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Appraisal: Shareholder Remedy or Litigation Arbitrage?

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Abstract

We present the first large-sample empirical study of the recent trends in the appraisal remedy—the right of shareholders of companies completing an eligible merger to petition the court for an improved price for their shares. Appraisal petitions have increased markedly over our sample from 2000 to 2014, and the composition of those bringing these suits has shifted from individual shareholders toward specialized hedge funds. Appraisal petitions are more likely to be filed against mergers with perceived conflicts of interest, including going-private deals, minority squeeze outs, and acquisitions with low premiums, which makes them a potentially important governance mechanism. Appraisals yield sizable excess returns to the petitioners, with an average annualized return of 32.9 percent, which suggests that appraisals also act as a litigation arbitrage. Finally, we explore the likely effects of two recent changes to the Delaware appraisal statute—regarding the minimum stake and interest payment—on the incentives to file appraisal petitions.

1. Introduction

In US corporate law, the appraisal remedy is a statutory right of shareholders who oppose a completed cash-out merger to have their shares judicially appraised and then bought back by the corporation at this appraised value with accrued prejudgment interest. To exercise the right of appraisal, the dissenting shareholders must clear several procedural hurdles, and then, if they are successful in the litigation, they receive the proceeds of the court's valuation (plus interest) at the resolution of the case, usually 1–3 years after the completion of the merger. Ac-

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cording to much corporate law scholarship, the appraisal remedy evolved to balance majority shareholder rule against the need to protect minority shareholders from potential misappropriation (Thompson 1995). When viewed in this light, appraisal is a tool for minority shareholders who are fighting managerial agency costs that can lead to certain forms of mergers.

Appraisal litigation was uncommon until the mid-2000s. Since then, there has been a surge of petitions, often filed by a small group of hedge funds. The rise and dominance of these hedge fund players has prompted some commentators to consider the appraisal process not as providing a remedy but rather as an arbitrage in which professional investors (arbitrageurs) buy stock in a company on the brink of an acquisition and then petition the judge for a price increase—or settle their case quietly in exchange for a sweetened price for their shares (see, for example, Hoffman 2015). The sharp increase of appraisal arbitrage has stoked concerns that a new form of strike suit[1] has been born.

An alternative view is that appraisal improves the efficiency of the market for corporate control by providing a cheaper method of eliminating unwanted minority shareholders by allowing the acquirer to pay more for the shares of successful appraisal petitioners instead of raising the offer for all shares (Letsou 1998). In this regard, it compares favorably to breach-of-fiduciary-duty actions, wherein shareholders sue corporate officers and directors for not acting in their best interest, because appraisal is "more rational and efficient" (*In re Appraisal of Dell Inc.*, 2015 WL 4313206 [Del. Ch. July 13, 2015]), since it is available to individual shareholders even if they do not have the power to block a merger through collective shareholder action. However, the appraisal remedy would not be socially desirable if it is used to unduly inflate acquisition costs, including those from frivolous law suits (Geis 2011), or if it allows management to buy off those shareholders who might be otherwise incentivized to overcome the free-rider problems inherent in diffuse equity ownership.

As a result of the ambiguity of the social value of appraisal petitions, the contours of the appraisal statute have become front-page news. High-profile cases, such as the recent appraisals involving Dell Computer and Dole Food, led prominent Wall Street law firms to seek ways to cut back on appraisal filings. These firms focused their lobbying efforts in Delaware, the state of incorporation for the majority of Fortune 500 corporations and the de facto center of American corporation law (Romano 1993). These firms petitioned the Council of the Corporate Law Section of the Delaware State Bar Association and the Delaware legislature to raise the bar for shareholders seeking to file an appraisal petition and to make its terms less attractive. Their efforts touched off a furious response from shareholder advocates, who argued in favor of expanding the appraisal remedy to fill perceived gaps in investor protection (Korsmo and Myers 2015).

Against this background, we provide the first large-sample empirical analysis of appraisal arbitrage. We document the evolution of the use of the appraisal

[1] Strike suits are cases that settle because companies are willing to pay shareholders in order to avoid litigating the action.

remedy using descriptive statistics from a manually collected, comprehensive sample of all appraisal-eligible deals and appraisal petitions involving firms domiciled in Delaware from 2000 to 2014 (with their resolutions updated through July 2016). We further characterize the economic incentives of the actors to use appraisal petitions as a minority shareholder remedy and as an investment arbitrage. We examine the effects on those incentives of two legislative reforms to Delaware statutory law enacted on June 16, 2016. First, the law now requires petitioners to collectively hold a minimum stake of $1 million in, or 1 percent of, the outstanding stock of the company for which the petitioner is seeking appraisal (the de minimis exception; Del. Code tit. 8, sec. 262[g]). Second, the reform permits companies to reduce the amount of statutory prejudgment interest they pay on awards in an appraisal proceeding by tendering some or all of the merger consideration to the appraisal plaintiff early in the litigation (the interest reduction amendment; Del. Code tit. 8, sec. 262[h]).

Our most important findings are summarized as follows. First, we document that petitions increase from 2–3 percent of eligible deals in the early 2000s to around 25 percent in the 2010s. Petitioners enjoyed nonnegative gross returns throughout the sample period, with an average (median) annualized return of 32.9 percent (19.3 percent), which suggests that appraisal has been a profitable litigation arbitrage. Hedge funds dominate the appraisal arbitrage strategy, accounting for three-quarters of the dollar volume involved in all appraisal petitions in recent years. The top seven hedge funds file petitions accounting for over 50 percent of the dollar volume, and the top seven law firms representing them are counsel in about 50 percent of all the cases. Moreover, a great majority (over 80 percent) of all petitions settle instead of going to trial. The size of the petitioners' collective stake is the single most powerful indicator of whether a case will go to trial.

Second, we find that there are firm and deal characteristics known at the announcements of deals that predict the emergence of appraisal petitions. The most notable predictors are perceived conflicts of interest. Going-private deals, minority squeeze outs, and short-form mergers after tender offers[2] are each associated with a significant 2.5–10.0-percentage-point increase in the probability of an appraisal filing, a substantive magnitude given the all-sample average probability of a petition of 6.9 percent. Relatedly, low takeover premiums seem to be an invitation to appraisal arbitrageurs to file cases: for every 10-percentage-point

[2] Going-private deals are acquisitions in which a publicly traded company is converted to a private entity, usually by insider-led buyouts. Minority squeeze-out deals are deals in which a controlling shareholder buys out a minority shareholder's stock to eliminate that shareholder. In a short-form merger after a tender offer, a parent company merges with its own subsidiary company in which it holds 90 percent or more of that company's stock. These transactions can create serious concerns of conflicts of interest between management or controlling shareholders as (part of) the buyout group and the public shareholders. These conflicts may lead to underpayment for the shares of the public investors. The literature holds mixed views on whether outside shareholders face expropriation in going-private deals (DeAngelo, DeAngelo, and Rice 1984; Jiang, Li, and Mei 2016) or whether minority shareholders are left out in the cold after a freeze-out (Amihud, Kahan, and Sundaram 2004; Bates, Lemmon, and Linck 2006).

decrease in the deal premium, the predicted probability of an appraisal petition being filed increases by about 72 basis points. Nevertheless, our calibration shows that, within the sample period, issuers are always better off paying the appraisal award to the dissenters rather than trying to preempt the petitions by offering a more generous premium in the transaction to all shareholders.

Last, we assess the potential impact of two Delaware reforms. First, while the median stake is $1.9 million, about 32 percent of the cases involve stakes that are both below $1 million in value and constitute less than 1 percent of the stock of the company. Taking into account that certain forms of mergers are not subject to the limit, we estimate that the size threshold for a de minimis exception would have been binding on about one-quarter of the cases; however, our analysis also shows that the same limitation will not affect shareholders' motives for seeking appraisal, nor would it have any impact on the likelihood of a case going to trial.

Second, we examine the effects of the interest reduction amendment, which effectively eliminates the statuary rate of interest that must be paid on the holdings of petitioners who choose to take their suits to trial by allowing prepayment. Among the cases that go to trial, judicially ordered valuation improvements and prejudgment interest accruals constitute roughly equal proportions of the total gain. Furthermore, the downside risk for appraisal filers (that is, cases with negative returns) would have substantially increased had the interest reduction amendment been in place over our sample period, especially when the litigation costs are incorporated. We also find a positive relation between the rate of prejudgment interest accrual and the filing of appraisal petitions. Therefore, the amendment is likely to significantly reduce the motive for seeking appraisal. Our analysis of both amendments supports the understanding of Delaware's reforms as a way of discouraging strike suits and interest-rate-driven appraisal cases.

These combined patterns provide support to the hypothesis that appraisals serve as a shareholder remedy and that they have been a successful arbitrage strategy and, in particular, a form of interest rate arbitrage in more recent years. Weighing these two competing effects, we think that our paper demonstrates that the Delaware statutory reforms will significantly reduce the number of small appraisal cases filed, which are the cases most likely to constitute strike suits, and will significantly reduce the interest rate incentives for filing appraisal cases. However, these statutory changes should not affect the agency-cost-reduction effects of appraisal: these cases target transactions with higher indicia of managerial conflicts of interest and result in some large verdicts in favor of plaintiffs in big cases. Overall, we conclude that the revised Delaware appraisal statute should have a positive role as a shareholder remedy.

Recent studies closest to ours include Korsmo and Myers (2015), an in-depth study (but without direct empirical analysis) of the implications of the statutory interest rate and legislative reforms, and Jetley and Ji (2016), which focuses on the Delaware advantage for appraisal petitioners in terms of purchase after the record date, a lower equity risk premium in valuation method, and the high statutory interest rate.

2. Delaware's Appraisal Actions

2.1. General Background

The Delaware statute gives shareholders a right to seek appraisal only when their company engages in a merger or consolidation, whether it is the target or the acquirer.[3] If an eligible transaction occurs, the shareholder must deliver a written demand seeking appraisal to the corporation before the vote is held and must have voted against or abstained from voting in favor of the transaction.[4] Typically, the corporation withholds paying the merger consideration to the dissenting shareholder, although the statute provides for the accrual of prejudgment interest on the amount of the final award at the statutory rate. The statutory interest rate has been the federal discount rate plus 5 percent, calculated from the closing date until the award is actually paid. This interest rate is significantly higher than that available on many fixed-income investments.

Once the case is filed, the parties can reach a settlement or the case can be tried in the Delaware Chancery Court. The Delaware Chancery Court must approve any settlement, although the terms of the settlement remain confidential. If the case goes to trial, the court determines the value of the shareholder's proportional interest in the corporation as a whole without any discount for the minority interest held by the shareholder.

Historically, appraisal was infrequently used: from 1977 to 1997 only an average of 14 appraisal petitions were filed annually in Delaware, many by individual shareholders acting without legal counsel, which were quickly dismissed (Thomas 2000). A census of all cases filed in the Delaware Chancery Court finds similar statistics for 1999 and 2000 (Thompson and Thomas 2004).

Beginning in 2007, legal scholars observed that appraisal was experiencing a renaissance (Kahan and Rock 2007). Appraisal today has evolved into a standalone litigation-based investment strategy by a specialized group of hedge funds. Dell Computer's recent going-private transaction illustrates the high stakes in these cases. In that $24.9 billion transaction, several hedge funds filed appraisal petitions representing 5.5 million shares, claiming that they were entitled to a higher price for their stock. The court ruled in their favor in *In re Appraisal of Dell Inc.* (2016 WL 3186538 [Del. Ch. May 31, 2016]), which resulted in a big award for Magnetar Capital, which held 3.9 million shares of Dell stock (Hals 2016). With cases like Dell, appraisal arbitrage has taken off in Delaware: both the number of

[3] However, the statute eliminates appraisal rights when the company's securities whose valuation is under dispute are, at the time of the record date for the merger vote, listed on a national securities exchange or held of record by more than 2,000 shareholders, unless shareholders are forced to take other forms of consideration for their stock, typically cash. Furthermore, if the target company's shareholders are squeezed out in a short-form merger, the appraisal remedy is always available to them.

[4] Within 10 days of the effective date of the merger, the corporation must give all stockholders who perfect such a demand notice that the transaction is effective. Within 120 days of the transaction becoming effective, the shareholder must file a petition for appraisal in the Delaware Chancery Court. The corporation then has 20 days to respond to the petition(s) filed by eligible shareholders.

deals and the percentage of eligible deals being targeted are increasing. Hedge funds are the main driving force behind this.[5]

One of the most important stimuli for this new strategy appears to derive from a 2007 decision in the Transkaryotic Therapies, Inc., appraisal litigation, in which the court ruled that investors buying shares after the transaction's record date might still seek appraisal rights, even though the exact shares they purchased may not have voted against or abstained from voting for the merger. The court stated that the only limit on the number of shares that may be purchased in this manner is that the total shares held by the depository trust seeking appraisal must be less than the total number of shares that did not vote in favor of the merger. An additional amendment in 2007 to the Delaware appraisal statute set the default prejudgment interest rate equal to the legal rate of interest that Delaware law employs in other circumstances—the federal discount rate plus 5 percent.[6]

In a subsequent 2015 decision involving Ancestry.com, the court added an important limitation: in an arm's-length deal without a conflict of interest, the price paid will be accorded substantial weight in determining the value of stock in an appraisal case. As a result, appraisal petitioners will likely focus their suits on conflict-of-interest transactions, such as private-equity buyouts without a strong market test or controlling shareholder squeeze outs. In these cases, appraisal actions may be acting as a monitoring mechanism that polices low premiums and conflict-of-interest transactions far better than the much-maligned shareholder fiduciary duty class action. In fact, one Delaware judge stated that "strong arguments can be made that appraisal represents a more rational and efficient alternative to traditional fiduciary duty litigation" (*In re Appraisal of Dell Inc.*, 2015 WL 4313206, *23 n.22 [Del. Ch. July 13, 2015]).

2.2. The Delaware Reforms of 2015

There are concerns about appraisal actions being used as strike suits. Accordingly, the first reform of the Delaware court in 2015, the de minimis exception, permits the corporation to obtain dismissal of otherwise properly filed appraisal petitions that challenge a transaction if they do not collectively exceed at least 1 percent of the total outstanding number of shares of stock or if the total value of

[5] To some extent, appraisal arbitrage belongs to a relatively new strategy of activist risk arbitrage, which includes all attempts by shareholders to profit from an announced merger by exercising shareholder rights beyond voting. The tactics include public campaigns and proxy solicitations to pressure the boards of both the target and the acquirer to sweeten the offered premium and to facilitate alternative transactions with better terms. Appraisal arbitrage may well represent an activist's last resort after failing to convince the majority of shareholders to improve or to block the deal. However, there is a critical difference in that the gain from successful appraisal arbitrage accrues only to the dissenters who withheld their votes and is not shared by other shareholders. See Jiang, Li, and Mei (2016), which focuses on non-appraisal-based risk arbitrage tactics.

[6] Some studies, including Korsmo and Myers (2016, pp. 121–22), posit that the 2007 amendment "in fact did not change much in practice" but "only codified already-prevailing practices" of fixing the awarded interest rate to the legal rate.

shares seeking appraisal does not exceed $1 million (evaluated at the closing price of the merger).[7]

The second change, the interest reduction amendment, relates to the prejudgment rate of interest in appraisal cases, which is currently significantly higher than that available for many fixed-income investments.[8] In fact, in a low-yield environment, the lucrative statutory rate may have motivated interest arbitrage in the disguise of an appraisal. This prompted Delaware to permit corporations to cut off the accrual of interest by paying to the appraisal claimants a sum of money of the corporation's choosing, so interest would accrue only on the amount (if any) by which any judicial award exceeded the amount paid.

3. Data and Sample Overview

3.1. The Sample of Mergers and Acquisitions

We analyze a comprehensive sample of mergers and acquisitions (M&A) transactions that includes the universe of M&A in which shareholders are eligible to seek appraisal in Delaware. To construct our sample, we start with all M&A transactions with effective dates[9] between January 1, 2000, and December 31, 2014, using information retrieved from the Securities Data Company (SDC) database. We chose 2000 as the starting year because hedge funds rarely sought appraisal prior to that year, as discussed in Section 2. For this 15-year period, we find 2,463 consummated deals in which the targets are incorporated in Delaware.

Because the Delaware statute restores appraisals for mergers in which cash is the consideration, we manually collected the form of payment for all sample deals from merger agreements and 8-K forms filed with the Securities and Exchange Commission, as SDC's definition of the form of payment differs from the merger agreements for certain deals, most notably those labeled by SDC as "unknown" and "other." Following the literature on M&A (for example, Hsieh and Walkling 2005), we further exclude any transaction classified by SDC as a divestiture, spin-off, or repurchase, because these are typically deemed to be non-M&A activities. These criteria result in a sample of 1,566 appraisal-eligible deals.

The SDC database provides information including the deal's announcement date, effective date, withdrawal date, premium, and characteristics of the target. We supplement this with information about firms' characteristics, stock prices, and returns from Compustat and the Center for Research in Security Prices and with data on institutional holdings from the Thomson Financial 13F Database.

[7] This exception would not apply if a short-form merger is being used in the transaction.

[8] During our sample period, the median statutory rate was 7.0 percent, with the full range from 5.5 percent (from December 2008 to January 2010) to 11.25 percent (from July 2006 to July 2007).

[9] The effective date is the date of the filing of the articles of merger, which marks the completion of the mergers and acquisitions (M&A) transaction.

3.2. *The Sample of Appraisal Petitions*

We identify all instances in which an appraisal petition was filed using the Bloomberg Law database, which begins its coverage in 2003. For the time period 2003–14, we searched all of the Delaware Chancery Court dockets using the key word "appraisal" and identified 262 unique appraisal cases using the transaction's effective date. For the years 2000–2003, which predate Bloomberg Law's docket coverage, we supplement the sample by manual searches of the Delaware Court of Chancery opinions and orders; we uncovered an additional 29 unique appraisal cases filed during the period.

3.3. *Sample Overview*

Our event sample consists of 225 unique M&A deals with appraisal actions, with some transactions involving multiple petitions. We merge the 225 unique deals with our M&A database and end up with 150 matches.[10] The rest of the 1,377 appraisal-eligible deals involving no appraisal petition filings serve as the control sample. We follow the development of all appraisal cases through July 8, 2016.[11] As of that date, nine of the 225 cases, or six of the 150 cases for which we have SDC matches, were still pending before the court.

The bars in Figure 1 represent the 225 announced M&A transactions targeted by petitioners between 2000 and 2014; 163 involve public targets, and the rest involve private targets. The line plots the percentage of petition-eligible deals targeted, as recorded by the SDC. In the first 3 years of the sample period, there were about five appraisal petitions each year, accounting for 2–3 percent of all eligible deals. During the last 4 years of the sample, there were about 20 appraisal petitions each year, or 20–25 percent of all eligible deals.

The parties filing appraisal petitions have also changed over time. Figure 2 portrays the time series of the breakdown between the number of appraisal petitions filed by hedge funds and by individual shareholders, the two largest groups of filers during our sample period. It shows that hedge funds are by far the dominant force among the appraisal petitioners, especially after 2010, whereas the number of petitions filed by individuals seems to be much reduced from its highest levels during the 2005–2007 time period.

Table 1 provides a better understanding of who is filing appraisal petitions. Hedge funds account for the largest numbers of deals challenged. They also hold the largest percentage of total capital invested in the named firm, that is, the largest dollar amount of the total securities seeking appraisal by petitioners.[12] These

[10] Of the 75 unmatched cases, 62 are private firms and 13 are public firms. The Securities Data Company database, although the best of its kind, misses some transactions, especially those involving small companies (for documentation of the data issue, see Markides 1995; Barnes, Harp, and Oler 2014).

[11] Our data set thus reflects Vice Chancellor J. Travis Laster's award of a 28 percent premium in the Dell appraisal.

[12] The invested capital is calculated as the number of shares on which the petitioner seeks appraisal multiplied by the stock price at deal closing.

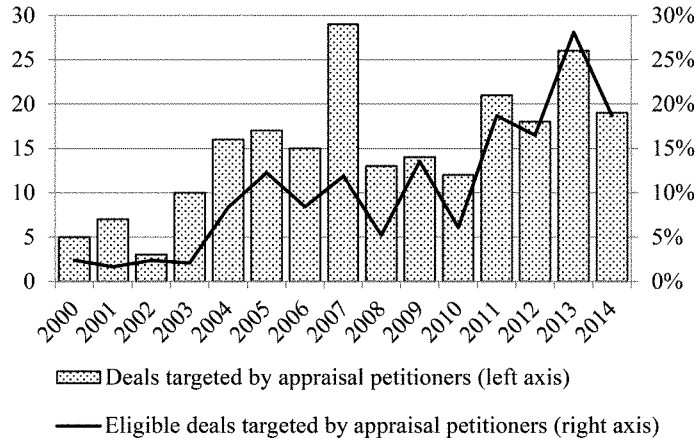

Figure 1. Deals resulting in appraisal petitions in the Delaware Court of Chancery

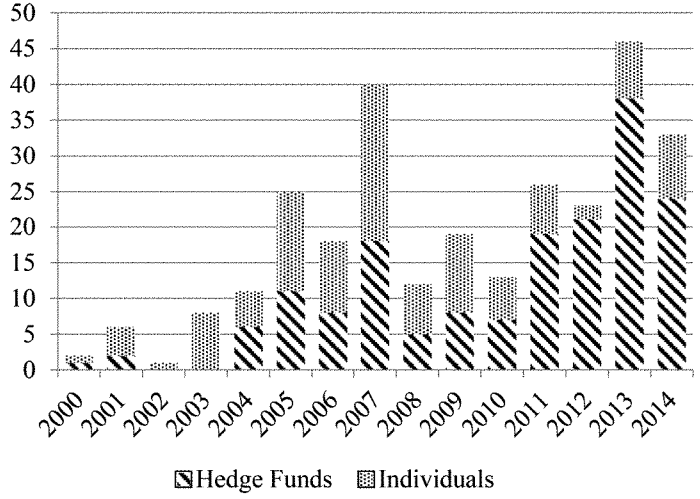

Figure 2. Number of appraisal petitions by investor type

petitions are filed by 86 hedge funds, which indicates the presence of some repeat players. Mutual funds take the second spot, with individuals next in dollar volume, although they make up the largest number of unique investors filing appraisal petitions and are second in terms of the number of deals that they challenge. The close correspondence between the number of unique individual investors and the number of deals challenged suggests that there are few repeat individuals filing appraisal cases.

Table 2 examines the top appraisal filers, which we define as investors that filed

Table 1
Appraisal Petitioners and Their Investments, 2000–2014

Type of Investor	Unique Investors	Deals	Total Dollar Volume (%)
Hedge fund	86	170	73.8
Mutual fund	8	8	13.6
Individual investor	118	122	7.1
Public or private company	20	20	2.1
Bank or insurance firm	3	3	1.7
Venture capital or private equity firm	11	12	1.5
Pension fund or plan	5	5	.3

Table 2
Top Filers of Appraisal Petitions

Petitioner	Deals	Unique Deals (%)	Total Dollar Volume (%)	Total Dollar Volume, 2000–2014 (%)
Merlin Partners LP	20	8.9	.9	1.5
Quadre Investments LP	13	5.8	.4	.6
AAMAF, LP	13	5.8	.6	1.0
Merion Capital LP	10	4.4	25.1	40.3
Patchin Value Master Onshore LLC	6	2.7	.2	.3
LongPath Capital LLC	5	2.2	.2	.3
Magnetar Capital	5	2.2	5.2	8.3
Dorno Investment Partners LLC	4	1.8	.1	.2
Predica Capital Fund I, LLC	4	1.8	.1	.0

Note. All investors are hedge funds. AAMAF = Ancora Arbitrage Fund.

four appraisal petitions or more during our sample period. It shows that all of the top filers by number of deals challenged are hedge funds. In addition, in terms of total dollar value, Merion Capital, Magnetar Capital, Merlin Partners, Ancora, and Quadre Investments are the main players.[13] Together they file petitions in 61 deals, or about 27.1 percent of all the deals challenged between 2000 and 2014. Given the prominence of repeat players, we are not surprised to see a similar concentration in the attorneys that represent them in this litigation. Table 3 presents the top plaintiffs' law firms that are involved in appraisal litigation. Prickett, Jones & Elliott has by far the largest market share, and most of its cases were filed on behalf of hedge funds.

Table 4 explores the distribution of the value of invested capital amounts that are represented in these cases, and we observe large variation in the value of securities for which petitioners seek appraisal. The average for all petitions in each

[13] A cross-check of the samples covered by Jiang, Li, and Mei (2016) and in this paper confirms Korsmo and Myers's (2015) statement that activist investors in M&A and appraisal petitioners have little overlap. The top players in nonappraisal activist risk arbitrage are mostly large hedge funds or asset management companies including GAMCO, Ramius, Millennium, and Elliott Associates.

Table 3

Top Law Firms Representing Plaintiffs

	Cases				Average % Stock Ownership		
	All Plaintiffs	Individuals	Hedge Funds	Other Clients	Individuals	Hedge Funds	Other Clients
Prickett, Jones & Elliott, P.A.	57	5	48	4	6.05	1.15	1.53
Grant & Eisenhofer, P.A.	17	1	8	8	.01	3.38	.04
Smith, Katzenstein & Jenkins LLP	17	0	17	0		.39	
Proctor Heyman Enerio LLP	15	4	5	6	.01	3.44	.04
Abrams & Bayliss LLP	9	0	9	0		3.13	
Mark Andersen, P.A.	8	1	7	0	.01	1.99	
Rosenthal, Monhait & Goddess, P.A.	6	3	3	0	6.37	16.63	

Table 4
Appraisal Petitioners' Invested Capital and Investment Horizon

	Invested Capital ($Millions)	Ownership (%)	Days between Effective Date and First Petition Filed	Days between First Petition Filed and Settlement Date	Days between First Petition Filed and Decision Date
Mean	26.254	4.61	75.2	359.3	835.1
SD	72.877	9.16	52.2	319.7	236.5
Percentile:					
5th	.023	.01	1	51	441
25th	.583	.27	29	134	729
50th	1.897	1.37	83.5	236	804.5
75th	8.250	4.97	118	487	1,003
95th	170.625	25.86	120	1,086	1,190

Note. Values in the first two columns are aggregated at the deal level.

deal is $26.3 million, with an interquartile range of $583,000 to $8.3 million. This suggests that a substantial number of these appraisal cases are filed by investors holding too little stock to justify the full costs of bringing one of these cases to trial (up to $3–5 million, according to Lafferty [2015]).

Another way of getting at this issue is to look at the ownership stakes of the petitioning shareholders. We find that the average percentage of ownership represented in these petitions is 4.6 percent, with an interquartile range of .3–5.0 percent. Again, these data plainly show that there are some very small appraisal cases being filed. Moreover, the average dissident ownership in appraisal cases is substantially lower than the 6–7 percent average in general hedge fund activism (Brav et al. 2008) or in activism specifically targeted at M&A deals (Jiang, Li, and Mei 2016).

We calculate that in 32 percent of the appraisal cases filed, the petitioners collectively have stakes less than $1 million and represent less than 1 percent of the total outstanding shares. The relatively large number of small-value appraisal petitions may have prompted the de minimis exception to the Delaware appraisal statute, which was discussed in Section 2.2. However, we note that there are also in our sample some very large cases in which the value of invested capital would clearly support the costs of aggressive litigation. Some examples include *Merion Capital LP et al. v. Safeway Inc.* (No. CV 10719-VCL [Del. Ch. 2015]), in which Merion demanded appraisal for shares that were worth $618.4 million at the closing of its acquisition by Albertsons Holdings, and *In re Appraisal of Transkaryotic Therapies, Inc.* (2007 WL 1378345 [Del. Ch. May 2, 2007]), in which securities worth $380.5 million were at stake. The recent Dell decision (*In re Appraisal of Dell Inc.*, 2016 WL 3186538 [Del. Ch. May 31, 2016]) involved a total stake of $132.2 million held by multiple petitioners.

Because short-form mergers are not subject to the de minimis exception, 32 percent is an upper-bound estimate of the proportion of cases that would be affected by this change. The SDC database does not flag short-form mergers, so instead we use a conservative approximation by excluding all appraisal petitions

that were filed after tender offers and second-step squeeze-out mergers. By excluding these appraisal petitions from the deals potentially affected by the de minimis exception, we calculate as a lower-bound estimate that 21.6 percent of the appraisals during 2000–2014 would have been disqualified by the de minimis exception.

Table 4 further provides the distribution of time involved in prosecuting appraisal cases. On average, there are 75 days between the merger's effective date and the filing of the first petition. Once a petition is filed, beginning the litigation process, then an additional 359 days pass, on average, before a settlement (if any) is reached. If the case proceeds to trial, an average of 835 days go by before the chancery court issues a decision.[14] The median judicially decided case takes over 2 years from petition to court decision. The total investor horizon for the petition is even longer for dissidents who acquire their stakes before the record date, which is on average 60 days (or 47 days in median) prior to the merger's effective date.

The dissidents, however, may welcome the long duration of these cases because companies are required to pay prejudgment interest on the appraisal award at a rate of 5 percent plus the federal discount rate, as discussed in Section 2. This is currently a decidedly above-market rate of interest and, as we discuss further below, represents a large proportion of the potential upside for appraisal petitioners.

The small stake of some petitioners, the relatively high statutory prejudgment interest rate, and the observation that over 80 percent of appraisal petitions result in settlements before trial raise the issue as to what proportion of the petitions were bona fide appraisals based on a genuine difference of opinion about the corporation's value versus those that are pure interest rate arbitrage using the litigation process. To get some insight into this issue, we compiled data on the amount of litigation activity that occurs in these cases as a measure correlated with the amount of effort expended by the petitioners in arguing their cases. In particular, we examined the docket sheets for all of the appraisal petitions filed between 2010 and 2014. We are interested in seeing how actively these cases are litigated during this sample period. Figure 3 presents the average and median number of filings. The distribution is highly skewed: whereas, on average, there are 95 docket entries recorded for the filings by all parties and the court, the median number of docket entries is much smaller at 26. As one would expect, most of the filings are made by petitioners, with the average and median level at 37 and 11, respectively.

While these data are suggestive of big differences in how these cases are litigated, we probe further to see how filing patterns vary across the cases. Table 5 displays data on the relationship between the number of filings and the value of capital invested by the petitioners in each deal. Litigation activity clearly increases with the amount of money at stake in the case. For cases in which the underlying amount invested was less than $1 million, the petitioners made, on average, 15.5 filings and settled their cases 100 percent of the time. By contrast, where the

[14] Our sample includes five cases that were dismissed by the court for technical defects (usually because the shareholder failed to satisfactorily follow all of the steps needed to perfect its appraisal right), and three cases were voluntarily withdrawn.

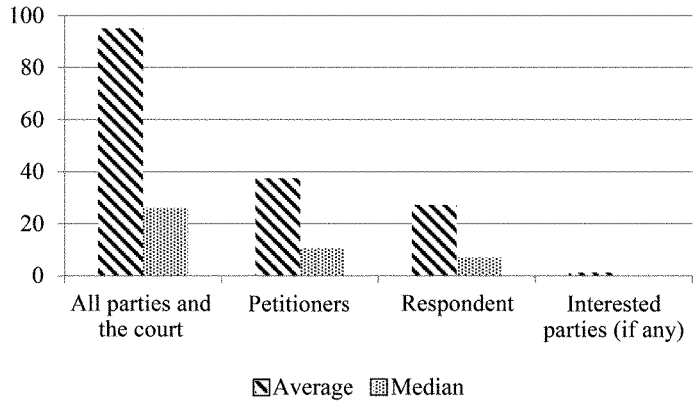

Figure 3. Number of appraisal filings by party, 2010–2014

average value of the capital invested exceeded $10 million, the average petitioners' filings rose to 96 and 50 percent of the cases went to trial. This suggests that the amount of a petitioner's stake in the appraisal could be a good indicator of whether the litigation will go to trial instead of leading to a relatively quick settlement.

Another way of looking at this issue is to scrutinize the relationship between the amount of litigation in an appraisal action and the type of M&A transaction. In general, if an arm's-length sale of a corporate entity occurs after a seemingly diligent sale process, where the sale is recommended by a majority independent board, approved by a majority of stockholders, and endorsed by a fairness opinion (which are sought by over 80 percent of the merger targets since *Smith v. Van Gorkom*, 488 A.2d 858 [Del. 1985], according to Kisgen, Qian, and Song [2009]), it will be difficult for the plaintiffs to show that their stock was undervalued in the merger (*In re Appraisal of Ancestry.com, Inc.*, 2015 WL 399726 [Del. Ch. January 30, 2015]).

In Table 5 we also examine appraisal cases that are filed in transactions in which there is an ex ante perceived conflict of interest, such as minority squeeze outs, going-private deals, and deals with low offered premiums, which may lead to underpayment for the shares of the public investors. Finally, we examine low-premium deals, where we sort transactions by premiums offered and define the bottom 25 percent of such deals as low-premium deals.

Table 5 shows that, for these suspect transactions that are often indicators of managerial conflicts of interest, appraisal cases are filed by shareholders holding an average of 1.8–3.4 percent of a company's outstanding stock, which puts them among the lower one-half in terms of ownership stake in our overall sample for 2010–14. Petitioners' filings range from an average of 20.9 to 56.6, compared with the sample average of 37.4 filings. A similar pattern exists for respondents' filings. The number of total docket entries for going-private deals significantly exceeds

Table 5

Statistics for Settled and Litigated Cases

	Filings					Cases	
	Stock Ownership (%)	All Parties and the Court	Petitioners	Respondent	Any Interested Party	Settled	Resolved by Court
Value of invested capital:							
<$1 Million	4.28	35.4	15.5	8.2	0	11	0
	[.70]	[25]	[7]	[7]	[0]	(354.2)	
$1–$5 Million	1.23	41.2	15.9	10.5	.4	29	3
	[.52]	[21.5]	[7]	[5]	[0]	(195.9)	(794.7)
$5–$10 Million	2.63	59.5	21.8	18.7	0	5	1
	[2.62]	[30.5]	[13.5]	[5]	[0]	(362.8)	(729.0)
≥$10 Million	6.60	242.2	96.0	70.8	4.0	5	5
	[3.55]	[94]	[28]	[25]	[0]	(226.6)	(799.2)
Type of deal:							
Minority Squeeze-Out	1.80	45.4	20.9	10.9	.2	7	1
	[.85]	[25]	[5]	[5]	[0]	(202.4)	(719.0)
Going Private	3.39	145.6	56.6	42.9	1.5	18	5
	[1.60]	[25]	[9]	[5]	[0]	(193.8)	(763.4)
Low Premium	2.71	93.8	35.7	28.3	.8	16	3
	[1.26]	[26]	[9]	[6]	[0]	(279.1)	(802.7)
2010–14	3.42	95.0	37.4	27.2	1.2	53	10
	[1.36]	[26]	[10.5]	[7]	[0]	(279.8)	(755.0)
2000–14	4.61					109	27
	[1.37]					(359.3)	(835.1)

Note. The sample consists of the 150 petitions from 2000 to 2014 (by effective date) included in the Securities Data Company database. Values in square brackets are medians; values in parentheses are, for cases that settle, average number of days to settlement and, for cases resolved by the court, average number of days to decision.

the sample average because of a few large deals such as those of Dell and Dole Food.

Overall, these cases are more likely to settle than to be resolved by the court. The percentage of cases that settle is 88 percent, 78 percent, and 84 percent, respectively, for minority squeeze-outs, going-private transactions, and low-premium deals. This suggests that potentially strong cases are in fact settled earlier by defendants, which leads to less litigation activity.

4. Characterizing Appraisal Petitions and Trials

4.1. Deal Characteristics and Appraisal Petitions

We turn next to an analysis of the deals' characteristics associated with appraisal filings. (The variables of interest in this and the following analyses are defined in the Appendix.) Table 6 reports characteristics of merger target companies that are subject to appraisal petitions in comparison with target firms in appraisal-eligible deals where no petitions were filed.

These results show that deals involving appraisal litigation, on average, have an announcement premium of 21.5 percent, compared with a 36.0 percent premium for deals without appraisal petitions. The difference is significant at the 1 percent level. Similarly, deals with appraisal litigation filed have a lower final offer premium, with a difference of 12.4 percent versus those without appraisal litigation. If we look at the types of transactions that attract appraisal litigation, we see that these cases are more commonly filed in going-private deals and squeeze outs, which are among the most susceptible to conflicts of interest between insiders and outside shareholders.

Interestingly, petitioners are more likely to target deals with greater institutional ownership, presumably because such target stocks have a more liquid market, especially after the announcement date and around the record date. Their stock purchases would have a lower price impact, and thus the transactions would be more profitable. For other major deal attributes, such as deal value, target profitability (return on assets), and deal duration, there is little difference between appraisal-targeted deals and appraisal-eligible deals involving no appraisal litigation.

Table 7 presents the predictive model in a multivariate framework. The results are from a probit regression in which the dependent variable is a dummy variable for the appearance of any appraisal petition in the deal for a sample that includes the eligible deals with all the required information. Because of a lack of exogenous shocks, the predictive model does not allow us to make causal inferences, especially for variables that represent choices made by the players. The purpose of this analysis is to present the patterns in appraisal filings that are informative of the parties' underlying economic motives.

Table 7 reports the full-sample analysis without year fixed effects. As expected, and consistent with results in Table 6, a low announcement premium is associated with a higher likelihood of filing an appraisal petition. If the premium is 10

Table 6
Comparison of Deal Characteristics

	Merger Targets with Appraisals			Difference with Eligible Targets without Appraisals	
	Average	Median	SD	Difference in Average	*t*-Statistic of Difference
Announcement Premium (%)	21.5	19.2	30.6	−14.5**	−3.86
Final Offer Premium (%)	25.3	21.5	34.6	−12.4**	−3.23
Revision Return (%)	3.7	.0	13.5	2.0*	1.75
Deal Value ($millions)	1,622.7	261.6	5,064.0	−78.1	−.18
Return on Assets (%)	4.8	11.4	41.6	2.6	.67
% Minority Squeeze Out	19.3	0	39.6	13.1**	5.83
% Going Private	36.7	0	48.4	7.3+	1.86
% Acquirer Toehold	9.3	0	23.4	3.6*	2.31
% Friendly	97.3	1	16.2	−.4	−.32
% Tender Offer	26.0	0	44.0	−3.7	−.95
% Same Industry	36.0	0	48.2	−5.4	−1.28
Institutional ownership (%)	54.6	53.5	27.6	7.3*	2.29
Insider Ownership (%)	10.5	3.7	19.2	−.9	−.46
Deal Duration	106.6	77.0	122.4	−7.3	−.98

Note. Characteristics of 152 deals involving appraisal petitioners with effective dates between January 2000 and December 2014 are compared with 1,414 petition-eligible deals with no petitioners. The sample includes all closed deals included the Securities Data Company database in which the target is incorporated in the state of Delaware.

+ $p < .10$.
* $p < .05$.
** $p < .01$.

percentage points lower, the probability of an appraisal petition increases by 72 basis points (significant at the 5 percent level). If we use the final offered premium (not tabulated), both the statistical significance and economic magnitude (63 basis points) are similar. We also examine going-private and minority squeeze-out deals, which are commonly perceived as being the transactions most susceptible to conflicts of interest and unfair pricing to the public shareholders. The results for both types of deals are significantly (at the 10 percent level and the 1 percent level, respectively) associated with a higher probability of appraisal filings.

Next, the variable Tender Offer predicts an increase in the probability of an appraisal petition by 2.6 percentage points, and the effect is significant at the 10 percent level. These are deals that combine a tender offer with a merger in two steps. In the first step, the buyer initiates a tender offer to acquire a majority of the outstanding target company's stock. In the second step, the buyer completes a back-end merger to acquire the balance of the target company's stock. The remaining shareholders retain their appraisal rights if they do not consent to surrendering their shares or if their consent is not sought (for example, in short-form mergers in which at least 90 percent of the target company's stock was already acquired by the parent company in the tender offer). Short-form mergers are a frequent source of appraisal litigation, as they are minority shareholders' only recourse if

Table 7

Deal Characteristics Predictive of Appraisal Petitions, 2000–2014

	Coefficient	*t*-Statistic	Marginal Probability (%)	Coefficient	*t*-Statistic	Marginal Probability (%)
Announcement Premium	−.63*	−2.30	−7.2	−.68*	−2.34	−5.0
Going Private	.25+	1.95	3.0	.18	1.36	1.4
Minority Squeeze Out	.59**	3.18	9.8	.89**	4.43	12.8
Excess Yield (%)	.12*	2.00	1.3	−.18	−1.16	−1.3
Friendly	.17	.45	1.7	−.24	−.61	−2.1
Institutional Ownership	.24	1.00	2.7	.15	.58	1.1
Deal Value (log $millions)	.05	1.21	.5	.01	.09	.1
Insider Ownership	−.11	−.36	−1.2	.17	.53	1.3
Same Industry	−.14	−1.19	−1.6	−.21+	−1.67	−1.5
Return on Assets	.12	.41	1.4	.13	.40	1.0
Tender Offer	.21+	1.89	2.6	.17	1.46	1.3
Year dummies	No	No	No	Yes	Yes	Yes
Pseudo R^2	.06			.18		
Appraisal (%)	6.9			6.9		

Note. Independent variables are measured at the effective date, except where otherwise defined. The dependent variable is a dummy variable equal to one if the deal is targeted by one or more appraisal petitioner and zero if it involves no such petitioners. Probit coefficients, their heteroskedasticity-robust *t*-statistics, and the marginal probability of change induced by a 1-unit change in the value of a specific covariate from its sample average are reported. $N = 1{,}326$.

+ $p < .10$.

* $p < .05$.

** $p < .01$.

they feel that the deal price is too low. Thus, the effect of a tender offer is closely related to that of a short-form merger.

Finally, excess yield is defined as the spread between the statutory rate (the federal discount rate plus 5 percentage points) and the yield on 2-year US Treasury notes.[15] It is significantly (at the 5 percent level) associated with a higher probability of appraisal filings. Given that Excess Yield entails variation only along the time series and does not vary across deals during roughly the same time, we confirm the statistical relation in a time-series regression of 180 months in which the dependent variable is the number of appraisals during the month and the independent variable is excess yield during the month. The resulting coefficient is .36, which is significant at the 1 percent level.

Table 7 also presents the predictive model incorporating yearly fixed effects. All variables retain qualitatively similar coefficients except Excess Yield because it is slow moving most of the time and hence lacks within-year variation. As a result, it bears no significant relation to the emergence of an appraisal when only within-year variation is considered. For this reason, we cannot distinguish between a hypothesis that the positive relation represents a form of interest rate arbitrage and a hypothesis that attributes the relation to a missing variable that could capture factors such as hedge fund experience that coincide with the interest rate cycle.

Some legal scholars argue that the landscape of appraisals changed dramatically around 2007–8, after the landmark *Transkaryotic* ruling and the 2007 amendment to the Delaware appraisal statute that set the default prejudgment interest rate, both discussed in Section 2.1. For this reason, we separate our sample period into two intervals: 2000–2007 and 2008–14. The regression results from the two periods are presented in Table 8. Because there were far more appraisal deals during the second period, the statistical significance of coefficients is not necessarily comparable across the two periods. In terms of the economic magnitude, the subsamples are largely consistent except that the point estimate for the sensitivity of appraisal petition to Excess Yield is twice as larger in the post-2007 period, which suggests that a potential interest rate arbitrage embedded in appraisal petitions is a relatively recent phenomenon. Moreover, the results are robust if we exclude 2008 observations, given the potentially special circumstances during that year of financial crisis.

4.2. Deal Characteristics and Arbitrageur Ownership Stakes

Table 9 presents a related analysis but focuses on the size of the stake held by the filing shareholders. We divide filing petitioners into two groups: large petitioners and small petitioners, which we separate by whether they collectively invested more or less than $1 million in the target stock (which is the 27th per-

[15] Federal discount rates are obtained from the Federal Reserve System, whereas yields on 2-year US Treasury notes are downloaded from Bloomberg Terminal. We choose the 2-year rate to match the typical duration of an appraisal case. Results are almost identical if the 3-year treasury rate is used instead.

Table 8

Comparison of Predictive Regressions between Separate Sample Periods

	2000–2007			2008–14		
	Coefficient	*t*-Statistic	Marginal Probability (%)	Coefficient	*t*-Statistic	Marginal Probability (%)
Announcement Premium	−.62+	−1.89	−3.6	−.74+	−1.73	−13.0
Going Private	.23	1.22	1.5	.16	.93	3.0
Minority Squeeze Out	.39	1.39	3.1	.99**	3.32	27.6
Excess Yield (%)	.17	1.50	1.0	.33**	2.62	5.8
Friendly	−.28	−.56	−2.1	.25	.42	3.7
Institutional Ownership	.27	.57	1.6	−.05	−.14	−.8
Deal Value (log $millions)	.01	.13	.0	.05	.98	.9
Insider Ownership	.43	1.02	2.5	−.50	−1.17	−8.7
Same Industry	−.21	−1.11	−1.2	−.18	−1.11	−3.2
Return on Assets	−.17	−.42	−1.0	.41	1.01	7.1
Tender Offer	−.09	−.52	−.5	.19	1.27	3.5
N	805			521		
Pseudo R^2	.07			.09		
Appraisal (%)	3.4			12.3		

Note. Independent variables are measured at the effective date, except where otherwise defined. The dependent variable is a dummy variable equal to one if the deal is targeted by one or more appraisal petitioner and zero if it involves no such petitioners. Probit coefficients, their heteroskedasticity-robust *t*-statistics, and the marginal probability change induced by a 1-unit change in the value of a specific covariate from its sample average are reported.

+ $p < .10$.

** $p < .01$.

Table 9
Results for Deals with Large and Small Appraisal Petitioners

	Large Petitioners	*t*-Statistic	Marginal Probability (%)	Small Petitioners	*t*-Statistic	Marginal Probability (%)
Full sample, 2000–2014:						
Announcement Premium	−1.27*	−2.02	−6.0	−1.81*	−2.25	−2.7
Going Private	.61*	2.13	2.9	.22	.40	.3
Minority Squeeze Out	1.14**	2.85	5.4	1.00+	1.73	1.4
Excess Yield (%)	.13	1.10	.6	.36	1.51	.5
Friendly	.12	.16	−.7	2.37**	4.69	18.3
Institutional Ownership	.46	.84	2.2	.41	.44	.6
Deal Value (log $millions)	.15*	1.89	.7	−.08	−.40	−.1
Insider Ownership	−.36	−.49	−1.8	.29	.27	.5
Same Industry	−.37	−1.29	−1.8	.01	.03	.1
Return on Assets	.24	.33	1.1	.32	.25	.5
Tender Offer	.67**	2.67	3.3	−.50	−.95	−.8
N	1,326					
Pseudo R^2	.07					
Deal is targeted by (%)	5.3			1.6		
Subsample, 2008–14:						
Announcement Premium	−1.47*	−1.68	−12.4	−2.65**	−3.57	−3.6
Going Private	0.43	1.22	3.9	−.73	−.85	−1.2
Minority Squeeze Out	1.70**	3.18	14.7	1.42	1.34	2.2
Excess Yield (%)	.52*	2.33	4.4	.68	1.57	.9
Friendly	.17	.18	.7	11.13**	4.79	16.2
Institutional Ownership	−.13	−.21	−1.1	−.15	−.10	−.2
Deal Value (log $millions)	.15	1.50	1.4	−.29	−.75	−.5
Insider Ownership	−.86	−1.00	−7.3	−1.36	−.82	−1.8
Same Industry	−.58+	−1.64	−5.2	.74	.91	1.2
Return on Assets	.39	.52	2.9	2.94	.78	4.2
Tender Offer	.44	1.46	4.0	−.68	−.74	−1.1
Pseudo R^2	.10					
Deal is targeted by (%)	10.7			1.5		

Note. Independent variables are measured at the effective date, except when otherwise defined. Multinomial logit coefficients, their heteroskedasticity-robust *t*-statistics, and the marginal probability change induced by a 1-unit change in the value of a specific covariate from its sample average are reported. $N = 521$.

+ $p < .10$.

* $p < .05$.

** $p < .01$.

centile at the deal level). Small petitioners collectively own less than $1 million in target shares. Recall that small petitioners would not have appraisal remedy rights under the de minimis exception. The estimation method is a multinomial logit model with unordered outcomes, recognizing that the two types of appraisals have motives that are different and are not necessarily ordered functions of the deal's characteristics. The base outcome (no outcome) is no appraisal filed; large (above $1 million) petitions are coded as the category 1 outcome, and small petitions are coded as the category 2 outcome.

The full-sample results show that only minority squeeze-out and friendly deals seem to prompt low-stake petitions. These small deals are more likely to

be brought by preexisting shareholders or individual shareholders. In contrast, larger petitions have more characteristics that are correlated with their emergence. Both going-private and minority squeeze-out deals are among the most susceptible to conflicts of interest between insider or controlling owners and public shareholders, and the presence of these factors is associated with significant increases of 2.9 and 5.4 percentage points, respectively, in the probability of the filing of a large-stake appraisal petition. Another significant factor is the size of the premium paid in the transaction: every increase of 10 percentage points in the announcement premium reduces the predicted probability of a larger shareholder filing an appraisal petition by 60 basis points, plausibly because a low premium is more likely to be perceived by a court as a bad deal for target shareholders, especially when deal and firm characteristics are controlled for in a regression framework.

Excess yield is not significant for either category of claimant in the full sample in this two-state prediction model. The use of a tender offer in an M&A deal is associated with a 3.3-percentage-point heightened risk of the filing of an appraisal petition by a larger shareholder. In these cases investors claim that the valuation is inadequate in a back-end merger, which is frequently a short-form merger in our sample.

Following the same practice, we separate the sample into 2000–2007 and 2008–14 subperiods. None of the coefficients in the pre-2008 sample period are significant (hence, they are not tabulated) because of the small number of event observations after further partitioning the event outcomes into large and small petitioners. Table 9 also reports the analysis using the 2008–14 subsample. During this period, the effect of excess yield becomes significant for large-stake petitions, which suggests that the interest rate arbitrage motive we identified in the later time period of the pooled sample is driven by deals brought by investors with larger stakes. Another notable difference is that a friendly deal increases the predicted probability of a small-sized investor petition by 16.2 points, a much larger magnitude compared with either the pre-2008 sample or the large-sized-investor petition. Such contrasts, combined with the insignificance of Going Private and Minority Squeeze Out, suggest that in recent years appraisals may have provided an avenue for small investors to file a new form of strike-suit litigation seeking to force friendly acquirers to pay them a bit extra.

4.3. Trial among Appraisal Petitions

Next we analyze what predicts when an appraisal petitioner proceeds to trial once an appraisal petition is filed. In the analysis, the relevant sample is the 91 filed appraisal deals in which the key variable is not missing. The dependent variable is a dummy variable for the appraisal being brought to trial rather than being settled, which we interpret as a measure of the seriousness with which the petitioner intends to pursue its appraisal case. The results from our probit regressions are presented in Table 10.

Table 10
Trial among Appraisal Petitions

	Coefficient	t-Statistic	Marginal Probability (%)	Coefficient	t-Statistic	Marginal Probability (%)
I(Investment $\geq$ \$10 million)	1.09*	2.43	22.4			
I(Investment $\geq$ \$1 million)				.25	.57	4.5
Announcement Premium	−.57	−.71	−10.1	−.61	−.95	−12.0
Going Private	.01	.00	0.1	−.06	−.18	−1.2
Minority Squeeze Out	.38	.71	7.8	.03	.05	.5
Excess Yield (%)	−.18	−.39	−3.1	−.15	−.38	−2.9
Friendly	−1.26	−1.29	−38.6	−1.12	−1.04	−35.0
Institutional Ownership	.11	.12	1.9	−.22	−.26	−4.4
Deal Value (log \$millions)	−.07	−.51	−1.2	.06	.49	1.3
Insider Ownership	.83	1.14	14.6	1.33+	1.82	26.2
Same Industry	−.92+	−1.66	−13.5	−.93+	−1.71	−15.3
Return on Assets	−.93	−.94	−16.4	−1.23	−1.24	−24.4
Tender Offer	.69+	1.68	13.9	.57	1.26	12.3
Pseudo R^2	.24			.16		
Trial (%)	15.4			15.4		

Note. Independent variables are are measured at the effective date, except when otherwise defined. Probit coefficients, their heteroskedasticity-robust t-statistics, and the marginal probability change induced by a 1-unit change in the value of a specific covariate from its sample average are reported. $N = 91$.

+ $p < .10$.

* $p < .05$.

The independent key variable of interest is the size of the petitioners' stake, I(Investment $\geq$ \$10 million) and I(Investment $\geq$ \$1 million), which indicate investment by the dissidents in the target firm of over \$10 million or \$1 million, respectively. We see that an investment amount above the \$10 million threshold increases the predicted probability of an appraisal case going to trial by an additional 22.4 percentage points; that is, the probability of a large-investment case going to trial is expected to more than double the average sample probability of 15.4 percentage points. The effect is significant at the 5 percent level. In results not tabulated, we find that this effect is also statistically significant if we use a \$5 million cutoff. However, at the \$1 million cutoff, the effect becomes indistinguishable from 0 both economically and statistically. Overall, the evidence suggests that the high cost of taking an appraisal cost to trial makes it uneconomical to pursue small cases (up to a few million dollars) all the way to a judgment.

A separate analysis focusing on the post-2007 period indicates that all effects mirror those of the full sample in terms of both economic magnitude and statistical significance. For this reason, the subperiod results are not tabulated.

4.4. Economic Motives for Appraisal Arbitrage: Petitioners and Issuers

4.4.1. Gross Returns for Petitioners from Appraisal Arbitrage

A comprehensive assessment of returns from appraisal arbitrage is difficult for two reasons. First, a large majority of the appraisal cases are settled out of court. The final settlement price is usually not disclosed because of a confidentiality agreement between the petitioner(s) and the respondent. Second, the legal and administrative costs of litigating these cases are not observable. Despite these challenges, we are able to perform a precost return analysis for a subsample of 126 observations (101 from trials involving 60 unique transactions and 25 from settlements involving 18 unique deals) for which we have information about the final amounts awarded to the petitioners.[16] Results are reported in Table 11.

Table 11 shows that the total raw returns (before costs are considered) are highly lucrative, given the low risk of investments in target shares. Although the standard deviation of raw returns is sizable, 100 percent of the deals provide nonnegative raw returns, with the minimum being 0 percent.[17] Such a pattern suggests that the observed dispersion mostly captures a long right tail of returns.

With the caveat that we have only a small sample of settled cases in which the terms of the settlement were publicly disclosed,[18] we compare returns from deals receiving judge-determined prices with those in settled cases. The table suggests that arbitrageurs tend to receive significantly higher awards if they go to trial. The difference in the average (median) total raw return between trial and settlement cases is 51.3 percent (15.7 percent). However, because of the much longer time required to obtain a court decision, the settlement cases in fact exhibit higher annualized raw returns.

For the trial sample,[19] we can decompose the total return into two disjoint parts. The first component is valuation improvement, that is, the percentage increase in the valuation awarded by the court over the price offered at the completion of the merger. The second component is the interest accrual on the proceeds awarded to petitioners. The average return from the second component is larger than the first one by 7.2 percentage points, while the median returns from the two components are comparable. This decomposition suggests that the accrual of

[16] Certain deals in our sample involve multiple petitioners. Different petitioners may also receive different payments depending on whether and when they settle with the respondent. See, for example, *Merion Capital LP et al. v. Safeway Inc.*, No. CV10719-VCL (Del. Ch. 2015).

[17] There are seven cases (including, for example, *In re Trados Inc. S'holder Litig.*, No. CV 1512-CC [Del. Ch. February 26, 2009]), for which we code a return of 0 for the petitioners: six cases in which the valuations of the disputed securities were $0 at merger completion and remained at $0 by the court ruling and one case in which the petitioner withdrew with a valuation of $0. Because the final valuations were $0 in these cases, there was no accrued interest, leading to a total raw return of $0. All other cases have positive total raw returns.

[18] We attempted to collect data on the values awarded in all settlements, but the parties involved in these cases declined to disclose this information.

[19] For the small sample of settled cases for which we have some information about the shareholder awards, the same decomposition is not available. This is because the settlement terms, when disclosed, reveal only the total awards to the petitioners.

Table 11
Gross Returns from Appraisal Litigation

	Average	SD	25th Percentile	Median	75th Percentile
Full sample ($N = 126$):					
Total raw return (%)	98.2	196.5	21.2	49.9	94.4
Annualized raw return (%)	32.9	36.1	8.3	19.3	45.5
Market-adjusted total return (%)	64.1	174.7	−6.1	27.7	73.4
Market-adjusted annualized return (%)	26.2	42.6	−2.1	10.7	28.7
Trial subsample ($N = 101$):					
Total raw return (%)	108.3	216.5	27.8	49.9	102.5
Annualized raw return (%)	32.5	37.0	10.0	19.2	42.9
Total return from value improvement (%)	50.6	73.8	0	26.2	63.3
Annualized return from value improvement (%)	20.5	30.9	0	9.8	21.1
Total return from interest accrual (%)	57.8	169.0	16.8	24.6	32.6
Annualized return from interest accrual (%)	12.1	11.9	7.5	8.4	14.2
Settlement subsample ($N = 25$):					
Total raw return (%)	57.0	58.8	13.0	34.2	90.9
Annualized raw return (%)	34.3	32.6	8.3	28.4	45.5

interest contributes significantly to the returns to appraisal litigation, as it boosts expected returns and at the same time completely eliminates the downside risk. Combined evidence supports interest rate arbitrage as an important motive for appraisal seekers.[20]

In untabulated results, we broke down the sample period into two intervals: 2000–2007 and 2008–14. The average (median) raw return during the earlier period is 129.6 percent (56.0 percent), which is significantly higher than those for the more recent period, 53.4 percent (49.9 percent). The difference is driven by the trial subsample, possibly because of the fact that during the pre-2008 era there are more individual investors (60.8 percent versus 46.2 percent), who are more likely to resort to appraisal as a governance remedy in squeeze outs, which tend to lead to higher awards. Interestingly, the pattern is reversed among the settlement cases for which we have information: investors in the 2008–14 period obtain an average (median) gross return of 88.3 percent (90.9 percent), which is substantially higher than the 39.4 percent (21.2 percent) gain in the earlier period. This contrast suggests that specialized players, mostly hedge funds, are better at extracting settlement terms from the defendant and suggests that some strike suits may be occurring.

4.4.2. Cost of Appraisal Arbitrage by Petitioners

Unlike estimates of the gross returns of appraisal arbitrage, which build on market data and information disclosed in legal filings, the cost of litigation re-

[20] In the absence of interest incomes, 6.9 percent of petitioners would have incurred negative raw returns, that is, received returns based solely on the court-determined valuation that were lower than the takeover offer price.

lated to the arbitrage can only be informally calibrated because the parties are not required to disclose costs. In this section, we attempt a rough cost estimate for cases that go to trial[21] based on stylized parameters arising from our interviews with judges, plaintiffs' lawyers, and defense counsel.

In particular, we assume, largely on the basis of these conversations, that the plaintiffs' attorneys' fees for trying a case amount to 20 percent of the difference between total recovery (appraised price of stock plus accrued interest) minus the value of the stock at the deal price for plaintiffs' holdings up to $100 million and 10 percent for larger deals (we note that there are very few of them).[22] Retaining a valuation expert typically costs between $500,000 and $2 million, depending on the hourly rate of the expert and the amount of time he or she puts into the case.

For simplicity, we apply $0, $500,000, $1 million, and $2 million to the quartiles of total plaintiff holdings in a deal.[23] On the basis of such an algorithm, we estimate the average (median) total plaintiff cost to be $2.86 ($1.26) million, with an interquartile variation of $510,000–$3.94 million at the deal level (which may involve multiple petitioners). According to the practitioners, total costs of more complex cases could run up to a total of $4–$7 million. Our estimates are of the same magnitude as those of Lafferty (2015), who estimates the total cost of defending an appraisal case to judgment to be $3–$5 million.

If we apportion the total plaintiffs' costs at the deal level to individual petitioners on the basis of their individual holdings and match them to the gross return (calculated as in Table 11), the average (median) net return from appraisal arbitrage would be reduced to 73.1 percent (31.2 percent), with an interquartile range from 13.8 percent to 71.3 percent. The average (median) annualized net return would be 24.6 percent (16.8 percent), with an interquartile range of 6.1 percent to 30.1 percent.

4.4.3. Appraisal Threat: Cost Comparison for Issuers

Needless to say, petitioners' returns constitute the issuers' costs, which are further increased by their own legal expenses. This raises the question about the trade-off the acquirer faces between paying a lower price and inviting an appraisal versus paying a higher transaction premium to preempt appraisal filings. In theory, the threat of an appraisal cannot be eliminated; instead we calibrate, for each deal, the incremental acquisition premium needed to halve the predicted probability of an appraisal filing (as a proxy for a significant reduction of the risk), using the full-sample prediction model in Table 7.

There are only 29 appraisal deals for which we have complete information

[21] Feedback from our interviews with practitioners suggests that there are both large and unpredictable variations in the legal cost of settled cases and that a back-of-the-envelope calculation of the average cost is not meaningful without additional structural information.

[22] Plaintiffs' firms are typically paid on a contingent-fee basis, but our data show that extremely few cases are dismissed without a settlement or a trial award.

[23] The bottom quartile largely comprises individual investors, whose stakes are usually significantly below $500,000. There is little evidence in court filings that these investors retained valuation experts.

about both the actual offered premium and the valuation awarded to petitions. Although the sample is small, the comparison is quite informative. The incremental premium needed to halve the risk of an appraisal filing would cost the firm on average $660.2 million, while the actual incremental award (beyond the deal price) paid to dissenting shareholders costs the firm $88.2 million. The savings on average amounts to 42 percent of the deal value. The median saving, at $44.1 million, is also considerable. More important, there is not a single case in which preempting appraisal filings is financially more attractive for the issuer. Such an outcome is not surprising, given that the higher acquisition premium would be paid to all shareholders, while the ex post remedy from an appraisal goes to the dissenting shareholders only. Therefore, there is no clear financial motive for issuers, on the margin, to preempt appraisal filings by offering more generous premiums ex ante.[24]

5. Implications of Delaware's Appraisal Law Reforms

5.1. The De Minimis Exception

In this section, we build on Tables 7–10 and further examine the potential effects of implementing the requirement that petitioners have a minimum stake of $1 million in, or 1 percent of the stock of, the company for which the petitioner is seeking appraisal.[25] We estimate the extent to which the volume and the composition of the appraisal petitions would have changed if the de minimis exception had been in place prior to 2000, the beginning of our sample period.

We use a probit regression to analyze the likelihood of an appraisal filing that would not fall under the de minimis exception for our sample of 1,326 appraisal-eligible deals. The covariates remain the same as in Tables 7, 8, and 9, while the dependent variable is an indicator of whether a case is filed with the petitioners collectively holding either more than $1 million or more than 1 percent of outstanding shares. The results are reported in Tables 12 and 13. Table 12 presents results for the full sample, while Table 13 presents subperiod analyses.

Table 12 shows that deals with low values for Announcement Premium, Going Private, and Minority Squeeze Out seem to motivate high-stake filings, with the first two variables significant at the 5 percent level and Minority Squeeze

[24] We acknowledge that this analysis is based on assumptions that the predictive model is well specified, that other factors are held constant, and that the marginal effect of acquisition premium from the predictive model could be extrapolated to large changes in the variable. This analysis also should not be interpreted as suggesting that the acquirer should pay as little premium as possible. There are obviously other constraints on the level of premium paid, including the target's willingness to sell and the possibility of full-swing shareholder activism to block deals with a perceived inadequate premium (see Jiang, Li, and Mei 2016).

[25] Strictly speaking, the de minimis threshold applies to all dissenters' shares, which could be higher than the total shares held by all petitioners that filed cases. We randomly picked 15 cases and retrieved information about total dissenter shares from Bloomberg Law. For the 11 cases with complete information, the two numbers are identical in 10 cases and differ by .12 percent in one. None of the cases examined would change its classification for the de minimis threshold if we used total dissenter shares instead of total shares represented by petitions. We thank Minor Myers for bringing this point to our attention.

Out significant at the 1 percent level. Moreover, Tender Offer, which is related to short-form mergers, is associated with higher incidences of the emergence of high-stake dissidents. Table 13 provides similar messages except that minority squeeze-out and excess yield are stronger predictors in the post-2007 period for major investment in the target firm by the petitioners, conditional on the occurrence of an appraisal.

A comparison between the results in Tables 12 and 13 and those in Tables 7, 8, and 9 clearly indicates that the same factors that appeal to appraisal arbitrageurs also motivate them to acquire higher stakes in the deal. Such a relation suggests that restricting the minimum stake to $1 million or 1 percent of outstanding stock is unlikely to distort the primary motives to file an appraisal petition: appraisal arbitrageurs will continue to target deals with the appearance of a conflict of interest or unfair pricing, for example, going-private deals, minority squeeze-out deals, and deals with low premiums. In fact, these effects will become stronger after the passage of the de minimis exception because, as shown in Table 9, these variables are more significant predictors of large- rather than small-stake petitions.

Similarly, the de minimis exception with a threshold of $1 million or 1 percent of outstanding stock should not be expected to change the number of trials, conditional on a petition being filed, as shown by the insignificant coefficient on $I(\text{Investment} \geq \$1 \text{ million})$ in Table 10. In fact, a threshold as high as $5–$10 million is necessary to reduce the proportion of cases that are settled out of court.

Moreover, the predictive model in Table 12 allows us to form an upper bound for the number of appraisal petitions that would have been filed if the de minimis exception were implemented earlier, assuming that petitioners do not alter their desired stake size. On the basis of the prediction model reported in Table 12, and applying the regression coefficients on the 2015 deal characteristics, we find that there would have been at most 38.5 percent of deals with appraisal petitions filed in 2015 that would have been binding under the de minimis exception. The number drops to 22.7 percent if we exclude all appraisals following tender offers and second-step mergers from the affected deals (as proxies for short-form mergers). The fact that between one-quarter and one-third of the deals would have emerged below the de minimis exception threshold suggests that either a large number of cases would have been dropped or the petitioners would have raised their collective stakes had the reform been in place from 2000. It is worth noting that the impact will be disproportionately borne by individual petitioners who are present in two-thirds of the cases for which the de minimis exception is binding.

5.2. Interest Reduction Amendment

The results in Tables 7, 8, and 9 shed light on the reasons for reforming Delaware law to reduce the prejudgment rate of interest applied in appraisal cases. As discussed for Tables 7 and 8, Excess Yield, which is defined as the spread between the federal discount rate plus 5 percentage points and the yield on 2-year US

Table 12
Appraisal Petitions over $1 Million in Value or 1 Percent of Outstanding Stock, 2000–2014

	Coefficient	*t*-Statistic	Marginal Probability (%)
Announcement Premium	−.60*	−2.00	−5.6
Going Private	.28*	2.13	2.9
Minority Squeeze Out	.57**	2.89	7.9
Excess Yield (%)	.08	1.44	.8
Friendly	.06	.18	.6
Institutional Ownership	.23	.89	2.1
Deal Value (log $millions)	.05	1.19	.4
Insider Ownership	−.23	−.69	−2.1
Same Industry	−.17	−1.30	−1.5
Return on Assets	.16	.51	1.5
Tender Offer	.29*	2.39	2.9
Pseudo R^2	.07		
Investment ≥ $1 million or 1% of outstanding stock (%)	5.5		

Note. Independent variables are measured at the effective date, except where otherwise defined. The dependent variable is an indicator of whether a case is filed with the petitioners collectively holding either more than $1 million or more than 1% of outstanding shares. Probit coefficients, their heteroskedasticity-robust *t*-statistics, and the marginal probability change induced by a 1-unit change in the value of a specific covariate from its sample average are reported. $N = 1{,}326$.

* $p < .05$.

** $p < .01$.

Treasury notes, is positively correlated with the emergence of appraisal petitions in both the full and post-2007 samples. Moreover, the economic magnitude of the correlation is substantial: every percentage-point increase in the excess yield is associated with a 1.3-percentage-point increase in the marginal probability of an appraisal filing in the full sample.

Table 9 corroborates the findings in Tables 7 and 8. Results for the full sample show that the relation between excess yield and the presence of appraisal filings is of similar economic magnitude between the large and small petitioner samples, at about 50–60 basis points for each percentage-point increase in the excess yield. Neither coefficient is statistically significant at the 10 percent level. However, if we focus on the results for the post-2007 era, then the excess yield becomes significant (at the 5 percent level) for the occurrence of large petitions.

While these regression results are not conclusive about the causal relation between excess yield and appraisals because of the fact that the trend in the yield might coincide with the evolution of appraisal as an arbitrage strategy, the additional information in the return decomposition helps clarify the economic motive for appraisal filings. Table 11 confirms the anecdotal conjecture that appraisal arbitrage has become a backdoor interest rate arbitrage. Indeed, the greater part

Table 13

Appraisal Petitions over $1 Million in Value or 1 Percent of Outstanding Stock: Subsample Comparison

	2000–2007			2008–14		
	Coefficient	*t*-Statistic	Marginal Probability (%)	Coefficient	*t*-Statistic	Marginal Probability (%)
Announcement Premium	−.79*	−2.51	−2.6	−.67*	−2.39	−10.7
Going Private	.25	1.15	.9	.20	1.11	3.4
Minority Squeeze Out	.17	0.49	.7	1.06**	3.63	28.7
Excess Yield (%)	.15	1.09	.5	.32*	2.18	5.2
Friendly	−.51	−1.03	−2.9	.18	.23	2.5
Institutional Ownership	.08	.14	.3	.00	.01	.1
Deal Value (log $millions)	−.01	−.05	−.1	.05	.84	.8
Insider Ownership	.40	.81	1.3	−.49	−.89	−7.8
Same Industry	−.13	−.59	−.4	−.28	−1.62	−4.4
Return on Assets	.22	.37	.7	.29	.63	4.6
Tender Offer	.06	.30	.2	.21	1.30	3.5
N	805			521		
Pseudo R^2	.07			.11		
Investment ≥ $1 million or 1% of outstanding stock (%)	1.9			11.1		

Note. Independent variables are measured at the effective date, except where otherwise defined. The dependent variable is an indicator of whether a case is filed with the petitioners collectively holding either more than $1 million or more than 1 percent of outstanding shares. Probit coefficients, their heteroskedasticity-robust *t*-statistics, and the marginal probability change induced by a 1-unit change in the value of a specific covariate from its sample average are reported.

* $p < .05$.

** $p < .01$.

(53.4 percent) of the returns to appraisal arbitrage in trial cases are from interest accrual rather than a higher valuation awarded by the court. Moreover, the interest accrual essentially ensures that the appraisal arbitrageurs never receive negative raw returns, and, in the absence of it, petitioners would have lost money on 7 percent of the deals in our sample.

In fact, total return from value improvement, which is reported in Table 11, provides a counterfactual of returns under an interest rate of 0 percent, which would be the effective rate if a firm makes adequate prejudicial prepayment to completely avoid ex post interest accrual, a tactic allowed after the interest reduction amendment. The annualized average (median) return becomes 20.5 percent (9.8 percent) without the interest component. If we further incorporate the estimated litigation cost (see the discussion in Section 4.4.2), the annualized average (median) return drops further to 12.9 percent (4.6 percent), with an interquartile range of −1.9 percent to 13.2 percent, and 42 percent of the cases would have earned negative net returns.[26] Given the projected substantial shortfall of returns after the interest reduction amendment from the historical returns the appraisal arbitrageurs enjoyed, we expect that the interest reduction amendment will significantly demotivate appraisal petitions.

6. Conclusions

This study confirms that the number of appraisal petitions filed has grown rapidly in the past decade and that they have often evolved into a specialized litigation arbitrage, mostly by hedge funds, in addition to serving their traditional role as a shareholder governance remedy. On the one hand, petitioners seem to target deals with characteristics that are most likely to be tainted by conflicts of interest, such as going-private deals, minority squeeze outs, and short-form M&A with low premiums. On the other hand, the fact that a great majority of the cases settle, and that over half of the returns to appraisal filings come from prejudgment interest accruals rather than valuation improvements, suggests that a significant number of petitions may not have been driven by genuine differences of opinion over valuation. Our calibration indicates that both the de minimis exception and the interest reduction amendment reforms will likely have a significant impact on the occurrence, composition, and profitability of future appraisal cases and are very likely to reduce the incidence of strike suits.

[26] Alternatively, if interest rates were set to be at the fair market level, that is, the 2-year treasury rate (using the duration comparable to the average length of a petition in our sample), the annualized average (median) net returns would be slightly higher at 15.7 percent (8.9 percent).

Appendix

Table A1
Definitions of Variables

Variable	Definition
Announcement Premium	$(P_{\text{Offer}} - P_{-1})/P_{-1}$, where P_{Offer} is the initial offer price, P_{-1} is the previous-day close of the target firm's stock price, and P_{Final} is the final offer price
Final Offer Premium	$(P_{\text{Final}} - P_{-1})/P_{-1}$
Revision Return	$(P_{\text{Final}} - P_{\text{Offer}})/P_{-1}$
Deal Value ($millions)	Total value of consideration paid by the acquirer, excluding fees and expenses
Return on Assets	Earnings before interest, tax, depreciation, and amortization (EBITDA) scaled by lagged assets
Minority Squeeze Out	Indicator equal to one if a controlling shareholder buys out a minority shareholder's stock to eliminate that shareholder
Going Private	Dummy variable equal to one if the acquisition involves a publicly traded company being converted into a private entity, usually by insider-led buyouts
Acquirer Toehold	Percentage of target shares held by the acquirer prior to the announcement
Friendly	Dummy variable equal to zero if the target company resists or receives an unsolicited offer as reported
Tender Offer	Dummy variable equal to one if the bid takes the form of a tender offer
Same Industry	Dummy variable equal to one if the target and acquirer are in the same three-digit Standard Industrial Classification industry
Institutional Ownership	Proportion of shares held by institutional investors, as reported in the Thomson Reuters Ownership Database
Insider Ownership	Proportion of shares held by company insiders, as reported in the Thomson Reuters Ownership Database
Deal Duration	Number of calendar days between the first takeover announcement and the announced resolution of the deal
Excess Yield (%)	Spread between the federal discount rate plus 5 percentage points and the yield on 2-year US Treasury notes
I(Investment $\geq$ \$10 million)	Indicator equal to one if the petitioners collectively hold shares valued more than $10 million
I(Investment $\geq$ \$1 million)	Indicator equal to one if the petitioners collectively hold shares valued more than $1 million
Low Premium	Deal whose premium is lower than the 25th percentile in the sample
Market-adjusted total return	Difference between Total Raw Return and the Center for Research in Security Prices value-weighted all-market return during the same period

References

Amihud, Yakov, Marcel Kahan, and Rangarajan K. Sundaram. 2004. The Foundation of Freezeout Laws in Takeovers. *Journal of Finance* 59:1325–44.

Barnes, Beau G., Nancy L. Harp, and Derek Oler. 2014. Evaluating the SDC Mergers and Acquisitions Database. *Financial Review* 49:793–822.

Bates, Thomas W., Michael L. Lemmon, and James S. Linck. 2006. Shareholder Wealth Effects and Bid Negotiation in Freeze-out Deals: Are Minority Shareholders Left out in the Cold? *Journal of Financial Economics* 81:681–708.

Brav, Alon, Wei Jiang, Frank Partnoy, and Randall Thomas. 2008. Hedge Fund Activism, Corporate Governance, and Firm Performance. *Journal of Finance* 63:1729–75.

DeAngelo, Harry, Linda DeAngelo, and Edward M. Rice. 1984. Going Private: Minority Freezeouts and Stockholder Wealth. *Journal of Law and Economics* 27:367–401.

Geis, George S. 2011. An Appraisal Puzzle. *Northwestern University Law Review* 105:1635–77.

Hals, Tom. 2016. U.S. Court Rules $24.9 Billion Dell Buyout Underpriced by 22 Percent. *Reuters*, June 11.

Hoffman, Liz. 2015. Wall Street Law Firms Challenge Hedge-Fund Deal Tactic. *Wall Street Journal*, April 6.

Hsieh, Jim, and Ralph A. Walkling. 2005. Determinants and Implications of Arbitrage Holdings in Acquisitions. *Journal of Financial Economics* 77:605–48.

Jetley, Gaurav, and Xinyu Ji. 2016. Appraisal Arbitrage—Is There a Delaware Advantage? *Business Lawyer* 71:427–58.

Jiang, Wei, Tao Li, and Danqing Mei. 2016. Influencing Control: Jawboning in Risk Arbitrage. Working paper. Columbia Business School, New York.

Kahan, Marcel, and Edward B. Rock. 2007. Hedge Funds in Corporate Governance and Corporate Control. *University of Pennsylvania Law Review* 155:1021–93.

Kisgen, Darren J., Jun Qian, and Weihong Song. 2009. Are Fairness Opinions Fair? The Case of Mergers and Acquisitions. *Journal of Financial Economics* 91:179–207.

Korsmo, Charles, and Minor Myers. 2015. Appraisal Arbitrage and the Future of Public Company M&A. *Washington University Law Review* 92:1551–1615.

———. 2016. Interest in Appraisal. *Journal of Corporation Law* 42:109–45.

Lafferty, William M. 2015. Should Delaware Dictate Corporate Conduct? Effects of Recent Delaware Decisions and Legislative Initiatives on Everything from Third-Party Liability to Choice of Forum. Presentation at the 2015 American Bar Association Section of Litigation Annual Conference, New Orleans, April 15–17.

Letsou, Peter V. 1998. The Role of Appraisal in Corporate Law. *Boston College Law Review* 39:1–47.

Markides, Constantinos C. 1995. *Diversification, Refocusing, and Economic Performance.* Cambridge, MA: MIT Press.

Romano, Roberta. 1993. *The Genius of American Corporate Law.* Washington, DC: American Enterprise Institute Press.

Thomas, Randall S. 2000. Revising the Delaware Appraisal Statute. *Delaware Law Review* 3:1–35.

Thompson, Robert B. 1995. Exit, Liquidity, and Majority Rule: Appraisal's Role in Corporate Law. *Georgetown Law Journal* 84:1–67.

Thompson, Robert B., and Randall S. Thomas. 2004. The Public and Private Faces of Derivative Suits. *Vanderbilt Law Review* 57:1747–93.

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