THE LONG RISE AND QUICK FALL OF APPRAISAL ARBITRAGE

WEI JIANG,[*] TAO LI[**] & RANDALL THOMAS[***]

ABSTRACT

Appraisal is a legislatively created right for shareholders to seek a judicial determination of the fair value of their stock in certain transactions. For many decades, appraisal was a little-used and frequently maligned corporate law remedy. Beginning at the turn of the twenty-first century, this all changed when a group of financial investors, including some hedge funds, began filing appraisal cases. Appraisal arbitrage, as it became known, grew rapidly in popularity.

Appraisal arbitrage's success soon attracted negative attention. In 2016, the Delaware legislature amended its appraisal statute to eliminate most small shareholders' appraisal rights and to permit companies to prepay merger consideration to appraisal petitioners. In 2017, the Delaware Supreme Court issued two important decisions emphasizing that deal price was the primary measure of fair value for lower courts to use in appraisal proceedings. Appraisal filings plummeted soon thereafter.

In this Article, we seek to empirically explain the rise and fall of appraisal arbitrage using data from 2000-2019. For the period 2015-2019, we find that the average deal gross return to appraisal arbitrage is 13.2%—far less than the 98.2% average for the 2000-2014 period. Looking at the main components of these returns, we find that, on average, prejudgment interest accrual generated total returns of 18.1% for appraisal petitioners from 2015-2019. However, the difference between the judicially determined fair price minus the deal price averages negative 5.3%. While both of these numbers are sharply lower than those in the pre-2015 era, the drop in judicial value improvement is especially

[*] Arthur F. Burns Professor of Free and Competitive Enterprise, Columbia Business School; and Research Associate, Law and Economics, National Bureau of Economic Research. She can be reached at wj2006@gsb.columbia.edu.

[**] Assistant Professor of Finance, University of Florida. He can be reached at Tao.Li@warrington.ufl.edu.

[***] John S. Beasley II Professor of Law and Business, Vanderbilt Law School; and Professor of Management, Owen Graduate School of Management, Vanderbilt University. He can be reached at randall.thomas@vanderbilt.edu.

The authors would like to thank Professor Kevin Haeberle and the participants of the 22nd Annual Law and Business Conference for useful comments on an earlier draft of this Article. The authors are also grateful to Meha Sadasivam, Regan Vicknair, Xinze Yao, and Yulin Wu for their excellent research assistance.

large. We conclude that the principal reasons for the decline of appraisal arbitrage were the Delaware Supreme Court's 2017 opinions.

CONTENTS

INTRODUCTION

Appraisal is a legislatively created right for shareholders to seek a judicial determination of the fair value of their stock in a limited set of corporate transactions. For many decades, appraisal was a little-used and frequently maligned corporate law remedy.[1] Beginning at the turn of the twenty-first century, this all changed as a group of financial investors—especially some specialized hedge funds—began investing in appraisal-eligible merger and acquisition ("M&A") transactions with the intention of filing appraisal cases and garnering high returns from litigation in this once-stagnant area of law.[2] Appraisal arbitrage, as it became known, took on a life of its own and grew rapidly in popularity.[3]

Many scholars supported this new form of litigation, arguing that it largely targeted deals with a high likelihood of abuse of minority shareholders.[4] Other academics opposed the expansion of the appraisal remedy, taking the position that appraisal itself was susceptible to abuse.[5] The debate grew in intensity as more and more hedge funds began to crowd into the field, so that even high-profile transactions were not immune to appraisal arbitrage.

The Delaware bar and the Delaware legislature grew concerned about potential strike suits by small shareholders. A second source of concern was the arguably high level of prejudgment interest awarded in cases that went to trial. The Delaware State Bar Association proposed two significant cutbacks to the scope of the Delaware appraisal statute to address these concerns: one proposal effectively barred small appraisal cases from proceeding,[6] while the other impacted the amount of prejudgment interest paid by companies in certain

---

[1] The classic article decrying the value of the remedy is Bayless Manning, *The Shareholder's Appraisal Remedy: An Essay for Frank Coker*, 72 YALE L.J. 223 (1962).

[2] For a general discussion of the practice, see Charles R. Korsmo & Minor Myers, *Appraisal Arbitrage and the Future of Public Company M&A*, 92 WASH. U. L. REV. 1551, 1566-83 (2015) [hereinafter Korsmo & Myers, *Appraisal Arbitrage*].

[3] From 1977-1997, only 266 appraisal cases—fewer than fourteen cases per year—were filed in the Court of Chancery for New Castle County, Delaware. Randall S. Thomas, *Revising the Delaware Appraisal Statute*, 3 DEL. L. REV. 1, 22-23 (2000). These cases contained few serious claims, and about one-third of the petitions were never answered by the company. *Id.* at 23. By comparison, the intensity of appraisal litigation grew substantially from 2000-2019. *See infra* Part V.

[4] *See, e.g.*, Wei Jiang, Tao Li, Danqing Mei & Randall Thomas, *Appraisal: Shareholder Remedy or Litigation Arbitrage?*, 59 J.L. & ECON. 697, 698-99 (2016); Korsmo & Myers, *Appraisal Arbitrage*, *supra* note 2, at 1599.

[5] *See, e.g.*, William J. Carney & Keith Sharfman, *The Death of Appraisal Arbitrage: Ending Windfalls for Deal Dissenters*, 43 DEL. J. CORP. L. 61, 96-99 (2018).

[6] Under the new law, the so-called de minimis exception requires that the collective group of appraisal petitioners in any one case hold more than 1% of the outstanding shares, the consideration for the shares held by the appraisal petitioners exceeds $1 million, or the merger is a short-form merger. DEL. CODE ANN. tit. 8, § 262(g) (2020); *see also infra* Section III.A.

circumstances.[7] The Delaware legislature enacted the proposed changes on June 16, 2016.[8] Subsequently, in 2017 the Delaware courts reshaped the expectation that appraisal proceedings generally lead to a fair price higher than the deal price. The Delaware Supreme Court was largely responsible for this change in a series of opinions rejecting Court of Chancery chancellors' use of discounted cash flow valuation techniques in favor of the deal price paid by the acquirer. After these events, appraisal arbitrage rapidly declined.

In this Article, we examine the rise and fall of appraisal arbitrage. In particular, we sort out empirically the reasons for appraisal arbitrage's initial popularity and its ultimate collapse. We begin with an overview, documenting the steady rise and rapid fall of appraisal arbitrage. Using hand-collected data on all appraisal-eligible deals in Delaware that became effective between January 2000 and June 2019 (and were decided by the court by November 1, 2019), we show that appraisal arbitrage rose from a handful of case filings (called appraisal petitions) in the early 2000s to become commonplace in M&A transactions. In the early years, many of these filings were made by small shareholders. By 2010, hedge fund investors dominated the ranks of appraisal petitioners, averaging about 85% of all filings from 2015-2019. At the peak of appraisal actions from 2015-2017, appraisal arbitrageurs challenged approximately 25% of all appraisal-eligible transactions—only for this to plummet in 2019 to roughly 5%.

The hedge funds filing appraisal petitions were few in number, although the size of the positions they took grew from \$26.3 million from 2000-2014 to an average of \$50 million per case from 2015-2019. We suggest that part of the reason for this increase was the impact of Delaware legislation that reduced the number of cases filed by small shareholders. We also find that hedge funds targeted bigger companies from 2015 and onward. Throughout the full sample period, a small group of plaintiffs' law firms disproportionately engaged in litigating these cases.

Appraisal arbitrage cases can be lengthy. While the time from the effective date of a merger to the filing of the first appraisal petition averages 73 days, the time to resolution is generally much longer. For example, the average time to reach settlement after the first petition is filed is 406 days and, if there is a court decision, the time from filing to that decision averages 2.6 years. Importantly, during these long intervals, prejudgment interest set at 5% above the risk-free rate accrues to the benefit of the petitioner and constitutes a significant part of the returns to appraisal arbitrage.

Hedge funds and other appraisal petitioners target low takeover premium transactions, with challenged deals exhibiting premiums that are on average 20

[7] Section 262(h) of the Delaware General Corporation Law ("DGCL") now provides that companies may choose to reduce the amount of prejudgment interest that they pay in an appraisal action by tendering all or part of the merger consideration to the petitioner early in the litigation. DEL. CODE ANN. tit. 8, § 262(h); *see also infra* Section III.B.

[8] Act of June 16, 2016, 80 Del. Laws 265, §§ 10-11 (codified at DEL. CODE ANN. tit. 8, § 262(g)-(h)).

percentage points lower than appraisal-eligible deals without litigation. Challenged deals are more likely to be minority shareholder squeezeouts or going-private deals, both of which are widely perceived as most likely to be subject to abuse by acquirers. Not surprisingly, appraisal litigation in these types of deals tends to generate higher levels of financial returns to the hedge funds. This suggests that appraisal arbitrage may serve an agency cost-reduction function by providing recourse in potentially abusive deals.

In 2017, the Delaware Supreme Court decided *DFC Global Corp. v. Muirfield Value Partners, L.P.*[9] and *Dell, Inc. v. Magnetar Global Event Driven Master Fund Ltd.*,[10] sending a clear message that the lower court should rely more heavily on deal price in determining fair value in appraisal actions. This message was reinforced by a 2019 Delaware Supreme Court opinion in *Verition Partners Master Fund Ltd. v. Aruba Networks, Inc.*[11] We show that these cases likely led to lowered gross returns from appraisal arbitrage. We do this by deconstructing the overall returns to appraisal arbitrage into their component parts.

Comparing data from 2000-2014 to that from 2015-2019, we find that the average deal gross return in the later period is 13.2%, far less than the 98.2% average gross returns for 2000-2014. For the more recent time frame, we break average gross returns into two parts for the cases that went to trial. First, we find that prejudgment interest accrual, on average, generated total returns of 18.1% for appraisal petitioners. However, we find that the judicial value improvement component, which we define as the difference between the judicially determined fair price minus the deal price, averages negative 5.3%. While both of these value components are sharply lower than those found in earlier research for the pre-2015 era, the drop in judicial value improvement—falling from 50.6% on average into negative territory—is especially large. We conclude that *DFC Global*, *Dell*, and *Aruba* were particularly important contributors to the fall of appraisal arbitrage.

This Article proceeds as follows. We begin in Part I with a description of the mechanics of the Delaware appraisal remedy. Part II examines the practice of appraisal arbitrage. Perceived abuses led the Delaware legislature to pass amendments to the Delaware statute that we analyze in Part III. We turn to a discussion of the Delaware Supreme Court's decisions in *DFC Global*, *Dell*, and *Aruba* in Part IV, showing how they created a new emphasis on deal price in appraisal cases. We begin our empirical analysis in Part V with an explanation of our data collection and a statistical overview of our sample of appraisal actions. Part VI completes our empirical analysis with a set of multivariate regressions.

[9] 172 A.3d 346 (Del. 2017) (en banc).

[10] 177 A.3d 1 (Del. 2017) (en banc).

[11] 210 A.3d 128, 130 (Del. 2019) (en banc) (per curiam).

I. AN OVERVIEW OF APPRAISAL

A. *What Is Appraisal?*

Appraisal is a statutory right designed to protect shareholders who are forced into M&A transactions and who believe that the deal price may not reflect the fair value of their stock.[12] If a shareholder seeks appraisal, a court can order the corporation to compensate eligible dissenting shareholders for their shares' fair value as long as the proper procedural requirements are met.[13] The corporation must pay this judicially determined value to the dissenting minority shareholders rather than the deal consideration it paid to the majority.[14] The challenged corporation will also be responsible for any accrued prejudgment interest on this amount.[15]

Today, every state has its own version of the appraisal right, all of which allow judicial recourse to dissenting shareholders for certain transactions.[16] All state appraisal statutes include a merger as a triggering event, and most also include the sale of substantially all of the corporation's assets and amendments to the corporate charter.[17] We focus on the Delaware appraisal statute for two reasons: first, Delaware is the most important state for corporate law and has a specialized business court;[18] and second, Delaware courts handle almost all public company appraisal litigation.[19]

---

[12] DEL. CODE ANN. tit. 8, § 262(h); *see also* Charles Korsmo & Minor Myers, *The Flawed Corporate Finance of* Dell *and* DFC Global, 68 EMORY L.J. 221, 229 (2018) [hereinafter Korsmo & Myers, *Flawed Corporate Finance*] (describing process of appraisal, which "entitles a dissenting stockholder to refuse the merger consideration and instead have a court determine the 'fair value' of the dissenter's stock" (quoting DEL. CODE ANN. tit. 8, § 262(h)); Thomas, *supra* note 3, at 2 ("Shareholders want appraisal statutes to provide minority investors with some protection from abuses by majoritarian investors.").

[13] Robert B. Thompson, *Exit, Liquidity, and Majority Rule: Appraisal's Role in Corporate Law*, 84 GEO. L.J. 1, 3 (1995); *see also* DEL. CODE ANN. tit. 8, § 262.

[14] DEL. CODE ANN. tit. 8, § 262(h).

[15] *Id.* Prejudgment interest accrues at a quarterly rate from the time the dissenting shareholders file the appraisal litigation until the company pays the judgment. *Id.*

[16] Jay B. Kesten, *The Uncertain Case for Appraisal Arbitrage*, 52 WAKE FOREST L. REV. 89, 94-95 (2017).

[17] Thompson, *supra* note 13, at 9.

[18] ROBERTA ROMANO, THE GENIUS OF AMERICAN CORPORATE LAW 6, 37-44 (1993).

[19] To find non-Delaware cases, we conducted an extensive search of several electronic databases and leading corporate law treatises for public company appraisal cases. We found very few for the 2015-2019 period. First, we searched the keywords "appraisal action" in Lexis, Westlaw, and Bloomberg Law, restricting our search to state and local courts other than the Delaware Court of Chancery. All cases we found either involved private companies or took place before 2015. Second, we located state statutes related to "shareholder appraisal rights," for example, N.Y. BUS. CORP. LAW §§ 623, 910 (Consol. 2020), and downloaded cases citing these statutes from Lexis. We found only cases that either involved private firms or in which the plaintiffs asked courts to enforce appraisal action judgments granted by a

B. *Delaware's Appraisal Statute*

Appraisal is available to shareholders of Delaware corporations engaged in cash-out mergers or consolidations but only so long as these shareholders voted against or refrained from voting for the transaction.[20] However, appraisal rights are not available in stock-for-stock deals if the corporation is listed on a national securities exchange or has more than 2000 shareholders of record.[21] This "market-out" exception eliminates the appraisal right because there is no liquidity concern for dissenting shareholders who receive as consideration stock in a corporation for which a liquid and efficient market exists.[22] However, if dissenting shareholders receive cash or some other form of nonstock consideration, the Delaware appraisal statute provides them with appraisal rights.[23] In other words, if shareholders receive anything other than liquid stock as consideration in a merger or consolidation transaction, appraisal rights are available.[24]

Shareholders must meet a set of requirements with respect to the shares they hold in order to exercise their appraisal rights. First, as noted above, shareholders must not have voted for the appraisal-eligible transaction.[25] Second, shareholders also must not have accepted the consideration paid by the acquirer for the transaction and instead must wait to receive payment until the appraisal litigation is resolved.[26] Third, shareholders must have continuously held the shares for which appraisal is sought through the effectuation of the merger.[27] Fourth, after 2016, shareholders must meet the de minimis amendment's requirements, discussed more comprehensively in Section III.A below.[28] If the shareholders' shares meet these requirements and the transaction is eligible for appraisal, then shareholders can seek to exercise their appraisal rights.

Delaware court. Third, we located appraisal cases cited in Chapter 13 of the Model Business Corporation Act Annotated. MODEL BUS. CORP. ACT ch. 13 (AM. BAR ASS'N 2016). Upon reviewing them, we found that almost all of the cited cases were either from Delaware or from the pre-2015 period. When we presented this Article, we were told that some hedge funds are considering pursuing appraisal arbitrage in other jurisdictions, but we have found no evidence that they have filed such cases as of the time of this writing.

[20] DEL. CODE ANN. tit. 8, § 262(a). In other words, shareholders who vote their shares in favor of the transaction forfeit their rights to appraisal.

[21] *Id.* § 262(b)(1).

[22] Thomas, *supra* note 3, at 11 n.35 (quoting RODMAN WARD, JR., EDWARD P. WELCH & ANDREW J. TUREZYN, FOLK ON THE DELAWARE GENERAL CORPORATION LAW § 262.2.2 (4th ed. 1999)).

[23] DEL. CODE ANN. tit. 8, § 262(b)(2) (creating this exception to market-out exception).

[24] Thomas, *supra* note 3, at 12.

[25] DEL. CODE ANN. tit. 8, § 262(a).

[26] Kesten, *supra* note 16, at 96.

[27] DEL. CODE ANN. tit. 8, § 262(a).

[28] The de minimis exception is set forth in DGCL section 262(g). *Id.* § 262(g). It provides that shareholders exercising their appraisal rights must hold, collectively, at least 1% of the outstanding stock or shares worth more than $1 million. *Id.*

Corporations must meet their own set of statutory requirements. First, corporations must notify shareholders of their appraisal rights not less than twenty days before the shareholders will vote on the transaction that gives rise to those rights.[29] This notice must include a copy of Delaware General Corporation Law ("DGCL") section 262, Delaware's appraisal statute.[30] Second, the corporation must notify, within ten days after the effectuation of the merger, every shareholder who has both not voted for the transaction and complied with the appraisal rules about the approval of the merger and of the availability of appraisal rights.[31] Corporations also must file with the Court of Chancery "a duly verified list containing the names and addresses of all stockholders who have demanded [appraisal]."[32]

After the corporation gives notice to shareholders of their appraisal rights, it is up to the dissenting shareholders to follow the procedural rules outlined by section 262.[33] Shareholders who wish to exercise their appraisal rights must "deliver to the corporation, before the taking of the vote on the merger or consolidation, a written demand for appraisal of such stockholder's shares."[34] This notice allows the corporation to estimate how expensive appraisal litigation will be since the exercise of appraisal rights could, at the extreme, drain a corporation's cash.[35] Shareholders also need to prove their status as shareholders and the authenticity of their signatures.[36] Shareholders who have complied with these rules may then file an appraisal action within 120 days of the effective date of the merger.[37] If shareholders determine that they would like to withdraw their demand for appraisal and accept the deal consideration, they may do so within sixty days of the effective date of the merger.[38]

The Delaware Court of Chancery, without a jury, will determine the fair value of the transaction by assigning a price per share to the stock at issue.[39] The court,

[29] *Id.* § 262(d)(1).

[30] *Id.*

[31] *Id.* § 262(d)(2).

[32] *Id.* § 262(f).

[33] *Id.* § 262(d).

[34] *Id.* § 262(d)(1). There is no particular form that shareholders must use in making the demand. R. FRANKLIN BALOTTI & JESSE A. FINKELSTEIN, THE DELAWARE LAW OF CORPORATIONS & BUSINESS ORGANIZATIONS § 9.44[C] (3d ed. 2d Supp. 2019). However, if the transaction was a short-form merger in which the minority shareholders were not given an opportunity to vote on the transaction, the shareholders must make an appraisal demand within twenty days of receiving notice of the transaction. DEL. CODE ANN. tit. 8, § 262(d)(2).

[35] Thompson, *supra* note 13, at 21.

[36] Thomas, *supra* note 3, at 13-14.

[37] DEL. CODE ANN. tit. 8, § 262(e).

[38] *Id.*

[39] *See* Scott Callahan, Darius Palia & Eric Talley, *Appraisal Arbitrage and Shareholder Value*, 3 J.L. FIN. & ACCT. 147, 148-49 (2018) ("Modern appraisal cases invariably entail prolix valuation reports by competing experts whose fair value estimates can differ multifold. By most accounts, non-financially-trained judges find such procedures challenging at best.").

if all procedural requirements are met by both the shareholders and the corporation, will give notice of the date and time of the appraisal hearing to the shareholders exercising their appraisal rights.[40] This initial hearing is used to determine which shareholders are entitled to appraisal.[41] Subsequently, the Court of Chancery will determine the fair value of the dissenting shareholders' shares using its own methods of valuation.[42] The court may also determine how the plaintiffs' attorneys' fees and litigation costs will be paid.[43]

II. APPRAISAL ARBITRAGE

Appraisal arbitrageurs purchase a block of stock in a target company, generally after the announcement of a merger or consolidation, with the intent of exercising the shareholder appraisal rights attached to those shares. Their hope is that the court will find that the fair value of the shares exceeds the deal price paid in the merger or consolidation. If so, then appraisal arbitrage can be very profitable.[44]

Appraisal actions, and therefore appraisal arbitrage, were uncommon until the mid-2000s.[45] Appraisal actions increased from 2% to 3% of appraisal-eligible deals in the early 2000s to around 25% of appraisal-eligible deals in the 2010s.[46] By 2016, 20% of public company transactions faced an appraisal claim.[47]

Prior research shows that a small set of hedge funds are important players in appraisal arbitrage.[48] Hedge funds bring the highest number of appraisal suits

---

[40] DEL. CODE ANN. tit. 8, § 262(f); Thomas, *supra* note 3, at 13.

[41] DEL. CODE ANN. tit. 8, § 262(g).

[42] *Id.* § 262(h); *see also* Gonsalves v. Straight Arrow Publishers, Inc., 701 A.2d 357, 360-61 (Del. 1997). Also of note, appraisal is treated like a class action for settlement purposes in that the court must approve any settlement. Thomas, *supra* note 3, at 14.

[43] DEL. CODE ANN. tit. 8, § 262(j). Though the plaintiffs in an appraisal action generally must pay their own attorneys' fees and expert expenses, they may petition for these expenses to be deducted on a pro rata basis from the value of all shares entitled to appraisal. *Id.*; BALOTTI & FINKELSTEIN, *supra* note 34, § 9.45[I].

[44] Between 2000-2014, these judicial valuation returns exceeded 50% in cases taken to trial. Jiang et al., *supra* note 4, at 720-21, 721 tbl.11.

[45] Korsmo & Myers, *Flawed Corporate Finance*, *supra* note 12, at 230. "Long dismissed as a 'sleepy corporate backwater'—rarely employed and economically insignificant—appraisal has been profoundly transformed by this new arbitrage strategy." Kesten, *supra* note 16, at 89 (quoting Korsmo & Myers, *Appraisal Arbitrage*, *supra* note 2, at 1553).

[46] Jiang et al., *supra* note 4, at 699.

[47] Korsmo & Myers, *Flawed Corporate Finance*, *supra* note 12, at 230.

[48] Jiang et al., *supra* note 4, at 706; *see also* Callahan, Palia & Talley, *supra* note 39, at 162-63 ("The impact of [the *In re Appraisal of Transkaryotic Therapies, Inc.*] opinion was significant, since it made it much easier for hedge funds to engage in appraisal arbitrage, purchasing a large number of target shares after announcement for their appraisal value—effectively allowing the arbitrageur to spread the costs of appraisal litigation across the shares purchased.").

and the suits with the largest dollar volumes.[49] From 2000-2014, individuals were the second most active in filing appraisal actions, followed by public or private companies, venture capital or private equity firms, and mutual funds.[50]

Commentators assert that the Delaware Court of Chancery's decision in *In re Appraisal of Transkaryotic Therapies, Inc.*[51] has, in part, contributed to the sharp increase in appraisal arbitrage.[52] There, the court held that investors who bought shares in an appraisal-eligible transaction after the transaction's record date could exercise appraisal rights even though they may not have voted against, or abstained from voting for, the transaction with those exact shares.[53] In other words, shareholders did not need to trace their shares to prove that they had abstained from voting those shares or had voted those shares against the merger for purposes of exercising appraisal rights.[54] Instead, the court required the number of shares for which appraisal was sought be less than the total number of dissenting and abstaining shares.[55] The *Transkaryotic* holding thus made it much easier for arbitrageurs to bring appraisal actions.[56] As a result of this decision, hedge funds can purchase shares in a target very close to the shareholder meeting and exercise their appraisal rights post-transaction by either seeking settlement or pursuing a trial.[57]

Importantly, the *Transkaryotic* holding allows appraisal arbitrageurs full access to the proxy statement for the transaction at issue before buying shares in the target, as the solicitation of votes for a transaction is almost always circulated after the record date.[58] The proxy statement provides important information,

---

[49] Alexandros Seretakis, *Appraisal Rights in the US and the EU*, *in* CROSS-BORDER MERGERS: EU PERSPECTIVES AND NATIONAL EXPERIENCES 65, 72 (Thomas Papadopoulos ed., 2019) ("A small handful of hedge funds, most notably Merion Capital, Magnetar Capital, Merlin Partners, Quadre Investments and Ancora, are the top filers both by number of transactions challenged and total dollar value." (citing Jiang et al., *supra* note 4, at 706)).

[50] Jiang et al., *supra* note 4, at 706 tbl.1. However, mutual funds were second in dollar volume, the total amount invested in the named firm. *Id.*

[51] No. Civ.A. 1554-CC, 2007 WL 1378345 (Del. Ch. May 2, 2007).

[52] Nicholas O'Keefe, *Delaware Appraisal Actions Are Likely to Continue to Increase in Frequency Following Two Recent Delaware Chancery Court Decisions*, ARNOLD & PORTER (Feb. 24, 2015), https://www.arnoldporter.com/en/perspectives/publications/2015/02/20150224_delaware_appraisal_actions_are__12470/ [https://perma.cc/N2WR-5ASZ] ("[T]here has been a significant increase in the percentage of appraisal petitions in transactions for which appraisal rights are available since 2011. Many commentators have asserted that the *Transkaryotic* decision is one of the causes of the increase in appraisal arbitrage.").

[53] *Transkaryotic*, 2007 WL 1378345, at *4.

[54] O'Keefe, *supra* note 52.

[55] Jonathan Macey & Joshua Mitts, *Asking the Right Question: The Statutory Right of Appraisal and Efficient Markets*, 74 BUS. LAW. 1015, 1026 (2019).

[56] O'Keefe, *supra* note 52.

[57] Macey & Mitts, *supra* note 55, at 1026.

[58] Kesten, *supra* note 16, at 102.

such as an explanation of the deal process and investment banker fairness opinions, which allows shareholders to decide whether they will vote for a deal.[59] Using this information, appraisal arbitrageurs can better estimate whether shareholders will react favorably to a transaction. If a transaction is likely to receive majority approval, arbitrageurs may accumulate more shares in order to exercise their appraisal rights.

In addition to the value that may come from the court's determination that fair value exceeds deal price, another source of returns to appraisal actions is, effectively, interest rate arbitrage. Appraisal suits have a high rate of prejudgment interest, equal to the federal discount rate plus 5%.[60] In recent years, this return is much higher than elsewhere in the market for fixed-income investments and helps to eliminate downside risk in appraisal actions. Prior scholarship found that during the 2000-2014 period, over half of the returns to appraisal actions were from interest accrual.[61]

III. AMENDMENTS TO THE DELAWARE APPRAISAL STATUTE

In the eyes of critics, the frequent settlement of cases involving small claims and the high returns to appraisal arbitrage made appraisal actions look like a new form of strike suit. Some of these critics claimed that appraisal caused shareholders to lose, rather than gain, value in their transactions.[62] Were appraisal rights hurting, rather than protecting, shareholders while also harming the deal market by creating uncertainty and increasing transaction risk?[63]

Heeding the critics, on June 16, 2016, the Delaware legislature passed amendments to the DGCL to address two of the most salient problems with appraisal arbitrage.[64] The first was the de minimis exception, which limits who can sue by placing lower bounds on the size of appraisal claims (while providing

---

[59] *Id.*

[60] Jiang et al., *supra* note 4, at 701. However, it should be noted that the Federal Reserve lowered interest rates three times in 2019, causing the return available on prejudgment interest in appraisal suits to shrink. *See infra* Figure 3; *see also Policy Tools: Open Market Operations*, BOARD GOVERNORS FED. RES. SYS., https://www.federalreserve.gov/monetarypolicy/openmarket.htm [https://perma.cc/87EN-S7M7] (last updated Mar. 16, 2020).

[61] Jiang et al., *supra* note 4, at 725-27.

[62] Appraisal can cause more harm than good for shareholders, who may "lose out—whether by losing a value maximizing deal altogether or through value leakage to appraisal arbitrageurs." Martin Lipton & Theodore N. Mirvis, *Delaware Court of Chancery Appraises Fully-Shopped Company at Nearly 30% Over Merger Price*, HARV. L. SCH. F. ON CORP. GOVERNANCE (June 3, 2016), https://corpgov.law.harvard.edu/2016/06/03/delaware-court-of-chancery-appraises-fully-shopped-company-at-nearly-30-over-merger-price/ [https://perma.cc/79S3-7TZP].

[63] *See* Korsmo & Myers, *Flawed Corporate Finance*, *supra* note 12, at 234-35.

[64] Act of June 16, 2016, 80 Del. Laws ch. 265, §§ 10-11 (codified at DEL. CODE ANN. tit. 8, § 262(g)-(h) (2020)).

exceptions for certain forms of transactions, such as short-form mergers).[65] The second was the interest-reduction amendment, which allows corporations to prepay part or all of the merger consideration to appraisal petitioners and thereby limit the amount of prejudgment interest due.[66]

A. *The De Minimis Exception*

The de minimis exception reduces the number of appraisal actions by requiring that complainants hold, collectively, at least 1% of the total outstanding number of shares or shares worth more than $1 million at the closing of the merger.[67] The exception makes it more difficult for individual shareholders, who frequently hold a smaller number of shares than arbitrageurs, to bring an appraisal suit. These shareholders must overcome collective action problems and form a coalition in order to meet one of the de minimis exception's thresholds. To illustrate the hurdle, recent scholarship shows that between 25% and 33% of previously appraisal-eligible transactions would not meet either of the de minimis exception's thresholds.[68]

Overall, the de minimis exception has a disproportionately negative impact on individual shareholders. Hedge funds generally meet the exception's thresholds and remain eligible to seek appraisal. Further, hedge funds with small initial positions can buy shares to get above the exception's thresholds and pursue an appraisal action against a company.[69]

B. *The Interest-Reduction Amendment*

One of the more controversial aspects of appraisal arbitrage is that the statute provides for the accrual of prejudgment interest in cases that go to trial.[70] Appraisal claims usually take two to three years to resolve, making prejudgment interest a significant part of the award to dissenting shareholders in appraisal

[65] DEL. CODE ANN. tit. 8, § 262(g).

[66] *Id.* § 262(h).

[67] *Id.* § 262(g) ("[T]he Court shall dismiss the proceedings as to all holders of such shares who are otherwise entitled to appraisal rights unless (1) the total number of shares entitled to appraisal exceeds 1% of the outstanding shares of the class or series eligible for appraisal, [or] (2) the value of the consideration provided in the merger or consolidation for such total number of shares exceeds $1 million . . . .").

[68] Jiang et al., *supra* note 4, at 724.

[69] As per *Transkaryotic*, hedge funds can purchase shares in the target or acquirer after the record vote for the transaction, making it possible to purchase enough shares to meet the de minimis exception and thus exercise their appraisal rights. *In re* Appraisal of Transkaryotic Therapies, Inc., No. Civ.A. 1554-CC, 2007 WL 1378345, at *3-4 (Del. Ch. May 2, 2007). This assumes that the hedge fund's position is not already one that meets the de minimis exception.

[70] DEL. CODE ANN. tit. 8, § 262(h).

suits.[71] Some commentators claim that these payments are not economically efficient because they increase the costs of appraisal for the company for reasons unrelated to the merger and may discourage socially beneficial transactions as a result.[72] The interest-reduction amendment attempts to address this problem by allowing corporations, after an appraisal action is filed, to prepay part or all of the merger consideration.[73] This effectively limits the interest that will accrue to the amount payable on the difference between the judgment and the prepaid consideration.[74] In other words, prejudgment interest accrues only on the amount of the judicial award of fair value that exceeds the amount prepaid by the defendant. Therefore, prepayment can greatly reduce—and potentially eliminate—the prejudgment interest owed.[75]

However, unlike the de minimis exception, which appears to have curbed appraisal suits, the interest-reduction amendment may have had little effect on appraisal arbitrage. Because the DGCL does not offer guidance with respect to prepayment, there is some uncertainty regarding how the prepayment process works.[76] Such uncertainty deters defendants from taking advantage of the amendment. Further, prepayments may work to fund appraisal actions and thus may hurt—rather than help—defendants. If they prepay the merger consideration, defendants provide a chunk of money to claimants at the start of litigation. These funds might then be used by the dissenting shareholders to pay their attorneys' fees and other litigation costs.[77]

Prepayment may also reduce settlement leverage because it both lowers the amount of capital plaintiffs must invest in litigation and provides dissenting shareholders with liquidity, which would have been a major cost of appraisal since plaintiffs must forego receiving the merger payment as part of exercising

---

[71] Gaurav Jetley & Xinyu Ji, *Appraisal Arbitrage–Is There a Delaware Advantage?*, 71 BUS. LAW. 427, 452 & n.86 (2016).

[72] Kesten, *supra* note 16, at 92.

[73] DEL. CODE ANN. tit. 8, § 262(h) ("At any time before the entry of judgment in the proceedings, the surviving corporation may pay to each stockholder entitled to appraisal an amount in cash, in which case interest shall accrue thereafter as provided herein only upon the sum of (1) the difference, if any, between the amount so paid and the fair value of the shares as determined by the Court, and (2) interest theretofore accrued, unless paid at that time.").

[74] *Id.*

[75] *See* Jiang et al., *supra* note 4, at 721 tbl.11 (demonstrating that prejudgment interest accrual accounted for, on average, 57.8% of returns to appraisal actions).

[76] *See* DEL. CODE ANN. tit. 8, § 262(h).

[77] R. Garrett Rice, *Give Me Back My Money: A Proposed Amendment to Delaware's Prepayment System in Statutory Appraisal Cases*, 73 BUS. LAW. 1051, 1079-80 (2018); Arthur R. Bookout, Daniel S. Atlas & Andrew D. Kinsey, *Delaware Appraisal Actions: When Does It Make Sense to Prepay?*, SKADDEN, ARPS, SLATE, MEAGHER & FLOM LLP (May 29, 2018), https://www.skadden.com/insights/publications/2018/05/insights-the-delaware-edition/delaware-appraisal-actions/ [https://perma.cc/R43G-QT3N].

their appraisal rights.[78] Finally, prepayment risks losing the excess payment amount if the appraisal value turns out to be lower than the deal value.[79] As a result, the interest-reduction amendment appears to have been infrequently used by defendants in practice.[80]

IV. *DFC GLOBAL*, *DELL*, AND *ARUBA*: THE DELAWARE SUPREME COURT CUTS BACK SHARPLY ON APPRAISAL ARBITRAGE

The Delaware Supreme Court further limited the benefits of appraisal arbitrage through its decisions in *DFC Global*, *Dell*, and *Aruba*. In *DFC Global* and *Dell*, the court reversed lower court decisions holding that fair value was above deal price and instead determined that deal price, while not presumptively the fair value of the transaction, was a strong indicator of fair value.[81] In *Aruba*, the Delaware Supreme Court reemphasized these two holdings and found that fair value in an appraisal action should be deal price less the value of the synergies of the deal, resulting in an appraisal value 23% below the deal price.[82]

In this Part, we discuss these decisions and their potential impact on the returns available from appraisal actions for appraisal arbitrageurs.

---

[78] Bookout, Atlas & Kinsey, *supra* note 77. Shareholders exercising their appraisal rights accept no consideration from the deal until the appraisal action has been resolved. DEL. CODE ANN. tit. 8, § 262(a).

[79] Rice, *supra* note 77, at 1053. One interesting recent case, *In re Appraisal of Panera Bread Co.*, C.A. No. 2017-0593-MTZ, 2020 WL 506684 (Del. Ch. Jan. 31, 2020), did involve a prepayment by a defendant, but the defendant overpaid and was unsuccessful in clawing back the overpayment from the petitioner. *Id.* at *43-44 (refusing Panera's request for refund because parties did not agree to clawback provision and there was "no present basis in Delaware's appraisal statute" for prepayment refund). The *Panera* court cited to only one other instance of prepayment, but that case involved a clawback provision in case of overpayment. *Id.* at *43 n.688 (citing Stipulation Regarding Merger Consideration Payment Terms at 5, Artic Invs. LLC v. Medivation, Inc., C.A. No. 2017-0009-JRS, 2017 WL 2800743 (Del. Ch. June 27, 2017)).

[80] Berton Ashman Jr., Christopher Kelly & Mathew Golden, *Appraisal Practice Tips 1 Year After Prepayment Amendment*, LAW360 (July 31, 2017, 10:44 AM), https://www.law360.com/articles/944765/appraisal-practice-tips-1-year-after-prepayment-amendment (explaining how many factors must be "considered when determining whether, how and the extent to which a corporation should make a prepayment").

[81] Dell, Inc. v. Magnetar Glob. Event Driven Master Fund Ltd, 177 A.3d 1, 21-23 (Del. 2017) (en banc); DFC Glob. Corp. v. Muirfield Value Partners, L.P., 172 A.3d 346, 366 (Del. 2017) (en banc).

[82] Verition Partners Master Fund Ltd. v. Aruba Networks, Inc., 210 A.3d 128, 130, 142 (Del. 2019) (en banc) (per curiam).

A. DFC Global Corp. v. Muirfield Value Partners, L.P.

DFC Global, an established payday loans provider, primarily operated in the Canada, United Kingdom, and the United States.[83] In 2005, DFC Global went public and began trading on the NASDAQ.[84] DFC Global experienced rapid growth over the two decades preceding 2014.[85] However, its business structure required it to frequently secure new loans in order to pay its existing loan obligations.[86] As such, it was important that DFC Global maintain a good credit rating. However, changes in the market caused DFC Global to earn a noninvestment-grade credit rating, halting the company's ability to borrow money and thus hurting its ability to run its business.[87] Further, rising regulatory risk in each of DFC Global's three primary markets contributed to its liquidity problem.[88] The payday loan industry was increasingly subject to regulations that harmed DFC Global's bottom line.

As a result, DFC Global's earnings outlook was poor and the company began to contemplate a sale, employing Houlihan Lokey Capital, Inc. to help find sale alternatives.[89] In 2012, Houlihan began its search for interested buyers by contacting private equity firms, reaching out to more than forty over the next year.[90] In October 2013, Lone Star, a private equity buyer, expressed interest in buying DFC Global.[91] On December 12, 2013, Lone Star submitted a nonbinding indication of interest in DFC Global for $12.16 per share.[92] Several days later, a second financial buyer, J.C. Flowers, made an indication of interest at $13.50 per share.[93] However, DFC Global's management kept lowering its

[83] *DFC Glob.*, 172 A.3d at 351. At the time of the transaction at issue, DFC Global operated in more than 1500 locations in ten countries and on the Internet. *Id.* DFC Global operated 292 stores in the United States and 601 stores in the United Kingdom at the time of the merger. *Id.* at 351-52. In 2004, it had 214 stores in Canada. *Id.* at 352.

[84] *Id.* DFC Global had a public float of 39.6 million shares and a high average daily trading volume. *Id.* Its market was efficient: "DFC's share price moved sharply in reaction to information about the company's performance, the industry, and the overall economy . . . ." *Id.*

[85] *Id.* at 350.

[86] *Id.* at 350, 353.

[87] *Id.* at 353.

[88] *Id.* at 353-54.

[89] *Id.* at 355.

[90] *Id.* Houlihan initially contacted six buyers, three of which conducted due diligence but lost interest. *Id.* Houlihan then contacted thirty-five financial buyers and three strategic buyers. *Id.* This is evidence of an adequate market check and provides support that DFC Global followed the proper process in pursuing a sale.

[91] *Id.*

[92] *Id.*

[93] *Id.*

earnings projections, which resulted in Lone Star lowering its bid and J.C. Flowers dropping out.[94]

On March 11, 2014, DFC Global entered into an exclusivity agreement with Lone Star.[95] Meanwhile, DFC Global's adjusted earnings before interest, tax, depreciation, and amortization ("EBITDA") projection fell another $24 million and the company missed its earnings target for fiscal year 2014.[96] As a result of these earnings mishaps, Lone Star dropped its offer to $9.50 per share.[97] Nevertheless, DFC Global's board approved the merger with Lone Star and the deal closed on June 30, 2014.[98]

An appraisal action soon followed. DFC Global's dissenting and abstaining shareholders contended that the transaction's fair value was $17.90.[99] DFC Global had used a good process: it hired an investment bank to shop the company and it conducted an arm's-length negotiation,[100] which supported using deal

---

[94] *Id.* In November 2013, DFC Global's adjusted EBITDA for 2014 was estimated at $219.3 million. *Id.* In February 2014, management decreased this projection by 16.8% to $182.5 million. *Id.* In response to these adjustments, Lone Star adjusted its bid to $11 per share and J.C. Flowers withdrew its indication of interest. *Id.* Decreased earnings projections mean that the company is worth less than it was when buyers initially expressed interest, and bids will be lower as a result. Decreased earnings projections also introduce uncertainty into the deal process, causing bids to be lower.

[95] *Id.* at 356. Transactions with financial buyers are often scrutinized more by courts than transactions involving strategic buyers. This is because courts worry about management entrenchment. Financial buyers tend to keep on existing management while strategic buyers do more to change the operations of the company. Courts want to ensure that transactions are done for the benefit of the corporation's stockholders rather than because management was poised for a windfall.

[96] *Id.* DFC Global's fiscal year ended on June 30, 2014, a few weeks after the deal closed. *Id.* at 357. However, because DFC Global was performing so poorly and was continuously missing its earnings projections, Lone Star likely priced the high probability of DFC Global missing financial targets in fiscal year 2014 into its offer.

[97] *Id.* at 356. DFC Global's adjusted EBITDA projections continued to fall, this time to $153.1 million. *Id.*

[98] *Id.* at 356-57.

[99] *Id.* at 357. Petitioners used a discounted cash flow analysis to determine fair value. *Id.* Their expert also used a comparable companies analysis with seven of DFC Global's peers. *Id.* However, he used EBITDA multiples for the 75th percentile of DFC Global's peer group when DFC Global ranked below the 50th percentile for most of the key metrics. *Id.* This illustrates the difficulties with fair value determinations. Experts will use valuation methods that favor their clients and choose the metrics that will yield more favorable outcomes, leading to results that may not be very accurate.

[100] *Id.* at 349. The Court of Chancery found, based on the record, that

> i) the transaction resulted from a robust market search that lasted approximately two years in which financial and strategic buyers had an open opportunity to buy without inhibition of deal protections; ii) the company was purchased by a third party in an arm's length sale; and iii) there was no hint of self-interest that compromised the market check.

price as the measure of fair value in an appraisal action.[101] However, the Court of Chancery gave DFC Global's deal price only a one-third weight in its fair value analysis.[102]

On appeal, the Delaware Supreme Court determined that deal price "is the most reliable evidence of fair value in a certain case."[103] Such a case results when the transaction is absent conflicts of interest and "real world transaction prices can be the most probative evidence of fair value even through appraisal's particular lens."[104] Deal price is the result of a collective belief about the company's value rather than a single person's valuation analysis and is thus persuasive evidence of a transaction's fair value.[105] Further, deal price is not variable, whereas many valuation techniques often result in a wide range of values even when the same technique is used to evaluate a single transaction.[106]

According to the court, deal prices that are the result of "an open process, informed by robust public information, and easy access to deeper, non-public information, in which many parties with an incentive to make a profit had a chance to bid" are very likely to reflect fair value.[107] So, appraisal arbitrageurs need evidence such as a conflict of interest or lack of an arm's-length negotiation in order to make a persuasive case that the deal price is not equivalent to the fair value of the transaction.[108] Absent such evidence, fair value is likely to equal deal price.[109]

However, *DFC Global* did not create a judicial presumption that deal price is equal to fair value for purposes of appraisal.[110] The Delaware Supreme Court

Id. (citing *In re* Appraisal of DFC Glob. Corp., C.A. No. 10107-CB, 2016 WL 3753123, at *21 (Del. Ch. July 8, 2016)).

[101] *Id.*

[102] *DFC Glob.*, 2016 WL 3753123, at *23.

[103] *DFC Glob.*, 172 A.3d at 367.

[104] *Id.* at 370.

[105] Macey & Mitts, *supra* note 55, at 1032 ("[Discounted cash flow] calculations are highly subjective, and courts have expressed frustration with the wildly divergent views of competing experts who often arrive at wildly different valuations for companies when employing a [discounted cash flow] analysis.").

[106] *See, e.g.*, Dell, Inc. v. Magnetar Glob. Event Driven Master Fund Ltd., 177 A.3d 1, 36 (Del. 2017) (en banc) (noting that both parties used discount cash flow analysis but produced valuations differing by $28 billion).

[107] *DFC Glob.*, 172 A.3d at 349.

[108] However, transactions with conflicts of interest and lack of arm's-length negotiations are exactly the transactions that appraisal arbitrageurs like to target. Nevertheless, courts are likely to view such transactions as having followed proper process, leaving appraisal arbitrageurs without leverage to argue that fair value is higher than deal price.

[109] *See id.* at 359 (describing such cases as those where "[t]he deal did not involve the potential conflicts of interest inherent in a management buyout or negotiations to retain existing management" (emphasis omitted) (quoting *In re* Appraisal of DFC Glob. Corp., C.A. No. 10107-CB, 2016 WL 3753123, at *21 (Del. Ch. July 8, 2016))).

[110] *Id.* at 363.

refused to hold that deal price and fair value are always equivalents.[111] Instead, the court determined that DGCL section 262 calls for the Delaware Court of Chancery to perform an independent evaluation of fair value.[112] The Court of Chancery needs "broad discretion . . . to determine the fair value of the company's shares, considering 'all relevant factors.'"[113]

B. Dell, Inc. v. Magnetar Global Event Driven Master Fund Ltd.

The appraisal litigation in *Dell* arose from a management-led buyout ("MBO") transaction where Michael Dell, the founder, CEO, and 15.4% shareholder of Dell, Inc., teamed up with Silver Lake Partners L.P., a private equity firm.[114] Dell's stock had dropped from $18 to $12 per share during the first half of 2012 and the company was facing increased competition from cheaper and newer technologies.[115] In June 2012, Stanley Cates of Southeastern Asset Management, Inc. approached Michael Dell to suggest an MBO.[116] In August 2012, a second private equity firm, Kohlberg Kravis Roberts & Co. L.P. ("KKR"), expressed interest in buying Dell.[117]

Michael Dell decided to pursue an MBO with the help of Silver Lake Partners.[118] In anticipation of this MBO, Dell's board of directors created an independent special committee to evaluate possible transactions.[119] During negotiations with Silver Lake Partners and KKR, Dell's stock price continued to fall and the company continued to miss its projected revenue targets.[120]

---

111 *Id.*

112 *Id.* at 364, 366.

113 *Id.* at 364 (quoting DEL. CODE ANN. tit. 8, § 262(h) (2020)).

114 Dell, Inc. v. Magnetar Glob. Event Driven Master Fund Ltd., 177 A.3d 1, 5, 9 (Del. 2017) (en banc).

115 *Id.* at 6.

116 *Id.* at 8. Michael Dell owned 13.9% of Dell's outstanding shares as of August 2012. *Id.* at 9.

117 *Id.* at 8.

118 *Id.* Goldman Sachs, Dell's financial advisor, told Michael Dell that an MBO would be too difficult. *Id.* However, KKR informed Michael Dell that an MBO was possible and offered to help facilitate such a transaction. *Id.*

119 *Id.* The independent special committee was composed of four independent directors and was properly empowered to hire its own legal and financial advisors. *Id.* An independent special committee, properly empowered, is evidence of fair process. Thus, the record lent support to the conclusion that Dell followed a fair process in undergoing the transaction. The independent special committee's financial advisor, JPMorgan, informed it that both KKR and Silver Lake Partners were highly qualified potential acquirers. *Id.* at 9. JPMorgan also informed the independent special committee that financial, rather than strategic, buyers were the appropriate targets for this MBO. *Id.*

120 *Id.* at 10.

Eventually, KKR pulled out of the MBO discussions.[121] But by January 24, 2013, three more private equity firms expressed interest in purchasing Dell.[122]

After exploring all available options and negotiating with Silver Lake Partners, Dell's board accepted Silver Lake Partner's final offer and entered into a merger agreement.[123] The agreement offered several deal protections, including a forty-five-day go-shop period, a one-time match right, and a termination fee provision.[124] The board then arranged for a stockholder vote on the transaction and recommended the transaction to shareholders.[125] The transaction ultimately closed at $13.75 per share, a 37% premium to Dell's ninety-day-average unaffected stock price.[126]

In *Dell*, the Delaware Court of Chancery declined to use deal price in its determination of fair value and instead used a discounted cash flow analysis.[127] The court found flaws in Dell's deal process, making deal price an inappropriate variable in measuring the transaction's fair value.[128] According to the court, there were three problems with Dell's process: (1) a valuation gap between Dell's stock price and its intrinsic value, (2) a lack of strategic buyers in the sale process, and (3) a go-shop that undercut the deal price's credibility.[129]

The Delaware Supreme Court reversed and remanded, holding that deal price could, and maybe should, be used in determining the fair value of Dell's transaction.[130] More generally, the Delaware Supreme Court determined that when deal price is put aside in favor of another valuation methodology, such

[121] *Id.* After KKR withdrew, Dell's independent special committee reached out to private equity firm Texas Pacific Group, L.P. *Id.* However, Texas Pacific Group determined that the computer industry was too volatile and declined Dell's investment proposal. *Id.*

[122] *Id.*

[123] *Id.* at 12-15. The independent special committee managed to get Silver Lake Partners to raise its offer six times. *Id.* at 11. The independent special committee agreed to $13.65 of cash consideration per share and to continue paying Dell's regular quarterly dividend through closing. *Id.*

[124] *Id.* at 12. Go-shop periods allow targets to seek competing offers after receiving an offer. *See id.* at 29. Match rights allow the buyer to match a better bid made subsequent to the buyer's initial offer. *See* Verition Partners Master Fund Ltd. v. Aruba Networks, Inc., C.A. No. 11448-VCL, 2018 WL 922139, at *38 (Del. Ch. Feb. 15, 2018). Termination fees must be paid if the target pulls out of the transaction (reverse termination fees are paid by the acquirer to the target). *See id.* Here, there were two different termination fees. *Dell*, 177 A.3d at 12. Termination fees were $180 million if Dell agreed to a "Superior Proposal," as defined by the merger agreement, or $450 million if Dell agreed to a non–Superior Proposal. *Id.*

[125] *Id.* at 15. During this time, a hostile tender offer was made for Dell. *Id.* However, the proxy advisory firms recommended to stockholders that they vote in favor of the MBO. *Id.*

[126] *Id.* at 5.

[127] *In re* Appraisal of Dell Inc., C.A. No. 9322-VCL, 2016 WL 3186538, at *22, *51 (Del. Ch. May 31, 2016).

[128] *Id.* at *29-44.

[129] *Id.*

[130] *Dell*, 177 A.3d at 6, 30.

action requires an adequate explanation by the lower court and must have support in the record.[131] The Delaware Supreme Court remanded the issue of fair value to the Delaware Court of Chancery so that it could determine this value using the evidence in the record.[132] The holding in *Dell*, decided only months after *DFC Global*, reinforced the importance of deal price in determining fair value for appraisal purposes.[133]

C. Verition Partners Master Fund Ltd. v. Aruba Networks, Inc.

Decided toward the end of our sample period, *Aruba* highlights once more the importance of deal price in determining fair value when a transaction is free of deficiencies and conflicts of interest. This appraisal litigation arose out of a deal between Hewlett-Packard ("HP") and Aruba Networks, Inc.[134] HP approached Aruba in August 2014 about a business combination.[135] In response to this offer, Aruba took the necessary steps to establish a good process and hired experts to help it evaluate HP's offer, negotiate the terms, and shop the deal.[136] Aruba approached five other strategic bidders in an attempt to find alternatives to HP's offer, but none of the bidders expressed interest.[137] Several months later, Aruba's board voted to accept HP's offer at $24.67 per share.[138] To ensure no better deal was available, Aruba conducted one more passive market check postsigning, but no superior bidder emerged.[139] The deal between HP and Aruba closed on May 18, 2015.[140]

Dissenting and abstaining stockholders then filed an appraisal action contending that the fair value of the transaction was $32.57 per share, a significant premium to the deal's price.[141] In its fair value analysis, the Delaware Court of Chancery used the thirty-day average market price of Aruba's shares to determine a fair value of $17.13 per share.[142] On appeal, the Delaware Supreme Court rejected the Court of Chancery's use of the thirty-day average market price in determining fair value because such an analysis was "rooted in an erroneous

[131] *Id.* at 5.

[132] *Id.* at 35 ("[F]ailure to give the resulting price heavy weight because the trial judge believes there was mispricing missed by all the Dell stockholders, analysts, and potential buyers abuses even the wide discretion afforded the Court of Chancery in these difficult cases.").

[133] *See id.* at 30 ("[D]eal price has heavy, if not overriding, probative value.").

[134] Verition Partners Master Fund Ltd. v. Aruba Networks, Inc., C.A. No. 11448-VCL, 2018 WL 922139, at *1 (Del. Ch. Feb. 15, 2018).

[135] *Id.* at *8.

[136] *Id.*

[137] *Id.* at *10.

[138] *Id.* at *19.

[139] *Id.* at *21-22.

[140] *Id.* at *22.

[141] *Id.* at *2.

[142] *Id.* at *55.

factual finding that lacked record support."[143] Instead, the Delaware Supreme Court held that the fair value of Aruba's transaction was $19.10, the deal price minus the portion of synergies left with the seller as estimated by Aruba.[144]

Aruba holds that deal synergies from a transaction must be excluded from the fair value calculation, resulting in a fair value that is lower than the consideration paid for the deal.[145] So, once deal price is determined to be fair, the court will then consider synergies and subtract these from deal price to determine fair value. As a result, appraisal arbitrageurs are often better off voting in favor of the deal and selling their stock to an acquirer in order to receive the deal's full consideration, including any gain from synergies created by the transaction.

D. *Summary*

Commentators argue that the Delaware Supreme Court's holdings in these three cases greatly diminished the available rate of return on appraisal litigation.[146] If fair value equals the deal's consideration almost by default, especially for arm's-length transactions, then prejudgment interest accrual is the only avenue available for appraisal arbitrageurs to earn a positive return. However, if defendant corporations employ the interest-reduction amendment, there will be little to no prejudgment interest accruing on the award to dissenting shareholders. Without a fair value greater than the deal's consideration or the accrual of prejudgment interest, appraisal suits could now very well result in losses for appraisal arbitrageurs, especially after they net out their litigation and opportunity costs. We turn next to the empirical part of our study in which we critically assess these arguments using a broad sample of appraisal arbitrage cases.

V. DATA SOURCES AND EMPIRICAL OVERVIEW OF THE DATA

A. *Data Sources and Sample Construction*

There are two key inputs to our study: first, we need to create a sample of M&A transactions that qualify for appraisal; and second, we need to determine which transactions actually generated appraisal petitions. Building off the sample collected for the 2000-2014 period and the procedure used in Jiang, Lee, Mei, and Thomas,[147] we construct a sample of all appraisal-eligible transactions and actual appraisal actions from January 2000 to June 2019, emphasizing the post-2014 period so as to assess the impact of legislative changes in the Delaware appraisal statute and the Delaware Supreme Court's landmark decisions in *DFC Global*, *Dell*, and *Aruba*. We restrict the sample to deals filed

[143] Verition Partners Master Fund Ltd. v. Aruba Networks, Inc., 210 A.3d 128, 130 (Del. 2019) (en banc) (per curiam).

[144] *Id.*

[145] *Id.* at 133.

[146] *See, e.g.*, Korsmo & Myers, *Flawed Corporate Finance*, *supra* note 12, at 224.

[147] Jiang et al., *supra* note 4, at 703-12.

in the Delaware Court of Chancery as that is where most important appraisal cases are litigated.

We start with a comprehensive sample of potential appraisal candidates: M&A transactions in which shareholders are eligible to seek appraisal. Following the work of Hsieh and Walkling[148] and Edmans, Goldstein, and Jiang,[149] we narrow down the full sample of transactions covered by the Securities Data Company ("SDC") by excluding those classified as a divestiture, spinoff, or repurchase, and we ensure that the transactions are M&A activities that result in effective control changes. We find 869 deals in which the target firms were incorporated in Delaware completed in the 2015-2019 period.

There is no official database for potential or appraisal-eligible deals. To construct such a sample, we narrow the full sample of M&A transactions by requiring either that the deal is a cash or hybrid (part cash and part stock) deal or that the acquirer is a private company in a stock deal, as these are statutory restrictions under Delaware law.[150] To ensure accuracy on eligibility, we cross-check or supplement the SDC data (which has many "unknown" and "other" data entries) by manually collecting form of payment information from merger agreements and Forms 8-K filed with the SEC. Combined, these criteria result in a sample of 545 appraisal-eligible deals for the period running from January 2015 through June 2019.

The SDC database provides information on a deal's announcement date, effective date, withdrawal date, and premium, as well as characteristics of the target. Firm characteristics and information related to stock prices and returns come from Compustat and the Center for Research in Security Prices ("CRSP"). Finally, information about ownership, such as institutional holdings and insider ownership, is retrieved from the Thomson Reuters Ownership Database. Institutional ownership is aggregated from individual institutions' quarter-end holdings disclosed in Forms 13F. Using individual insider ownership data—which is recorded on a firm's Forms 3, 4, and 5 when an insider trades in the firm's securities—we construct the aggregate insider ownership of a firm in a given year-end using each insider's most recent ownership information up to that time.

Our construction of a comprehensive sample of appraisal petitions filed in the Delaware Court of Chancery relies on the Bloomberg Law database. For the 2015-2019 period, we search the Delaware Court of Chancery dockets using the keyword "appraisal" and identify 223 unique appraisal cases targeting 140 deals based on the transaction's effective date. After we merge this "event sample" of appraisals with the full sample of eligible deals from the SDC, we end up with

148 Jim Hsieh & Ralph A. Walkling, *Determinants and Implications of Arbitrage Holdings in Acquisitions*, 77 J. FIN. ECON. 605, 611 (2005).

149 Alex Edmans, Itay Goldstein & Wei Jiang, *The Real Effects of Financial Markets: The Impact of Prices on Takeovers*, 67 J. FIN. 933, 945-46 (2012).

150 *See supra* Part I.

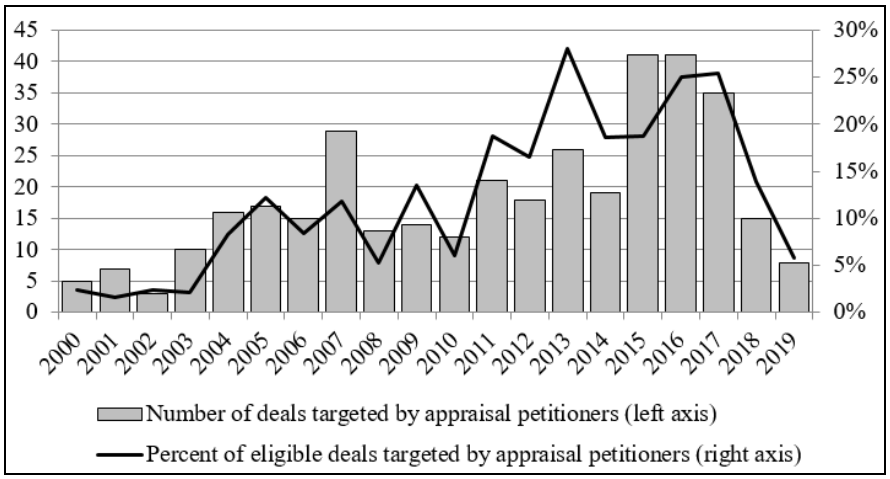
122 matches, while the remaining 423 eligible deals constitute our "control sample."

Last, we combine both the eligible deals sample and the appraisals from 2015-2019 with the corresponding samples from the earlier study by Jiang et al. covering the 2000-2014 period.[151]

B. *Empirical Overview of the Data*

Figure 1 provides an overview of appraisal activity in terms of the number of deals as well as the percentage of eligible deals.

Figure 1. Deals Resulting in Appraisal Petitions in the Delaware Court of Chancery.



This figure shows appraisal activities from January 2000 to June 2019. The gray bars (left axis) plot the number of announced M&A transactions targeted by petitioners in each year (by their effective dates). The black line (right axis) plots the percentage of petition-eligible deals actually targeted, as recorded by the SDC. An eligible deal must meet the following requirements: (1) the target company is incorporated in Delaware and (2) it is a cash or hybrid deal, or the acquirer is a private company in a stock deal. Data sources include the SDC, the Delaware Court of Chancery, and Bloomberg Law. Section V.A above provides detailed information about the sample and data.

The chart shows a rather gradual, decade-long rise of appraisal litigation from the early 2000s to the mid-2010s and a precipitous descent in 2018-2019. The percentage of eligible deals challenged by investors increased from below 5% to around 25% of all potential transactions. The plateau lasted from 2015 to 2017, followed by a steep drop back to 5-10% toward the end of our sample.

[151] Jiang et al., *supra* note 4, at 705 fig.1.

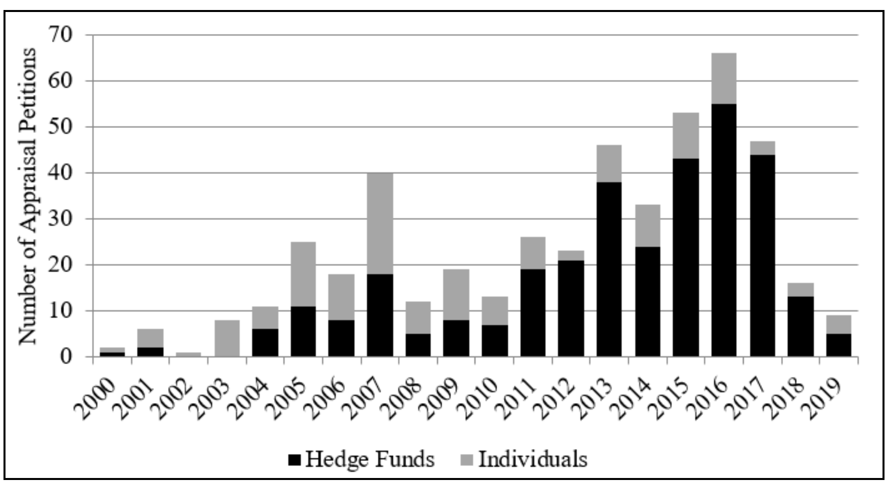
Table 1 provides a breakdown of appraisal petitioners for the 2015-2019 period.

Table 1. Investor Types of Appraisal Petitioners and Their Investments (January 2015-June 2019).

Type of Investor	Number of Unique Investors	Number of Deals Targeted	Percent of Total Dollar Volume (%)
Hedge funds	68	100	85.59
Mutual funds	7	12	9.06
Individual investors	29	29	0.52
Public and private companies	10	10	3.74
Banking and financial services firms	3	7	0.04
Pension funds	1	1	1.05

Hedge funds account for 57.6% of the sample of unique players and 85.6% of the deal volume. Clearly, these funds are the major players in appraisal filings during this time period. Mutual funds and companies are a distant second and third, responsible respectively for 9.1% and 3.7% of the deal volume. The long rise and quick fall of appraisals, displayed in Figure 1, seems to be driven by hedge funds. Figure 2 plots the time series of petitioners from 2000-2019.

Figure 2. Number of Appraisal Petitions by Investor Type.



This figure delineates the total number of appraisal petitions brought by individuals and hedge funds—two major groups of petitioners—from January 2000 to June 2019.

Prior to 2010, appraisals were mostly a venue for smaller individual investors. During that early period, 64.5% of petitions were filed by non–hedge fund investors. Since 2011, this percentage has declined dramatically to 28.0%.

Earlier studies by Korsmo and Myers[152] and Jiang et al.[153] suggest that appraisal became a specialized arbitrage strategy for hedge funds, which took stakes in M&A targets to seek higher judicially determined fair value valuations as well as lucrative accrued interest payments. This activity was fueled by the 2007 *Transkaryotic* decision.[154] The dry up of appraisal activities in 2018 and 2019 was driven by dissipating hedge fund interest, especially after the recent Delaware decisions in *DFC Global*, *Dell*, and *Aruba*.[155] After these cases were decided, hedge fund appraisal filings dropped to an annual average of about 25% of the level launched from 2015-2017.

Despite the dominance of hedge funds in appraisal arbitrage, only a small group of hedge funds are frequent players. Table 2 shows that the top ten players account for 70.7% of the deals and 54.7% of the dollar volume during the 2015-2019 period.

[152] Korsmo & Myers, *Appraisal Arbitrage*, *supra* note 2, at 1572-76.

[153] Jiang et al., *supra* note 4, at 706.

[154] *See supra* Part II.

[155] *See supra* Part IV.

Table 2. Top Players of Appraisal Petitions (January 2015-June 2019).

Petitioner	Investor Type	Number of Deals	Percent of Unique Deals (%)	Percent of Total Dollar Volume (%)
Blueblade Capital Opportunities LLC	Hedge fund	18	12.86	2.26
Quadre Investments, LP	Hedge fund	12	8.57	0.42
Verition Fund Management LLC	Hedge fund	11	7.86	6.36
BlueMountain Capital Management LLC	Hedge fund	10	7.14	13.53
Merlin Partners LP	Hedge fund	8	5.71	0.55
The Arbitrage Fund	Mutual fund	7	5.00	4.98
Burford Capital Ltd.	Hedge fund	7	5.00	4.77
Brigade Capital Management, LP	Hedge fund	6	4.29	2.91
Merion Capital LP	Hedge fund	5	3.57	12.70
Fir Tree Capital Management LP	Hedge fund	5	3.57	5.36
Driehaus Capital Management LLC	Hedge fund	5	3.57	0.70
AAMAF, LP (Ancora Advisors, LLC)	Hedge fund	5	3.57	0.11

If we compare the figures in Table 2 for 2015-2019 with a similar table in Jiang et al.[156] for 2000-2014, the top players in the extended sample period are a mixture of familiar names and new challengers. For example, Blueblade Capital Management, which was not in the top ten list for 2000-2014,[157] became the top player with 12.9% of all deals in 2015-2019. A mutual fund, The Arbitrage Fund, was also new to the list of top ten players.[158]

Table 3 shows the high degree of concentration of the law firms representing appraisal seekers.

[156] Jiang et al., *supra* note 4, at 706 tbl.2.

[157] *See id.*

[158] *See id.* The name of the mutual fund suggests that these players view appraisal as an arbitrage strategy rather than a remedy for a past investment.

Table 3. Top Law Firms Representing Plaintiffs (January 2015-June 2019).

	Number of Cases				**Average % of Stock Ownership**		
	All Plaintiffs	**Hedge Funds**	**Individuals**	**Other Clients**	**Hedge Funds**	**Individuals**	**Other Clients**
Grant & Eisenhofer P.A.	52	49	1	2	2.01	0.43	2.59
Prickett, Jones & Elliott, P.A.	24	19	2	3	1.67	3.41	2.66
Heyman Enerio Gattuso & Hirzel LLP	25	24	0	1	3.75		1.03
Smith, Katzenstein & Jenkins LLP	18	18	0	0	1.33		
Rosenthal, Monhait & Goddess, P.A.	13	3	0	10	1.58		3.82

Note. Heyman Enerio Gattuso & Hirzel LLP was formerly Proctor Heyman Enerio LLP. Rosenthal, Monhait & Goddess, P.A. closed in December 2019.

The top five law firms shown in Table 3 represent 59.2% of the cases during the period spanning 2015-2019. The law firms turn out to be much more stable than their clients. Comparing Table 3 to data for 2000-2014 in Jiang et al., there is a high degree of correlation between the law firms with only a few changes in their relative ranks.[159] From 2000-2014, the top law firm was Prickett, Jones & Elliot,[160] whereas from 2015-2019, the top spot is occupied by Grant & Eisenhofer.

Table 4 shows statistics on appraisal petitioners' invested capital, revealing some new trends in appraisals since 2015.

[159] *See id.* at 707 tbl.3.
[160] *Id.*

Table 4. Appraisal Petitioners' Invested Capital and Investment Horizon (January 2015-June 2019).

	Value of Invested Capital ($m) (1)	**Percent Ownership (%)** (2)	**Days Between Effective Date and Filing of the First Petition** (3)	**Days Between Filing of First Petition and Settlement Date** (4)	**Days Between Filing of First Petition and Court Decision Date** (5)
Mean	47.668	2.45	73.4	405.8	953.6
Std. Dev.	75.976	3.34	42.7	240.0	272.0
5th Percentile	0.014	0.02	3	124	383
25th Percentile	4.364	0.32	38	191	811
50th Percentile	16.837	1.21	77	378	880
75th Percentile	58.250	3.45	118	554	1,149
95th Percentile	256.473	9.90	120	842	1,429

Note. Numbers in columns (1) and (2) are aggregated at the deal level.

The average (median) capital investment, at $47.7 million ($16.8 million), is substantially higher than the same number, $26.3 million ($1.9 million), during the 2000-2014 period.[161] This shows the impact of the de minimis amendment's requirement of a minimum $1 million stake for appraisal eligibility. We can see the effectiveness of the Delaware reform to restrict small-claim appraisals in the data: for instance, the 25th percentile investment amounts to $4.4 million for the 2015-2019 period, compared to $583,000 for the 2000-2014 period.[162]

On the other hand, the average (median) percent of ownership by petitioners in target companies, at 2.45% (1.21%) for the 2015-2019 period, was lower than the same statistic, 4.61% (1.37%), for the 2000-2014 period,[163] suggesting that companies with significantly higher market capitalization were targeted for appraisal in the more recent time period.

These data also permit us to draw some other inferences. First, the average dissident ownership in appraisal cases is substantially lower than the 6.3% median ownership stake for hedge funds engaged in general hedge fund activism[164] as well as the 8.3% for hedge funds specifically engaged in activism

[161] *Id.* at 708 tbl.4.

[162] *Id.*

[163] *Id.*

[164] Alon Brav, Wei Jiang, Frank Partnoy & Randall Thomas, *Hedge Fund Activism, Corporate Governance, and Firm Performance*, 63 J. FIN. 1729, 1747 (2008).

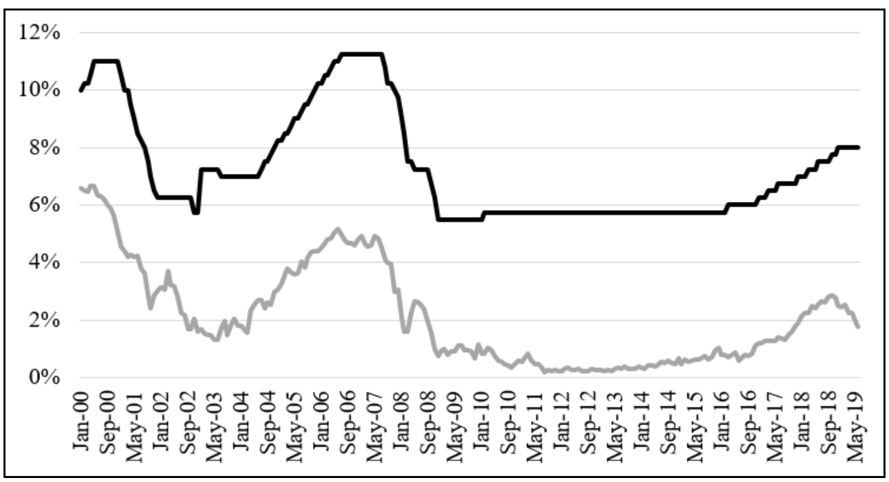
targeting M&A transactions.[165] Perhaps because appraisal seekers do not intend to influence corporate policies or win sympathy from fellow shareholders, they are able to accomplish their goals with a lower stake.

Table 4 also sheds light on the time frame for appraisal. The typical appraisal petitioner makes their first filing 70-80 days after the merger effective date.[166] However, reaching settlement or going to trial takes much longer. The average (median) time lag between the first petition filing to the settlement date is 406 (378) days for cases that settle, while for cases going to trial the wait until a court decision is even longer at 954 (880) days. In some extreme cases (those falling within the 95th percentile of our sample), the time to trial could run for over three years.

However, as we will see below, petitioners may welcome the long wait because the prejudgment interest—accrued at a rate of 5% above the federal discount rate—paid by companies constitutes a significant part of the hedge funds' investment gain.

To illustrate this point, Figure 3 plots the Delaware statutory interest rate and the 2-year U.S. Treasury yield from 2000 to June 2019.

Figure 3. Delaware Statutory Interest Rate and 2-Year U.S. Treasury Yield.



This figure plots the Delaware statutory interest rate and the 2-year U.S. Treasury yield between January 2000 and June 2019. The darker line is the Delaware rate.

The low-yield environment since 2009 makes appraisal an attractive backdoor fixed-income play. The 2016 Delaware interest-reduction amendment allows

[165] Wei Jiang, Tao Li & Danqing Mei, *Influencing Control: Jawboning in Risk Arbitrage*, 73 J. FIN. 2635, 2665 tbl.7 (2018).

[166] As noted in Part I, the Delaware statute requires petitioners to file within 120 days after the effective date of the merger. DEL. ANN. CODE tit. 8, § 262(e) (2020).

firms to prepay part of the full estimated valuation to obviate interest accrual.[167] In order to determine how frequently this provision was used, we carefully examined each of the trial judgments in our sample. Somewhat surprisingly, we did not find any evidence of this practice being employed during the postreform period among the cases that went to trial.[168] In fact, all of the judicial opinions indicate that the petitioners were entitled to the appraisal value plus the full interest accrued. However, there have been a few prepayments made in other cases.[169]

VI. DATA ANALYSIS: APPRAISAL CHARACTERISTICS, RETURNS, AND NEW TRENDS

Thus far, we have provided a broad overview of appraisal arbitrage data. In this Part, we turn to a detailed empirical analysis that includes some multivariate regression analyses.

A. *Firm and Deal Characteristics Associated with Appraisals*

Jiang et al. show that appraisal-eligible M&A transactions that attract appraisal arbitrageurs have some systematic differences from appraisal-eligible deals where shareholders do not file petitions.[170] Table 5 compares deal characteristics and firm characteristics between the event sample and the control sample for 2015-2019.

---

[167] *See supra* Section III.B.

[168] These are the only cases that we found with all of the necessary information to make a determination of whether such payments were made.

[169] *See supra* Section III.A.

[170] Jiang et al., *supra* note 4, at 699-700.

Table 5. Comparison of Deal Characteristics (January 2015-June 2019).

	Merger Targets with Appraisals			Merger Targets Without Appraisals			Difference Between Columns (1) and (2)	
	Average (1a)	Median (1b)	Std. Dev. (1c)	Average (2a)	Median (2b)	Std. Dev. (2c)	Diff. in Avg. (3a)	*t*-Stat. of Diff. (3b)
Announcement premium (%)	26.5	22.5	27.8	51.2	31.4	114.5	-24.7**	-2.19
Final offer premium (%)	29.3	23.8	31.5	52.2	31.8	115.0	-22.9**	-2.02
Revision return (%)	1.8	0	8.1	0.5	0	4.9	1.3**	2.15
Deal value ($ million)	3181.9	1379.5	6244.6	3153.0	611.3	8254.9	28.9	0.03
Return on assets ("ROA") (%)	5.3	8.4	23.1	0.6	6.8	23.7	4.7*	1.77
% Minority squeezeout	12.3	0	33.0	3.3	0	17.9	9.0***	3.94
% Going-private	32.0	0	46.8	20.8	0	40.6	11.2***	2.58
% Acquirer toehold	4.7	0	16.8	2.8	0	12.9	1.9	1.33
% Friendly	99.2	100	9.1	98.6	100	11.8	0.6	0.52
% Tender offer	20.5	0	40.5	21.7	0	41.3	-1.2	-0.30
% Same industry	30.3	0	46.2	48.2	0	50.0	-17.9***	-3.54
Institutional ownership (%)	74.8	87.2	29.3	64.8	73.9	30.9	10.0***	2.88
Insider ownership (%)	11.3	4.2	18.3	9.2	3.1	14.3	2.1	1.22
Deal duration (days)	111.9	81.5	89.1	112.6	76.0	118.4	-0.7	-0.06

Note. This table reports characteristics of 122 deals involving appraisal petitioners with effective dates between January 2015 and June 2019 and compares them to 423 petition-eligible deals with no petitioners. Our sample includes all closed deals covered by the SDC in which the target is incorporated in Delaware. All variables are defined in the Appendix. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

The first striking contrast is in the takeover price premium,[171] measured either by announcement premium or final offer premium. The initial announcement premium of deals involving appraisal, on average, is 24.7 percentage points lower than the appraisal-eligible M&A transactions, and the difference remains at 22.9 percentage points at deal finalization. Compared to the average takeover premium of around 45%, such differences are substantial and statistically significant. Based on these results, a low takeover premium appears to be an important driver for appraisal filings. This holds true even in situations where the acquirers sweeten the deal price to improve the prospect for deal completion; the difference between the initial announcement premium and the final offer premium suggests that appraisal-stricken deals already experienced more favorable deal price revision. This is confirmed by an average difference of 1.3 percentage points in revision returns.

Table 5 also provides some additional insights into which firms are targeted by appraisal seekers. These deals tend to have better operating performance as measured by return on assets ("ROA").[172] The difference of 4.7 percentage points is both economically meaningful (relative to the average ROA of 1.9% in our full M&A sample, including both deals with appraisal and those without it) and statistically significant (at the 5% level). A better cash flow situation is often one justification cited by appraisal petitioners for their demand for a higher valuation.[173] Firms with healthy operating cash flows could attract litigation due to their deep pockets.[174]

Deal size and deal duration are comparable between the two sample periods. Since 2015, deals that involve appraisal are 9.0 percentage points more likely to be minority squeezeout transactions and 11.2 percentage points more likely to be going-private transactions. Both differences are significant at less than the 1% level and are of comparable magnitude to the earlier sample. Prior research found that both of these forms of transactions are commonly perceived by public shareholders as susceptible to conflicts of interest and unfair pricing.[175] By comparison, deal receptivity (i.e., whether the board endorses the deal) and form

[171] Definitions of all variables in the analyses are listed in the Appendix.

[172] ROA is defined as the ratio of EBITDA to lagged assets. Brad M. Barber & John D. Lyon, *Detecting Abnormal Operating Performance: The Empirical Power and Specification of Test Statistics*, 41 J. FIN. ECON. 359, 364 (1996).

[173] Cash flow multiples are one of the commonly adopted valuation metrics. *See* TIM KOLLER, MARC GOEDHART & DAVID WESSELS, VALUATION: MEASURING AND MANAGING THE VALUE OF COMPANIES 138 (6th ed. 2015).

[174] Lauren Cohen, Umit G. Gurun & Scott Duke Kominers, *Patent Trolls: Evidence from Targeted Firms*, 65 MGMT. SCI. 5461, 5462 (2019).

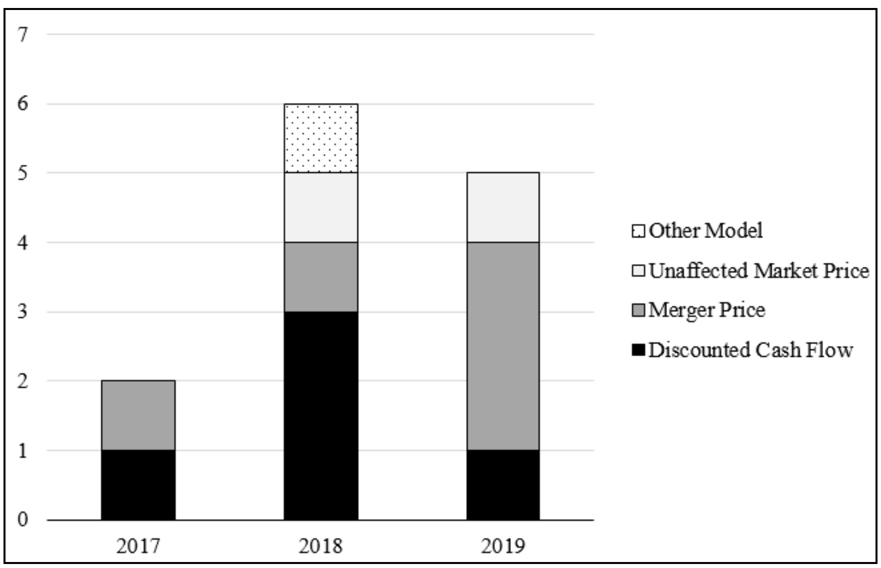
[175] Thomas W. Bates, Michael L. Lemmon & James S. Linck, *Shareholder Wealth Effects and Bid Negotiation in Freeze-Out Deals: Are Minority Shareholders Left Out in the Cold?*, 81 J. FIN. ECON. 681, 682 (2006); Harry DeAngelo, Linda DeAngelo & Edward M. Rice, *Going Private: Minority Freezeouts and Stockholder Wealth*, 27 J.L. & ECON. 367, 367-68 (1984).

(e.g., whether there is a tender offer) do not impact the likelihood that a deal is targeted by appraisal seekers.

Appraisal petitioners are less likely to target deals with potential operational synergies, so mergers of firms within the same industry are significantly (at the 1% level) less likely to invite appraisal. Finally, petitioners are more likely to target deals with greater institutional ownership, presumably because such target stocks have a more liquid market and greater analyst following. Knowing this, appraisal arbitrageurs' stock purchases would have a lower price impact on stock prices. Moreover, given the availability of valuation opinions to institutional investors, plaintiffs are more likely to be able to refer to analysts or other professional opinions that advocate for a higher valuation. Interestingly, insider ownership, which usually is thought to deter shareholder activism because of the increased voting power of the incumbents, does not affect appraisal choices. This may be because appraisal is a remedy rendered by the court rather than a remedy that relies on an actual or latent shareholder voting process.

In Figure 4, we plot the number of appraisal rulings by valuation method.

Figure 4. Number of Appraisal Rulings by Valuation Method.



This figure shows the annual number of Delaware Court of Chancery rulings in which a chancellor used discounted cash flow analysis, merger price, unaffected market price, or some other model to determine the fair value of target stock. Our sample includes all deals that became effective between January 2015 and June 2019 and were determined by a chancellor before November 1, 2019.

In both 2017 and 2018, chancellors performed discounted cash flow analyses in 50% of cases, including SWS Group and AOL. Only two deals, including PetSmart, were analyzed using merger offer as the fair price. However, the

Delaware Supreme Court's 2017 decisions in *DFC Global* and *Dell* appear to have resulted in a shift toward using merger price as the most popular benchmark: the method accounted for 60% of court rulings in 2019, while the discounted cash flow method was used in only 20% of cases.

B. *Determinants of Appraisal Litigation and Trial: Comparison of Predictive Power*

While Table 5 provides some descriptive evidence about the likelihood of appraisal seekers to target a deal, in Table 6 we provide a formal model for predicting appraisal filings for eligible M&A transactions by the firm and deal characteristics just discussed. We use a probit model and a sample spanning from January 2015 to June 2019 in our regression. After obtaining the results, we compare the coefficients with those derived from the 2000-2014 sample studied in Jiang et al.[176]

[176] Jiang et al., *supra* note 4, at 714 tbl.7.

Table 6. Comparison of Predictive Regressions Between Separate Sample Periods.

	January 2015-June 2019			**2000-2014**		
	Coefficient	***t*-Stat.**	**Marg. Prob. (%)**	**Coefficient**	***t*-Stat.**	**Marg. Prob. (%)**
	(1a)	**(1b)**	**(1c)**	**(2a)**	**(2b)**	**(2c)**
Announcement premium	-0.45**	-2.00	-13.2	-0.63**	-2.30	-7.2
Going-private	0.20	1.21	6.1	0.25*	1.95	3.0
Minority squeezeout	0.39	1.18	13.0	0.59***	3.18	9.8
Excess yield (%)	-0.08	-0.33	-2.4	0.12**	2.00	1.3
Friendly	0.21	0.33	5.7	0.17	0.45	1.7
Institutional ownership	1.07***	2.63	31.8	0.24	1.00	2.7
Deal value (log $ million)	-0.08	-1.30	-2.2	0.05	1.21	0.5
Insider ownership	0.38	0.96	11.2	-0.11	-0.36	-1.2
Same industry	-0.23	-1.55	-6.8	-0.14	-1.19	-1.6
ROA (%)	-0.01	-0.01	-0.2	0.12	0.41	1.4
Tender offer	-0.02	-0.10	-0.5	0.21*	1.89	2.6
Observations	417			1,326		
Pseudo R-squared	0.06			0.06		
Appraisal (%)	23.7			6.9		

Note. All independent variables are as defined in the Appendix and are measured at the effective date, except when otherwise defined. The dependent variable is a dummy variable equal to 1 if a deal is targeted by one or more appraisal petitioners and 0 if it involves no such petitioners. Each column reports probit coefficients, their heteroscedasticity-robust *t*-statistics, and the marginal probability change induced by a one-unit change in the value of a specific covariate from its sample average.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

When we use a multivariate model, there are only two statistically significant predictive variables: announcement premium and institutional ownership. While the first variable's effect is similar in the new sample (2015-2019) and the old sample (2000-2014), the institutional ownership variable is insignificant in the earlier years.[177] We hypothesize that one effect of the de minimis amendment was to eliminate small shareholders from filing appraisal petitions in the later

[177] *Id.*

time period, leaving only the larger shareholders who more commonly hold institutionally owned targets.

Unlike the earlier time period, the coefficients on going-private and minority squeezeout transactions are not statistically significant. However, their economic magnitude, as shown by their respective marginal probabilities, is actually larger than that from the 2000-2014 sample.[178] This suggests that the lost significance of these two variables was mostly due to decreased statistical power associated with the smaller sample size for the 2015-2019 period in comparison with the earlier study.

Finally, excess yield,[179] which predicted appraisal litigation in the 2000-2014 period,[180] completely lost its significance in the recent sample. We note that since 2015, we have mostly been in a low-yield environment, which causes a lack of variation in excess yield during the 2015-2019 period. We believe that this likely contributed to the nonresult because a regression cannot identify the effect of a variable that varies very little within the sample.

In Table 7, we further analyze the determinants of a filed appraisal petition actually going to trial, instead of being settled or withdrawn. As in Table 6, we also compare the sensitivities of trial outcomes to variable firm and deal characteristics between the two sample periods. We begin by noting that only 9.1% of appraisal cases went to trial during the 2015-2019 period, which is substantially below the 15.4% probability of going to trial during the 2000-2014 period.

[178] *Id.*

[179] Excess yield is defined as the spread between the federal discount rate plus 5% and the yield on 2-year U.S. Treasury notes.

[180] Jiang et al., *supra* note 4, at 714 tbl.7.

Table 7. Trial Among Appraisal Petitions Between Separate Sample Periods.

	January 2015-June 2019			2000-2014		
	Coefficient	***t*-Stat.**	**Marg. Prob. (%)**	**Coefficient**	***t*-Stat.**	**Marg. Prob. (%)**
	(1a)	**(1b)**	**(1c)**	**(2a)**	**(2b)**	**(2c)**
I (Investment ≥ $10m)	0.78*	1.70	8.8	1.09**	2.43	22.4
Announcement premium	-0.86	-1.35	-9.5	-0.57	-0.71	-10.1
Going-private	-0.01	-0.02	-0.1	0.01	0.00	0.1
Minority squeezeout	0.69	0.81	11.9	0.38	0.71	7.8
Excess yield (%)	-2.23	-1.61	-24.4	-0.18	-0.39	-3.1
Friendly	—	—	—	-1.26	-1.29	-38.6
Institutional ownership	-3.54**	-2.15	-38.7	0.11	0.12	1.9
Deal value (log $ million)	0.20	0.94	2.2	-0.07	-0.51	-1.2
Insider ownership	-8.00**	-2.41	-87.5	0.83	1.14	14.6
Same industry	-0.36	-0.68	-3.7	-0.92*	-1.66	-13.5
ROA (%)	1.78	1.57	19.5	-0.93	-0.94	-16.4
Tender offer	0.02	0.03	0.2	0.69*	1.68	13.9
Observations	75			91		
Pseudo R-squared	0.23			0.24		
Trial (%)	9.1			15.4		

Note. All independent variables are as defined in the Appendix and are measured at the effective date, except when otherwise defined. The dependent variable is a dummy variable for the appraisal being brought to trial rather than being settled. In each column, we report probit coefficients, their heteroscedasticity-robust *t*-statistics, and the marginal probability change induced by a one unit change in the value of a specific covariate from its sample average.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

In both time periods, the indicator variable I (Investment ≥ $10 million) predicts that the probability of going to trial is higher for bigger investors. The magnitude of this effect is substantial: an increase of 8.8% likelihood in the 2015-2019 period, which is a substantial difference relative to the base probability of 15.4%.

In contrast, both institutional ownership and insider ownership work significantly (at the 5% level) against going to trial in the 2015-2019 period, even though such effects were insignificant in the 2000-2014 period. This shows that in recent years—when insiders have more at stake and when a company is subject to more public scrutiny and coverage in the market because of its institutional ownership—the acquirer is more likely to opt for settlement instead of going through a lengthy process with uncertain outcomes and publicity.

C. *Petitioners' Returns from Appraisal Litigation*

In this final Section, we break out the factors that influence the returns to appraisal arbitrage. To the extent that appraisal litigation is an arbitrage strategy as much as a governance remedy, the returns to appraisal petitioners are the key driver for such activities. We begin by noting that we are not able to observe the full picture of returns to appraisal petitioners for two reasons. First, over 90% of appraisal cases in the 2015-2019 period were settled out of court and the terms of these settlements are frequently undisclosed due to confidentiality agreements. Second, we cannot observe the legal and administrative costs of litigating appraisal petitions, without which we cannot calibrate net returns to the petitioners, even for the trial sample and a subset of the settlement cases in which we have information about the final valuation.

Despite these challenges, we can conduct a precost analysis of returns for a subsample of 35 cases (30 from the trial sample and 5 from the settlement sample), which we believe casts some light on the economic drivers of appraisal activities. Moreover, it is common in finance literature to focus on gross returns—instead of returns netted for execution costs and related business costs—when analyzing trading strategies.[181]

Table 8 reports gross returns to appraisal petitioners.

[181] *See, e.g.*, Mark M. Carhart, *On Persistence in Mutual Fund Performance*, 52 J. FIN. 57, 71 (1997) (ranking funds based on gross returns); Eugene F. Fama & Kenneth R. French, *Common Risk Factors in the Returns on Stocks and Bonds*, 33 J. FIN. ECON. 3, 4 (1993) (focusing on returns without considering costs); Eugene F. Fama & Kenneth R. French, *The Cross-Section of Expected Stock Returns*, 47 J. FIN. 427, 427 (1992) (discussing return models without reference to costs).

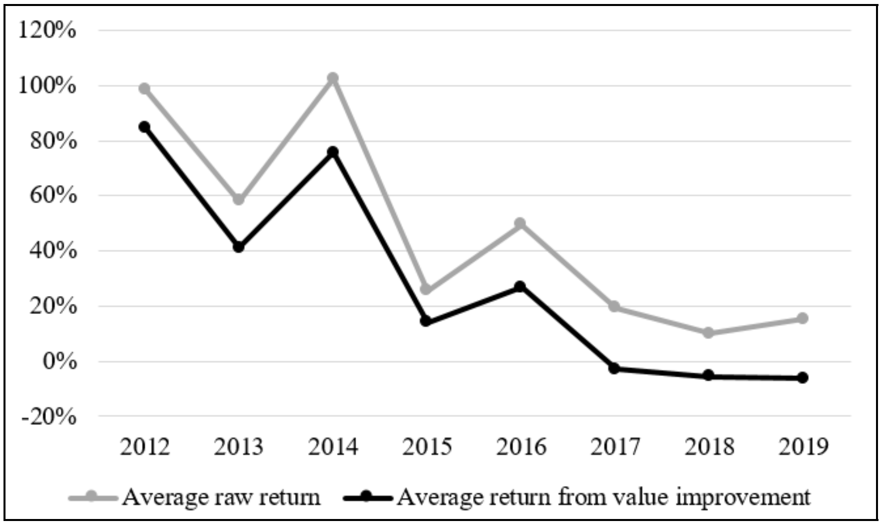
Table 8. Gross Returns from Appraisal Litigation (January 2015-June 2019).

	Average	**Std. Dev.**	**25th Percentile**	**Median**	**75th Percentile**
Full sample (*N*=35):					
Total raw return (%)	13.2	9.2	6.4	14.5	20.1
Annualized raw return (%)	8.9	15.8	2.6	5.2	7.2
Market-adjusted total return (%)	-15.6	16.6	-24.5	-16.6	-5.4
Market-adjusted annualized return (%)	-3.2	13.2	-8.9	-5.1	-2.2
Trial subsample (*N*=30):					
Total raw return (%)	12.8	8.5	6.4	14.5	15.3
Annualized raw return (%)	4.5	3.0	2.6	4.9	6.3
Total return from value improvement (%)	-5.3	7.6	-7.8	-3.4	0
Annualized return from value improvement (%)	-1.8	2.7	-2.5	-1.4	0
Total return from interest accrual (%)	18.1	5.0	14.5	20.1	21.1
Annualized return from interest accrual (%)	6.1	1.3	6.0	6.1	6.3
Settlement subsample (*N*=5):					
Total raw return (%)	15.6	14.2	0	26.0	26.0
Annualized raw return (%)	35.3	32.2	0	58.8	58.8

An average appraisal filing between 2015-2019 yields a total gross return of 13.2%. In the trial subsample (for which the average total gross return is 12.8%), we can break out these returns into two components: returns from value improvement and returns from interest accrual. For this subsample, we learn that judicial value improvement[182] was, on average, negative 5.3%, while interest accrual contributed 18.1%. Importantly, as shown in Figure 5 below, the average value improvement has dipped below 0% since 2017.

[182] This is defined as the percentage value premium of the judicially determined valuation over the deal price.

Figure 5. Appraisal Returns by Outcome Year.



This figure plots the average total raw return and the return from value improvement in appraisal actions by outcome year for deals that became effective between January 2015 and June 2019. Appraisal outcomes refer to settlement or court determination.

The negative average value improvement, it turns out, was representative of the post-2014 era. We find that in 56.7% of the cases in Table 8, judicial value improvement was negative. In addition to the *Aruba* decision, other notable cases include appraisal petitions filed at Jarden Corporation and SWS Group. For example, in *In re Appraisal of Jarden Corp.*,[183] the Delaware Court of Chancery determined that the fair value of Jarden was best represented by the unaffected market price of the company's shares, which was 18.4% less than the merger price.[184] In the May 2017 case *In re Appraisal of SWS Group, Inc.*,[185] a chancellor used a discounted cash flow analysis and found that the fair value of the petitioners' shares as of the merger date was $6.38, 7.8% less than the merger price.[186] Vice Chancellor Glasscock reasoned that the result from this analysis was not surprising as "this was a synergies-driven transaction whereby the acquirer shared value arising from the merger with SWS."[187]

These return numbers are a sharp drop from their counterparts during the 2000-2014 period. At that time, the average total gross return to filing an appraisal petition for the full sample was 98.2%.[188] However, if we look solely

[183] C.A. No. 12456-VCS, 2019 WL 3244085 (Del. Ch. July 19, 2019).

[184] *See id.* at *3, *50.

[185] C.A. No. 10554-VCG, 2017 WL 2334852 (Del. Ch. May 30, 2017).

[186] *See id.* at *1, *18.

[187] *Id.* at *18.

[188] Jiang et al., *supra* note 4, at 721 tbl.11.

at the trial sample, total raw returns were even higher at 108.3%.[189] Moreover, in the trial subsample during the earlier period, the return from judicial value improvement was 50.6%, and there was no case in which total appraisal valuation was below the deal price.[190] Finally, the total return from interest accrual in the 2015-2019 period was less than one-third of what the average petitioner earned in the earlier period (57.8%).[191] This sharp drop seems to have been caused by low interest rates in the economy.[192]

During the 2015-2019 period, appraisal filings as an investment strategy performed poorly on an annualized basis. The average annualized raw return was 8.9%, which substantially underperformed the general stock market by 3.2 percentage points during the same period. Moreover, in over 75% of the deals, petitioners received total returns that were lower than what they would have earned by investing in the stock market index even before taking into consideration additional legal and business costs associated with appraisal litigation. On top of these low returns, Jiang et al. estimate that the typical appraisal action likely costs the plaintiff legal expenses on the order of $1 to $3 million.[193] While such costs could have been easily covered by outsized payouts prior to 2015, during the most recent time period they would have further aggravated the underperformance of the arbitrage strategy. The fact that chancellors did not shy away from assigning valuations that were significantly below the deal price was a driving force for such low returns, which led to the dry up of appraisal activities. This is particularly likely to be true in the aftermath of *DFC Global*, *Dell*, and *Aruba*.

In Table 9, we take this analysis one step further and correlate deal-level total returns to deal and firm characteristics. We then compare the resulting coefficients from the 2015-2019 period with those from the 2000-2014 period.

---

189 *Id.*

190 *Id.*

191 *Id.*

192 *See supra* Figure 3.

193 Jiang et al., *supra* note 4, at 722.

Table 9. Determinants of Total Raw Returns: Comparison Between Sample Periods.

	January 2015-June 2019		**2000-2014**	
	Coefficient (1a)	***t*-Stat. (1b)**	**Coefficient (2a)**	***t*-Stat. (2b)**
Announcement premium	-0.63^{***}	-8.06	-1.42^{***}	-3.96
Going-private	0.63^{***}	4.16	0.52^{***}	6.12
Minority squeezeout	0.48^{***}	4.62	-0.12	-1.03
Excess yield (%)	-0.55^{***}	-3.83	0.001	0.04
Friendly	—	—	-1.26^{***}	-4.47
Institutional ownership	-2.13^{***}	-5.13	1.08^{***}	4.48
Deal value (log $ million)	0.12^{***}	4.25	0.03^{***}	3.26
Insider ownership	5.57^{***}	3.14	0.47^{***}	4.98
Same industry	0.49^{***}	5.42	0.66^{***}	6.37
ROA (%)	0.34^{***}	4.39	-0.14	-0.35
Tender offer	0.41^{***}	3.95	0.56^{***}	4.31
Observations	33		98	
R-squared	0.95		0.59	

Note. The dependent variable is total raw return (decimal number). All independent variables are as defined in the Appendix and are measured at the effective date, except when otherwise defined. In each column, we report coefficients and their *t*-statistics. Standard errors are clustered by year.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

In Table 9, we see that high announcement premiums are associated with significantly lower (at the 1% level) returns to appraisal arbitrage. This likely arises because judicial value improvement has a low upside potential when the offered premium was already high. Going-private deals, minority squeezeout deals, tender offer deals, and firms with high insider ownership have significantly higher (at the 1% level) returns to appraisal filings as well. This suggests that chancellors take into consideration the likelihood that shareholders in these deals are vulnerable to opportunistic conduct arising out of agency problems and that therefore there is more room for value improvement in appraisal. Institutional ownership is associated with lower returns, as the market valuation is more likely to be considered fair value because such stocks are subject to more shareholder monitoring, are more liquidly traded, and have greater analyst following. Having M&A partners in the same industry and firms with higher ROA are both associated with higher returns. Note that these effects are conditional on other covariates—most importantly, the announcement premium—being held constant. Because both the potential synergies and the operational strength offer more upside in valuation, it is easier for the plaintiff to argue that takeover premium undervalues the target.

CONCLUSIONS AND POLICY IMPLICATIONS

In this Article, we described and empirically analyzed the rise and fall of appraisal arbitrage. We find that while the returns to appraisal arbitrage were robust during the 2000-2014 period, they fell drastically from 2015-2019 because of changes to the Delaware appraisal statute and adverse opinions of the Delaware Supreme Court expressed in *DFC Global*, *Dell*, and *Aruba*. While both of these forces had a negative impact on the returns to appraisal arbitrage, we show that the Delaware cases and their emphasis on using deal price as fair value was the more important contributor.

The policy implications of these results depend largely on one's perspective on the value of appraisal arbitrage. If appraisal arbitrage is a socially wasteful exercise, then plainly killing it off is a good thing and these Delaware cases were correctly decided. However, if appraisal arbitrage is a valuable monitoring mechanism that scrutinizes low premium deals with conflicts of interest, then perhaps the Delaware Supreme Court should rethink its earlier opinions and open the door for the Court of Chancery to use other valuation methods more frequently.

APPENDIX: VARIABLE DEFINITIONS

Announcement premium	$(P_{Offer} – P_{-1}) / P_{-1}$, where P_{Offer} is the initial offer price, P_{-1} is the previous-day close of target firm's stock price.
Final offer premium	$(P_{Final} – P_{-1}) / P_{-1}$, where P_{Final} is the final offer price.
Revision return	$(P_{Final} – P_{Offer}) / P_{-1}$.
Deal value ($ million)	Total value of consideration paid by the acquirer, excluding fees and expenses.
Return on assets ("ROA")	Earnings before interest, tax, depreciation and amortization scaled by lagged assets.
Minority squeezeout	Indicator equal to 1 if a controlling shareholder buys out a minority shareholder's stock to eliminate that shareholder; value = 0 otherwise.
Going-private	Dummy variable equal to 1 if the acquisition involves a publicly traded company being converted into a private entity, usually by insider-led buyouts; value = 0 otherwise.
Acquirer toehold	Percentage of target shares held by the acquirer prior to the announcement.
Friendly	Dummy variable with a value of 1 if the target company resists or receives an unsolicited offer as reported; value = 0 otherwise.
Tender offer	Dummy variable equal to 1 if the bid takes the form of a tender offer; value = 0 otherwise.
Same industry	Dummy variable equal to 1 if the target and acquirer are in the same three-digit SIC industry; value = 0 otherwise.
Institutional ownership	Proportion of shares held by institutional investors, as reported by the Thomson Reuters Ownership Database.
Insider ownership	Proportion of shares held by company insiders, as reported by 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% and the yield on 2-year U.S. Treasury notes.
I (Investment ≥ $10m)	Indicator equal to 1 if the petitioners collectively hold shares valued more than $10 million; value = 0 otherwise.
Market-adjusted total return	Difference between total raw return and the CRSP value-weighted all-market return during the same period.