companies has determined that the transaction is not in the best interest of their respective stockholders." According to a contemporaneous news report, "people close to the deal said yesterday that the merger was terminated because of an insurmountable power struggle between the two companies' chairmen."[7] We classify this deal as outcome M.

Indeterminately favorable. Outcome R is *ex post* indeterminately favorable to the merging parties. While it is possible that, at the time the regulator blocks the deal, both parties would prefer to complete the transaction on the original terms, it is also possible that one or both parties prefer the regulatory block to completion. Sources of regulatory blocks include US and foreign antitrust enforcement authorities; sectoral regulators, such as bank regulators, the Federal Communications Commission (FCC), and state public utility commissions; and the Committee on Foreign Investment in the United States (CFIUS), which is empowered to block acquisitions of US companies by foreign companies where the transaction implicates US national security.

[6] *See, e.g.,* Steven M. Davidoff, *The Failure of Private Equity*, 82 S. CAL. L. REV. 481 (2009).

[7] [cite nyt]

For example, consider Hughes Electronics Corp.'s 2001 deal to be acquired by EchoStar Communications, which the parties terminated due to opposition from the Department of Justice and the FCC. We classify this deal as outcome R.

B. Why It Matters

Many empirical M&A studies relating to deal outcomes suffer from insufficient attention to the varieties of deal breakage, in some cases calling into question their findings. Studies routinely treat deal outcomes as a binary categorization—"completion" or "withdrawal"—neglecting both the heterogeneity of withdrawn deals (outcomes A, K, T, M, and R) and the existence of value amendments (outcomes B and D) in "completed" deals that may approximate "withdrawn" deals in relevant respects.

For example, in *Law Firm Expertise and Merger and Acquisition Outcomes,* C.N.V. Krishnan and Ronald Masulis study the relationship between deal outcomes and the law firms engaged on the transaction.[8] Using a sample of U.S. M&A situations from 1990 to 2008, they find that top bidder law firms are associated with significantly higher "offer completion rates" while top target law firms are associated with significantly higher "offer withdrawal rates," and that both top bidder law firms and top target firms are associated with significantly higher takeover premia. The authors conclude from these findings that top law firms have "stronger incentives and abilities" to achieve their clients' objectives, which they describe as follows:

> Bidder management generally wants deal completion. An effective approach to realizing this goal is to raise the offer price, thereby adding pressure on the target board to agree to a deal and making deal success more likely. Target management objectives can differ. Some targets seek to be bought (in friendly deals), but the key issue is the adequacy of the offer price, while other targets seek to stay independent but at a sufficiently high offer price will bow to shareholders' wishes to be acquired, and yet other firms with entrenched managers want to stay independent and seek to force the purchase price up to a level that they hope will discourage the bidder while not antagonizing their own shareholders. So while there can be heterogeneity on the part of targets and their desire for deal success, in virtually all cases, the target wants to obtain a higher purchase price.[9]

As an initial matter, note that this passage appears to describe clients' supposed objectives when making acquisition offers or engaging in M&A negotiations—which may or may not result in a deal—rather than during the pendency of signed, definitive M&A deals.[10]

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[8] C. N. V. Krishnan & Ronald W. Masulis, *Law Firm Expertise and Merger and Acquisition Outcomes*, 56 J. L. & ECON. 189 (2013).

[9] *Id.* at 219.

[10] We discuss in Part II the coherence of treating nondeals and deals as components of a single population for purposes of studying M&A outcomes.

Setting this issue aside for the moment, under what circumstances do acquirors in signed, definitive deals want deal completion? It is doubtful that, when Lockheed walked away from its deal to acquire Titan (the K deal described above), Lockheed would have preferred to complete the deal on the original terms. That option was available to it. All else being equal, clients prefer to enter into M&A agreements that give them more optionality to exit prior to completion. Had Lockheed's agreement not given it that flexibility and had the deal closed on the originally announced terms, it would be inaccurate to say that Lockheed's lawyers helped their client achieve its objectives by facilitating deal completion.

Turning to the target company side, the authors correctly note that targets companies' objectives vary when it comes to deal completion. But in the context of signed, definitive M&A deals, the authors' reference to management entrenchment appears misplaced; management has *already* agreed to sell. More pertinent are post-signing developments. If the target's business has crumbled and the acquiror seeks to back out, the target would likely be delighted to realize outcome C, whereas if the acquiror's business has crumbled and the target company's shareholders are to receive stock consideration on a fixed exchange ratio, withdrawal (outcome T) may better serve the target's objectives than outcome C. And while both A and K outcomes are technically "withdrawals," they typically have *opposite* shareholder value implications. Evaluating law firms' effectiveness in achieving their clients' M&A outcome objectives requires being sensitive to these distinctions.[11]

Compounding the problem is the omission of B and D outcomes from the analysis. All else being equal, a law firm that helps its acquiror (target) clients achieve D outcomes (B outcomes) in lieu of C outcomes produces value for its clients. As noted above, A and B outcomes can be viewed as substitutes in important respects; the same can be said for K and D outcomes. Studies of M&A outcomes that omit B and D outcomes are vulnerable to criticism on robustness grounds.

In short, it is difficult to draw meaningful conclusions about law firm effectiveness by analyzing the relationship between law firms and M&A deal "withdrawals" if withdrawals are considered as an undifferentiated mass and if B and D outcomes are not distinguished from C outcomes. A more meaningful paper—drawing on our outcome typology—would study associations between law firms and acquiror-favorable (D and K) versus target-favorable (A, B, and T) outcomes.

In fairness to the authors, these problems are not unique to their paper (though we note impressionistically that these oversights seem to be less prevalent in papers that include legal

[11] [Add footnote on authors' idea that lower completion rate offset by higher premium; has to do with offer stage; compare A & T outcomes.]

scholars among the authors.[12]) Overlooking the full diversity of deal outcomes is a widespread problem in the M&A literature.

II. DATA OBSTACLES

Studying M&A deal outcomes presents three threshold challenges: defining the population of interest; constructing the sample; and validating deal outcomes.

A. Defining the Relevant Population

Our population of interest consists of only signed, definitive M&A deals. [Many] empirical studies of M&A outcomes have included in their samples hostile and unsolicited offers, interloper bids, nonbinding letters of intent, negotiations, discussions, and other situations not involving a definitive transaction agreement.

In our view, such inclusions lead to incoherence and, quite possibly, meaningless results. To state the obvious, such situations are not *deals* at all. There is no revealed preference with respect to key transactional terms, most importantly price; the parties have not made legally binding commitments; there is no prospect of liability in the event of nonconsummation. A suitor that withdraws an unsolicited offer by definition has breached no contractual obligation toward the target. Withdrawals of unsolicited offers are thus qualitatively different from situations in which the acquiror and target have signed a definitive merger agreement from which one party seeks to escape. Whether a definitive deal *started* as an unsolicited offer might well be a relevant *attribute* of a definitive deal, and whether an unsolicited offer *led* to a definitive deal might well be a relevant *attribute* of an unsolicited offer, but this is a far cry from saying that it is appropriate to group definitive agreements and unsolicited offers into a single population when studying M&A outcomes.

The Krishnan and Masulis paper illustrates the problem. Their sample includes hostile and unsolicited offers as well as definitive deals, and we strongly suspect that it also includes disclosed negotiations and discussions since these situations are included in SDC Platinum and the authors make no mention of steps taken to exclude them. The authors oscillate between describing their topic as "bid" (or "offer") outcomes and "deal" outcomes. We find this oscillation telling, and this is not a semantic quibble: the study is unclear about what exactly it is studying. As noted in Part I, the authors' description of clients' objectives pertains to hostile or unsolicited offers but has only tangential relevance to the definitive agreement context.

Why have researchers lumped deals and nondeals into a single population when studying M&A outcomes? One possible explanation can be traced to the standard M&A databases that

[12] For a paper that is notably sensitive to the variety of deal outcomes, see Matthew D. Cain, Antonio J. Macias & Steven Davidoff Solomon, *Broken Promises: The Role of Reputation in Private Equity Contracting and Strategic Default*, 40 J. CORP. L. 565 (2015).

researchers rely on, such as SDC Platinum, which include both definitive deals and nondeals as records within a single table instead of as separate populations with different attribute sets. In SDC Platinum, "Unsolicited" is one possible value of a field called "Deal Attitude"—implying that a unilateral offer is just one type of "deal" and that unilateral offers and definitive deals are meaningfully described by the same set of attributes. Likewise, "Withdrawn" is one possible value of the attribute "Deal Status" even though there may be no deal at all. That the meaning of "withdrawal" differs in deal and nondeal contexts suggests that squishing these two populations together is unsound.

One suspects that, had commercial database suppliers created separate databases for deals and nondeals, it would not have occurred to researchers to combine the databases for purposes of studying M&A deal outcomes. Unthinking reliance on commercial deal databases' embedded judgments about the relevant population is another manifestation of the same inattention to institutional detail that has led researchers to disregard the heterogeneity of deal outcomes, as described in Part I.

B. Constructing the Sample

The second challenge is sample construction. Our sample consists of signed, definitive M&A deals involving U.S. public company targets signed and concluded between 1996-01-01 and 2020-12-31, with a deal value (excluding assumed liabilities) of at least $100 million.[13]

We restrict the sample to U.S. public company targets to ensure that the deals in the sample are governed by a reasonably uniform legal, disclosure, and contractual framework. We choose 1996-01-01 as the start date because that was when the SEC's Edgar filing system became mandatory for U.S. public companies, ensuring that deal-related documents are publicly available in accessible form. We choose 2020-12-31 as the end date because it was the most recent calendar year-end as of the time we finished assembling the sample. $100 million is a commonly used value cutoff in the empirical M&A literature and is close to the lower bound of listed public company status.

We refer readers to the appendix for sample construction details. However, we wish to highlight two issues here. First, SDC Platinum, while comprehensive, is rife with traps for unwary researchers. Because SDC Platinum includes non-M&A transactions—such as share repurchases, equity recapitalizations, and partial stake purchases—in its M&A database, researchers must take care to exclude deals that fall outside the population of interest.

The Krishnan and Masulis paper again supplies an illustration. A hint that something is amiss comes on the twelfth page of their paper, where they report a median deal size of $100 million in their sample—a surprisingly low figure for M&A deals involving U.S. public company targets. We replicate their data set from SDC Platinum using their reported screening

[13] As described in Appendix I, we exclude certain idiosyncratic deal and target company types.

criteria.[14] We arrive at a replication sample of 9,447 deals with median and mean deal values of $92 million and $910 million, respectively—reasonably close to the authors' sample of 9,560 deals with median and mean deal values of $100 million and $970 million, respectively.

Assuming our replication dataset approximates their dataset, one reason for the low median deal value is apparent: 2,118 or 22.4% of the deals in our replication dataset are "stake purchases" of as little as a tenth of a percent of the target company's stock, often in open market transactions. Such purchases bear no relevant resemblance to M&A deals. When stake purchases are excluded, the median transaction value rises to $150 million, which impressionistically still appears quite low. On further inspection, the replication dataset includes a large number of merger transactions valued at below $10 million. One suspects that these "public" companies are illiquid and trade on marginal venues; such companies generally have limited available disclosure and can be considered public in name only. These characteristics of the replication dataset demonstrate the need for caution in sample construction.[15]

Even if one takes care to avoid SDC Platinum's traps for the unwary, one must face a second sample-construction problem: data errors. With respect to target companies, SDC classifies a significant number of: public targets as nonpublic and vice versa; foreign targets as US targets; and targets that trade on marginal trading venues (Pink Sheets, OTC Bulletin Board) as trading on major venues (NYSE, Nasdaq, American) and vice versa. With respect to deal characteristics, SDC classifies a significant number of stake purchases as M&A deals and vice versa. Most important, SDC classifies a significant number of nondeals (i.e., situations not involving a definitive transaction agreement, such as hostile and unsolicited offers, negotiations, and nonbinding letters of intent) as definitive deals and vice versa. As described in Appendix 1, we use primary sources to manually correct these errors in constructing our sample of 5,036 deals.

C. Validating Outcomes

The third challenge is outcome validation. Although SDC Platinum provides data fields that are pertinent to deal outcomes, the data is deficient in two key respects. First, it is insufficiently detailed to allow deals to be assigned to outcomes at the level of granularity described in Part I above. When SDC categorizes a deal as "Withdrawn," no systematic information is supplied regarding the reason for withdrawal, apart from a column purporting to indicate whether the target company was sold to a third party. SDC Platinum therefore does not provide information to distinguish between F outcome subtypes (K, T, M, and R).

Second, SDC Platinum's outcome data contains errors. For example, the sold-to-third-party indicator is left unflagged in a significant number of A-outcome deals, making them appear

[14] See pp. __ of their paper.

[15] We exclude such deals from our sample, as described below.

to be F-outcome deals. And although the database includes a "Value Amended" field that purports to identify increases and decreases in value, this field contains large numbers of errors—both false positives (deals shown as having been value-amended when in fact they were not) and false negatives (deals shown as not having been value-amended when in fact they). Appendix 2 tabulates and describes in more detail SDC Platinum's outcome data errors; we identify 381 outcome classification errors in the sample of 5,036 deals, for an error rate of 7.6%.

III. DEAL BREAKAGE IN THE UNITED STATES: 1996–2020

We overcome the three data challenges described in Part II. First, we explicitly define our population as signed, definitive M&A deals, sidestepping the conceptual and empirical problems that arise from grouping unilateral offers and negotiations with signed deals. Second, while we rely on SDC Platinum for our initial deal screen, we independently verify company and deal characteristics to ensure that deals meeting our selection criteria—and *only* deals meeting those criteria—are included in our sample. Third, we manually validate each deal's outcome by reviewing press releases, news reports, and SEC filings.

In addition, we gather both the definitive merger agreement and the deal announcement for 99.7% of the deals in the dataset. The resulting corpus is, we believe, the first of its kind in terms of size and data integrity and allows us to provide the first sustained empirical account of how often deals break, why deals break, trends over time, and how deal breakage correlates with deal structure and other deal attributes.

A. Descriptive Statistics

Table 1 presents descriptive statistics on our sample of 5,036 deals. We divide the sample by acquiror type—strategic or financial—with financial acquirors representing 14% of deals in the sample. The average deal value is $2.6 billion for all deals, $2.7 billion for strategic acquiror deals, and $1.7 billion for financial acquiror deals. More than half of all transactions—and 99% of the transactions with a financial buyer—involve only cash as consideration. The acquiror was a controlling shareholder of the target in 3% of the deals.

Two-step transactions—a tender offer followed by a back-end merger—represent 21% of the sample, and transactions structured to require the acquiring shareholders' approval represent 25% of the sample. Over 60% of the target companies are incorporated in Delaware. "Go shop" provisions, which allow the target company to solicit higher bids during the pendency of the deal, were present in only 2% of strategic acquiror deals but 24% of financial acquiror deals. Approximately 4% of strategic acquiror deals were mergers of equals.

Several of the deal attributes in Table 1 had to be manually validated due to errors and omissions in SDC Platinum's database. Appendix 3 tabulates errors in SDC Platinum's coding of two-step transactions, go-shop provisions, mergers of equals, and whether the target company was incorporated in Delaware. We find significant error rates, including a false negative rate in

excess of 10%, for each of these fundamental deal attributes. Because SDC Platinum does not provide data on shareholder vote conditions, we collected this information from the merger agreements.

Table 1: Summary Statistics

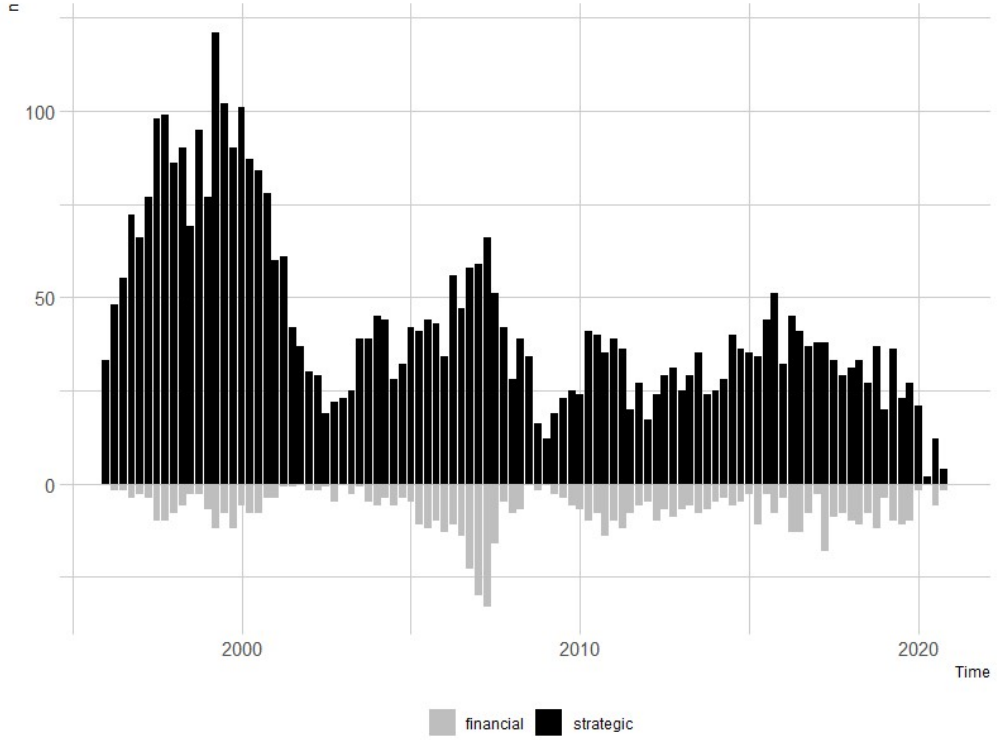
Attribute*	All	Strategic	Financial	Difference (S-F)
Deal value ($mil)	2,567 (7,469)	2,707 (7,930)	1,725 (3,518)	981***
All stock	0.30	0.35	0	0.35***
All cash	0.54	0.47	0.99	-0.52***
Same industry	0.59	0.67	0.14	0.52***
Two-step transaction	0.21	0.22	0.16	0.06***
Go-shop	0.05	0.02	0.24	-0.22***
Acquiror SH vote	0.25	0.30	0.003	0.29***
Controller transaction	0.03	0.03	0.02	0.01***
Merger of equals	0.03	0.04	0	0.04***
Delaware target	0.63	0.62	0.71	-0.09***
N	5,036	4,317	719	

* "All cash," "Same industry," "Controller transaction," "Tender offer," "Acquiror shareholder vote," and "Delaware target" are dummy variables that indicate whether the consideration was exclusively cash, whether the buyer and seller shared a common industry based on the first two Standard Industrial Classification (SIC) digits, whether the acquiror was a controller defined as someone holding 35% or more of the target's shares when the transaction was announced, whether the deal was a tender offer, whether the deal required approval by the acquiror's shareholders, and whether the deal involved a Delaware-incorporated target. Standard deviations are reported in parentheses. The magnitude of the difference is tested for statistical significance using a Welch two-sample t-test. * significant at 10%; ** significant at 5%; *** significant at 1%.

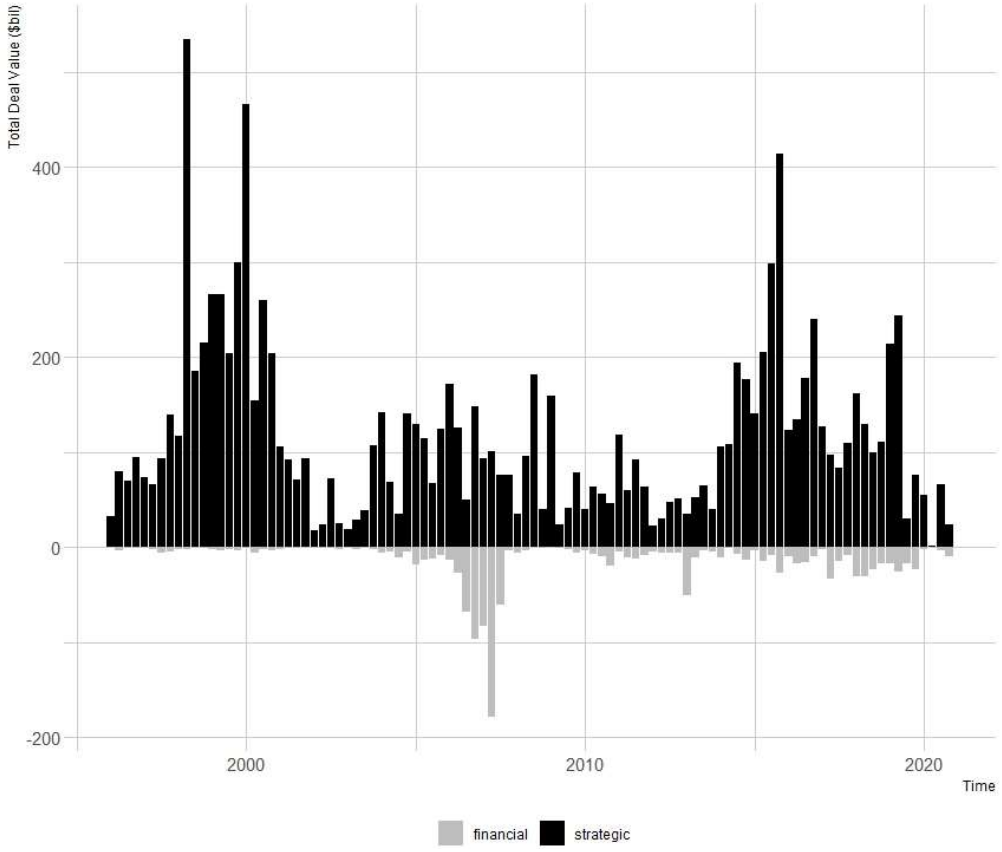
Figure 1 shows the evolution of deal activity over time, measured by the number of deals (panel a) and by total equity value (panel b). Panel b shows three waves of merger activity: the wave of mega-deals in the late 1990s, marked by frenzied strategic merger activity fueled by the dot.com bubble; another wave in the 2005 to 2007 period, this time driven to a significant extent by private equity activity, as cheap credit propelled merger activity; and a third, somewhat more sustained wave from 2014 to 2020, a period characterized by cheap credit debt and a trend toward increased industry concentration.

Figure 1: Merger activity involving U.S. public company targets with deal value > $100 million

Panel A: Number of announced definitive deals (1996–2020)



Panel B: Total value of announced definitive deals (1996–2020)



B. Overview of Deal Outcomes

Table 2 presents deal outcomes for the entire sample of 5,036 deals in accordance with the typology described in Part I above.

Table 2: Deal outcomes[16]

	Count	Percent
A - Alternate Deal	93	1.8%
B - Bump in Consideration	126	2.5%
C - Completed as Announced	4,523	89.8%
D - Decrease in Consideration	58	1.2%
F - Failure	234	4.6%
	5,034	100.0%
Breakdown of F outcomes:		
K - Killed by Acquiror	124	2.5%
R - Regulatory Block	48	1.0%
T - Target or Mutual Withdrawal	62	1.2%
	234	4.6%

The table shows an overall C-outcome rate of 89.8%, corresponding to a breakage rate of 10.2%. While other studies have reported rates of deal "withdrawals" that are close to this figure—for example, Krishnan and Masulis report a "proportion withdrawn" of 11.36% in their sample, and Officer reports noncompletion rate of 17% in his sample of 2,511 M&A situations from 1988 to 2000[17]—those studies do not account for outcomes B and D. The breakage rate is only 6.5% in our sample when those outcome types are excluded. We suspect that previous studies have shown substantially higher withdrawal rates because they have included various types of nondeals—such as unilateral offers, nonbinding agreements in principle, and negotiations—in their samples.

Figure 2 presents deal breakage rates over time. Panel A shows a modest downward trend in deal breakage over the twenty-five years covered by the sample, with three somewhat distinct peaks: the first coinciding with the late-90s "mega deal" wave, the second coinciding with the financial crisis of 2007–2009, and the third consisting of an idiosyncratic spike in 2015.

The other three panels show deal breakage over time by type: acquiror-favorable (K and D), target-favorable (A, B, and T), and regulatory blocks (R). A more nuanced picture emerges. Panel B shows two spikes in acquiror-favorable deal breaks, one corresponding to the 2007–09 financial crisis—when private equity firms walked away from a number of announced transactions—and the other in 2020, when a number of acquirors successfully renegotiated deal prices downward after the COVID-19 outbreak produced a sharp contraction in economic

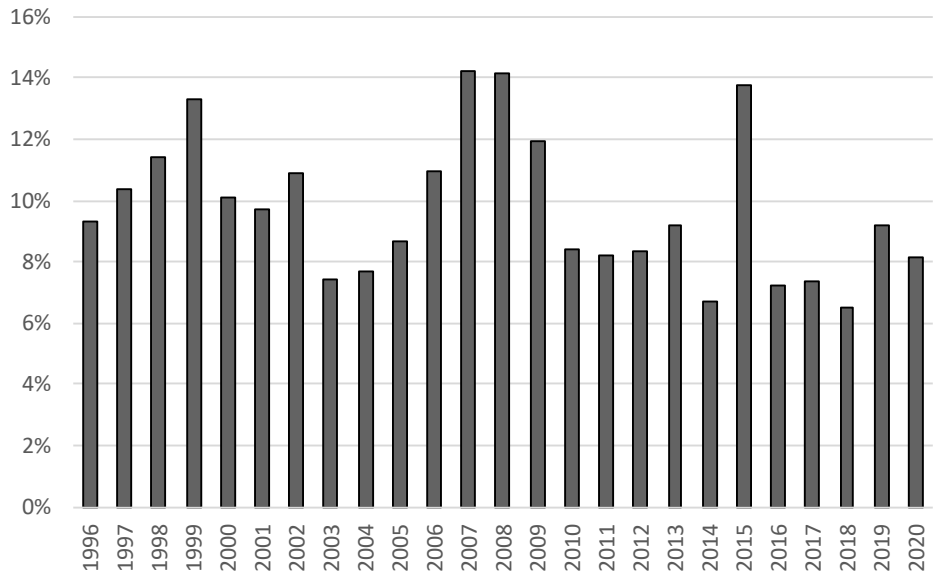
[16] [Note to readers: In this draft M outcomes are grouped with T outcomes; we plan to break these out in the next draft.]

[17] *See* Officer, *supra* note 1, at 16.

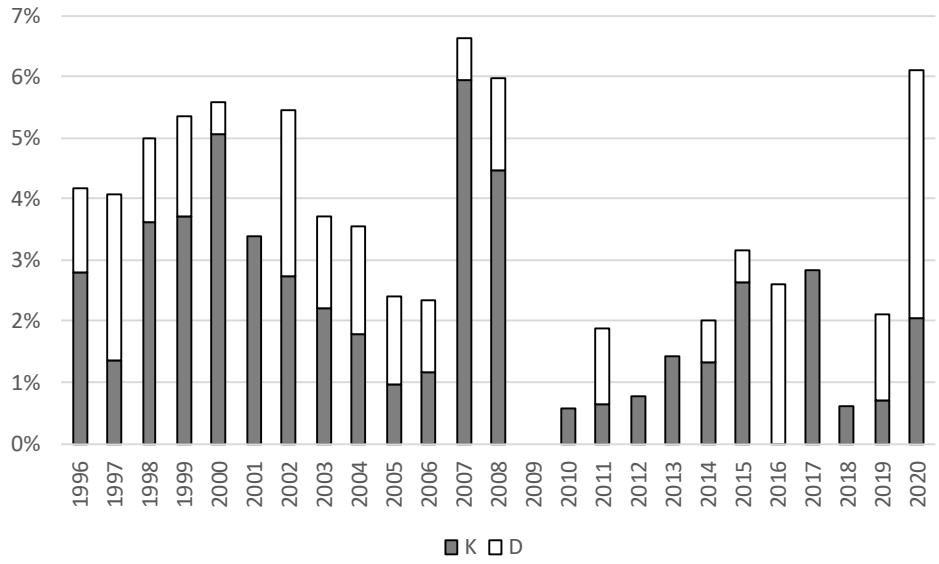
activity and stock market valuations. Excluding those disruptions, there appears to be a notable decrease over time in K and D outcomes. As for target-favorable outcomes, rates of target withdrawals (T outcomes) appear to have declined over time. Finally, panel D shows a notable absence of regulatory blocks during the financial crisis period, and elevated levels of regulatory blocks from 2014 to 2018, a period with a large number of big, horizontal merger deals.

Figure 2. Deal breakage over time

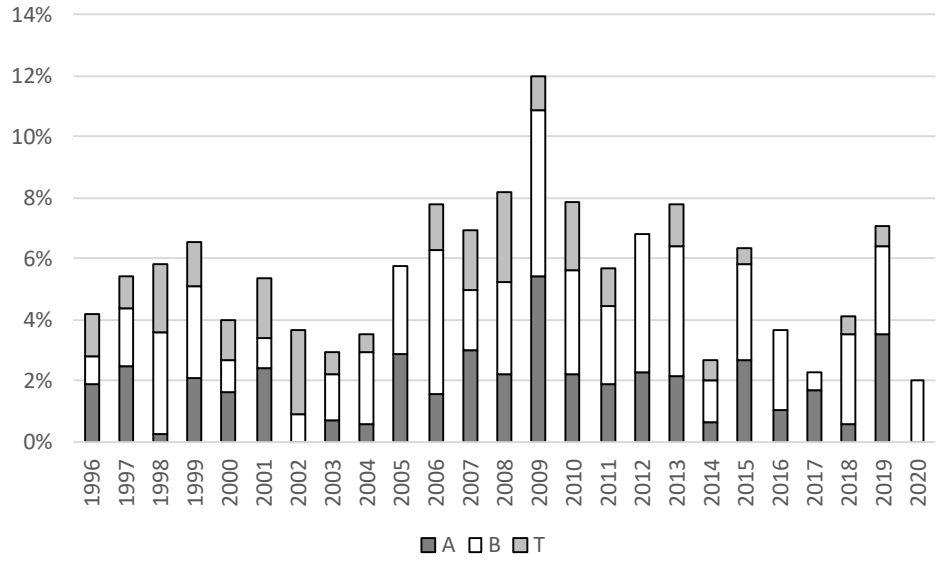
Panel A: All Deals



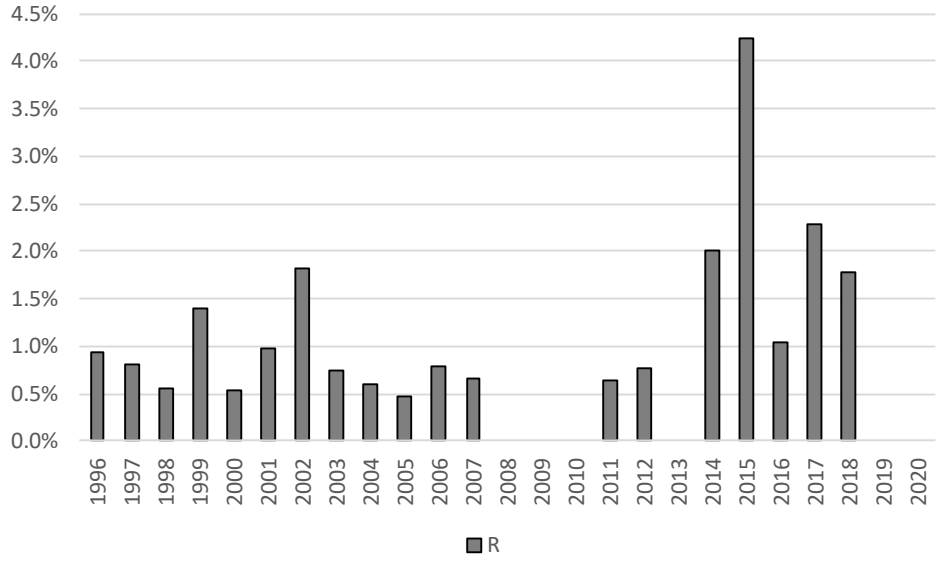
Panel B: Acquiror-Favorable Outcomes



Panel C: Target-Favorable Outcomes



Panel D: Regulatory Blocks



C. Deal Outcomes and Deal Attributes

Table 3 presents cross-tabulations of deal outcome with major deal characteristics. Completion rates appear higher on average for strategic deals than financial ones. The magnitude of the difference is sizable (approximately 9%) and is statistically significant at the 5% level under a *t*-test of means difference. Moreover, this significance holds after controlling for economic and structural deal characteristics and industry effects in unreported ordinary least-squares (OLS) regressions. Financial acquiror deals show elevated levels of *both* acquiror-

favorable *and* target-favorable breakage outcomes. The high level A and B outcomes derives, at least in part, from the disproportionate use of go-shop provisions in financial acquiror deals; and the elevated level of D and K outcomes is consistent with the conventional wisdom among deal lawyers.

With respect to deal size and consideration type, the differences are more muted but still significant. The largest deals—those exceeding $10 billion—are most likely to encounter antitrust and other regulatory hurdles. These transactions are also much less likely than other deals to experience a price cut. As for consideration type, the completion rates are similar across all categories, but deal breakage occurs in different ways. Three to four percent of transactions with a cash component (all cash or part cash) were revised upward, whereas a price bump occurred in only 1% of all-stock mergers. Target-led termination is significantly more common in all-stock mergers. This association is unsurprising because, as the first wave of deal breakage illustrated, the actual value of stock consideration varies with market conditions; a stock-market downturn could the merger premium to collapse, making the deal less attractive to target boards and shareholders.

A number of other interesting findings appear in Table 3. For example, we find that deal breakage is less common in two-step transactions than in one-step mergers; acquiror termination, in particular, is exceedingly rare in two-step deals (1% of deals). This difference could be a consequence of the shorter time period between deal announcement and consummation in two-step transactions; two-step mergers can close in as little as 20 business days, whereas one-step mergers take longer. We also find preliminary evidence suggesting the effectiveness of go-shops, a clause that allows a selling board to solicit offers from third parties after signing the merger agreement with the initial buyer. Some scholars and practitioners are skeptical that go-shops could yield a meaningful market check, but we find that deals with go-shops are significantly more likely to be jumped by a successful topping bid or renegotiated for a higher price (7% and 5% versus 2% and 2%, respectively). Finally, we were surprised to find that deals involving a controlling shareholder were less likely than arms-length mergers to be completed on the announced terms. In fact, 9% of controlling shareholder transactions in our sample experienced a price bump after announcement, compared with only 2% of arms-length mergers.

What is perhaps most surprising about the data presented in Table 3 is the fact that none of this was previously known. Despite decades of M&A research by legal scholars and financial economists on deal characteristics that are relevant to deal outcomes, researchers have not previously validated outcomes in a large sample of public company deals under a comprehensive taxonomy.

Table 3: Cross-tabulations of deal outcomes and deal characteristics

		Target-Favorable Breakage			Acquiror-Favorable Breakage				
	Completed as Announced	**A**lternate Deal	**B**ump in Consid.	**T**arget Withdraw-al	**K**illed by Acquiror	**D**ecrease in Consid.	**R**egulatory Block	All Breakage	n
All	89.9	1.8	2.5	1.2	2.5	1.2	1.0	10.2	5,036
Acquiror type									
Strategic	91.2	1.5	2.1	1.2	2.2	0.9	1.0	8.9	4,317
Financial	81.9	4.2	4.9	1.7	4.3	2.4	0.7	18.2	719
Deal size ($mil)									
> 10,000	85.6	2.4	4.0	0.8	1.6	0.4	5.2	14.4	250
5,000–10,000	86.6	0.7	4.3	1.4	4.3	1.1	1.4	13.2	276
1,000–5,000	90.9	2.0	1.9	1.2	1.7	1.2	1.2	9.2	1,390
500–1,000	90.8	1.8	2.1	1.2	2.3	1.2	0.5	9.1	818
100–500	89.7	1.8	2.6	1.3	2.8	1.2	0.5	10.2	2,302
Deal structure									
All stock	89.2	1.7	1.5	2.0	3.2	1.3	1.2	10.9	1,503
All cash	90.7	2.0	2.7	0.8	1.9	1.1	0.8	9.3	2,739
Cash and stock	88.3	1.6	3.7	1.1	2.9	1.3	1.1	11.7	794
One-step	88.4	1.9	2.8	1.5	2.9	1.4	1.1	11.6	3,972
Two-step	95.2	1.5	1.5	0.2	0.8	0.3	0.6	4.9	1,064
Go-shop	79.4	6.6	5.4	1.9	4.3	1.6	0.8	20.6	257
No go-shop	90.4	1.6	2.3	1.2	2.4	1.1	1.0	9.6	4,779
Acquiror vote	87.2	2.1	2.1	2.3	3.8	1.1	1.4	12.8	1,284
No acquiror vote	90.8	1.8	2.6	0.9	2.0	1.2	0.8	9.3	3,752
Controller	87.8	0.0	8.8	0.7	2.7	0.0	0.0	12.2	148
Non-controller	89.9	1.9	2.3	1.2	2.5	1.2	1.0	10.1	4,888
Merger of equals	78.5	3.8	4.4	5.1	5.1	1.9	1.3	21.6	158
Non-MOE	90.2	1.8	2.4	1.1	2.4	1.1	0.9	9.7	4,878

CONCLUSION

M&A lawyers are expected to deliver deal certainty for their clients, and many of the most heavily negotiated merger agreement provisions revolve around deal certainty. Yet until now, little has been known about how deals die. We supply a comprehensive typology of M&A deal outcomes and demonstrate why M&A scholarship must take outcome heterogeneity into account. And we supply the first empirical account of deal outcomes for a large sample of M&A deals spanning a quarter-century, using primary deal documents to generate clean, accurate data on deal characteristics. With these contributions, we hope to lay a foundation for sounder empirical M&A scholarship.

APPENDIX 1: SAMPLE CONSTRUCTION

To construct the sample, we use Refinitiv's (formerly Thomson Reuters's) SDC Platinum M&A database to screen for deals with the following characteristics. First, either "Date Announced" or "Definitive Agreement Date" is between 1996-01-01 and 2020-12-31, inclusive. Second, "Target Nation" is "United States." Third, "Deal Value excluding Liabilities Assumed" is greater than or equal to $100 million. Fourth, to exclude share repurchases, "Repurchase Flag" is "false." These criteria yield 26,654 results, from which we exclude deals sequentially as follows.

		SDC	False Positives	False Negatives	SDC Error Rate	Deals Excluded	Deals Remaining
	Initial Screen						**26,654**
	Sequential Exclusions:						
1	Nonpublic Target	18,987	174	123	1.1%	18,936	7,718
2	Foreign Target	-	-	36	0.5%	36	7,682
3	Bankrupt Target	174	-	6	0.1%	180	7,502
4	Equity Restructuring	336	1	-	0.0%	335	7,167
5	Partial Acquisition	1,187	36	16	0.7%	1,167	6,000
6	Reverse Merger	3	3	14	0.3%	14	5,986
7	Spin-Merger	-	-	22	0.4%	22	5,964
8	Signed before 1996-01-01	2	2	2	0.1%	2	5,962
9	Pending on 2020-12-31	81	16	-	0.3%	65	5,897
10	Nondeal	884	329	69	6.7%	624	5,273
11	Marginal Trading Venue	373	184	36	4.2%	225	5,048
12	Closed-End Fund Consolidation	3	1	3	0.1%	5	5,043
13	Duplicate Deal	-	-	6	0.1%	6	5,037
14	Deal Value < $100m	-	-	1	0.0%	1	5,036
	All Exclusions	**22,030**	**746**	**334**	**4.1%**	**21,618**	**5,036**

1. *Nonpublic Target*. Of the initial sample of 26,654 deals, SDC classifies 18,987 as involving nonpublic target companies ("Target Public Status" not equal to "Public"). We identify 174 false positives (deals with public targets classified as nonpublic) and 123 false negatives (deals with nonpublic targets classified as public), for an error rate of 1.1%.

2. *Foreign Target*. Of the remaining 7,718 deals, SDC classifies zero as involving foreign targets. We identify 36 false negatives (deals with foreign targets classified as US targets), for an error rate of 0.5%.

3. *Bankrupt Target*. Of the remaining 7,682 deals, SDC classifies 174 as involving bankrupt targets ("Bankruptcy Flag" equals "true"). We identify 6 false negatives (deals with bankrupt targets classified as nonbankrupt), for an error rate of 0.1%.

4. *Equity Restructuring*. Of the remaining 7,502 deals, SDC classifies 336 as equity restructurings ("M&A Type" equals "Self-Tender or Recapitalization Deal," "Repurchases," or "Buybacks"). We identify 1 false positive (M&A deal classified as an equity restructuring), for an error rate of 0.0%.

5. *Partial Acquisition*. Of the remaining 7,167 deals, SDC classifies 1,187 as partial acquisitions ("Form of the Deal" is not equal to "Merger" or "Acquisition of Remaining Interest"). We identify 36 false positives (whole-company M&A deals classified as partial acquisitions) and 16 false negatives (partial acquisitions classified as whole-company M&A deals), for an error rate of 0.7%.

6. *Reverse Merger*. Reverse mergers are stock-for-stock deals involving a private company and an existing public company. Because reverse mergers can be characterized as private company deals, we exclude them from the sample. Of the remaining 6,000 deals, SDC classifies 3 as reverse mergers ("Reverse Merger Flag" equals "true"). We identify 3 false positives (non-reverse mergers classified as reverse mergers) and 14 false negatives (reverse mergers classified as non-reverse mergers), for an error rate of 0.3%.

7. *Spin-Merger*. Spin-mergers are deals in which the parties agree that one of them (other than an acquiror paying all-cash) will spin off one or more of its businesses to its shareholders at or prior to the closing of the merger. Because these deals can be characterized as private company deals, we exclude them from the sample. Of the remaining 5,986 deals, SDC classifies zero as involving spinoffs ("Spinoff flag" equals "true"). We identify 22 false negatives (spin-merge transactions classified as not involving a spinoff), for an error rate of 0.4%.

8. *Signed before 1996-01-01*. Of the remaining 5,964 deals, SDC classifies 2 as having a definitive agreement date prior to 1996-01-01. We identify 2 false positives (deals signed on or after 1996-01-01 classified as having been signed before 1996-01-01) and 2 false negatives (deals signed before 1996-01-01 classified as having been signed on or after 1996-01-01), for an error rate of 0.1%.

9. *Pending on 2020-12-31*. Of the remaining 5,962 deals, SDC classifies 81 as having been pending on 2020-12-31 ("Date Effective or Unconditional" or "Date Withdrawn" after 2020-12-31). We identify 16 false positives (deals that were concluded on or prior to 2020-12-31 classified as having been pending on that date), for an error rate of 0.3%.

10. *Nondeal*. Of the remaining 5,897 deals, SDC classifies 884 as not involving a definitive agreement ("Definitive Agreement Flag" = "false"). We identify 329 false positives (deals with definitive agreements classified as not involving definitive agreements) and 69 false negatives (situations without definitive agreements classified as involving definitive agreements), for an error rate of 6.7%.

11. *Marginal Trading Venue*. Because target companies whose stocks trade on marginal venues (i.e., the Pink Sheets or the OTC Bulletin Board) typically have thinly traded stocks and are subject to less onerous disclosure and governance requirements than true public companies, we exclude them from the sample. Of the remaining 5,273 deals, SDC classifies 373 as deals in which the target company's stock trades on a marginal venue ("Target Stock Exchange Name" does not include "New York," "NYSE," "Nasdaq," or "American"). We identify 184 false positives (deals with target companies that trade on a major US trading venue classified as trading on a marginal venue) and 36 false negatives (deals with target companies that trade on a marginal venue classified as trading on a major US trading venue), for an error rate of 4.2%.

12. *Closed-End Fund Consolidation*. Because consolidations of closed-end investment funds differ economically from operating company combinations and raise special issues under the Investment Company Act of 1940, we exclude them from the sample. Of the remining 5,048 deals, SDC classifies 3 as closed-end fund consolidations ("Deal Synopsis" includes "closed-end" or "closed end"). We identify 1 false positive and 3 false negatives, for an error rate of 0.1%.

13. *Duplicate Deal*. Of the remaining 5,043 deals, we identify 6 duplicate entries, for an error rate of 0.1%. In 3 cases, deal amendments were coded as separate deals; in the other 3, two-step transactions (involving a tender-offer followed by a merger) were coded as two separate deals.

14. *Deal Value < $100m*. Of the remaining 5,037 deals, SDC classifies zero as having a deal value excluding liabilities assumed of less than $100 million. We identify 1 false negative (deals with values excluding liabilities assumed of less than $100 million classified as deals with values excluding liabilities assumed of more than $100 million), for an error rate of 0.0%.

APPENDIX 2: OUTCOME VALIDATION

The table below presents error rates in SDC Platinum's deal outcome data, which is contained in the data fields "Deal Status," "Outcome," and "Deal Value was Amended."

Outcome	False Positives	True Negatives	False Positive Rate	False Negatives	True Positives	False Negative Rate
Alternate Deal	7	4934	0.1%	27	66	29.0%
Bump in Consideration	246	4662	5.0%	36	90	28.6%
Completed as Announced	38	473	7.4%	294	4229	6.5%
Decrease in Consideration	62	4914	1.2%	19	39	32.8%
Failure	28	4772	0.6%	5	229	2.1%
	381			381		

APPENDIX 3: DEAL ATTRIBUTE VALIDATION

The table below presents error rates in SDC Platinum's deal attribute data. We consult the definitive merger agreement for each deal to determine whether it was a two-step transaction (tender offer followed by a merger), whether it contained a go-shop provision, and whether the target was incorporated in Delaware. We use the deal announcement for each transaction to determine whether the parties described it as a merger or combination "of equals." We compare our results to the corresponding fields in SDC Platinum: "Tender and Merger Flag," "Go Shop Flag," "Merger of Equals Flag," and "Target State of Incorporation."

Deal Characteristic	False Positives	True Negatives	False Positive Rate	False Negatives	True Positives	False Negative Rate
Two-step transaction	21	3948	0.5%	115	950	10.8%
Go-shop	16	4761	0.3%	31	226	12.1%
Merger of equals	0	4876	0.0%	22	136	13.9%
Delaware target	45	1797	2.4%	737	2455	23.1%