Do Disclosure-Only Settlements in Merger Objection Lawsuits Harm Shareholders?*

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Abstract

A significant phenomenon in public-company acquisitions is the rise of the (so-called) "merger objection lawsuit" (MOLs) — a shareholder representative action typically alleging inadequate price and fiduciary duty breaches. Not only have MOLs grown in frequency during the last decade, but a growing trend has been for plaintiff attorneys to settle such actions on seemingly trivial terms, prescribing supplementary disclosures by the defendant that convey little evident value to shareholders but result in potentially lucrative attorney fee awards. This practice has, in turn, unleashed severe criticism by commentators and academics, culminating in a significant recent sea change in Delaware jurisprudence, whereby Chancery Court judges now all but prohibit "disclosure-only" settlements outright. This paper questions the economic prudence of this doctrinal change from a shareholder-value perspective. We argue that notwithstanding the seemingly strong intuitive case against disclosure settlements (and the attorney-shareholder agency costs that spawn them), prohibiting them can have unintended effects, exacerbating other intra-corporate agency costs (such as those of managers and buyers negotiating deals). Under plausible conditions, prohibiting disclosure-only settlements can result in reduced deal prices, reduced deal frequency and reduced target shareholder value — consequences that seem inconsistent with the substantive commitments of Delaware company law.

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1 Introduction

Among mergers and acquisitions (M&A) practitioners, it has become commonplace in recent years to expect shareholder litigation on the heels of virtually every public company acquisition. Under some accountings (Cain and Davidoff Solomon, 2015, 2016), the frequency of litigation following executed deals over $100 million nearly doubled between 2005 and 2014, going from just under 50 percent to nearly 95 percent.[1] When employed deftly, such "merger objection lawsuits" (MOLs) represent significant sources of transactional delay, cost and liability exposure — an annoyance at minimum, and potentially a deterrent to value-enhancing transactions.

Given the stakes involved, it is perhaps not surprising that most MOLs settle — particularly when deal closure hangs in the balance. Somewhat more noteworthy, however, is the progressively defanged character

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[1]During this same time, it became common for such litigation to be commenced across multiple judicial fora, often (but not always) including the state of incorporation of the (nominal) defendant corporation (Cain and Davidoff Solomon, 2015).

of MOL settlements during the last decade. At the turn of the 21st century, around half of all MOLs settled with cash awards, and most of the remainder included amendments to the merger agreement. By the end of 2014, in contrast, nearly four in five MOL settlements made no material transactional amendments or price adjustments whatsoever, mandating instead only additional information disclosures by the defendant to target shareholders, the content of which routinely seemed unexceptional (if valuable at all to plaintiffs). While seemingly inconsistent with the existence of a credible lawsuit in the first place, such peppercorn settlements are perfectly understandable when one considers the interests of the principal negotiating parties. On the one hand, defendants stand to gain broad blanket releases from future shareholder claims, allowing the signed deal to close and minimizing prospective exposure.[2] On the other, plaintiff attorneys typically win generous compensation for their time, under the theory that the attorney's effort created a "common fund" and/or a "corporate benefit" for target shareholders, thereby justifying an attorney fee award.[3] Such fee awards can be lucrative, averaging nearly $500,000 even in disclosure-only settlements (a figure that grows somewhat when the settlement includes additional obligations).

The rise of disclosure settlements has caught the attention (and, by and large, the derision) of a variety of practitioners, judges and legal scholars. Several academics have decried this trend at length (e.g.: Griffith, 2015; Fisch, Griffith, and Davidoff Solomon, 2015), arguing (*inter alia*) that the supplemental disclosures that come from such settlements are ineffectual in altering shareholder support in approving mergers. This lack of effect, in turn, calls into question not only the value that plaintiff attorneys add for their nominal clients, but also the value of MOLs *writ large*. Some commentators have advocated for the blanket exclusion of attorney fees for non-monetary settlements, effectively nullifying the common benefit doctrine in such cases.[4] In fact, some academic observers have gone so far as to become cast members in the drama, purchasing shares of a nominal MOL defendant for the express purpose of objecting to the judicial approval of any disclosure-only settlement.[5]

The crescendo of criticism around disclosure settlements found a ready audience in the Delaware judiciary. Indeed, it already had one, since several Chancery Court judges had, by turn, expressed significant skepticism about such practices since at least 2009.[6] Nevertheless, starting in late 2015, a series of important Chancery Court holdings from different judges substantially raised the bar to judicial approval of disclosure settlements. Chancery began to limit fee awards in disclosure settlements proffered for approval, in some instances rejecting the settlement or dismissing the case outright. By early 2016, with Chancellor Bouchard's opinion in *In re Trulia, Inc. Stockholder Litigation*[7] the doctrinal landscape for settlement approval had decidedly shifted, requiring proponents of a disclosure settlement to demonstrate the added disclosures to be "plainly material" (or in the alternative to come forward with a settlement entailing something beyond disclosure, such as altering the acquisition's price or non-price terms). The effects of this jurisprudential change (at least thus far) have been palpable, with early reports suggesting that – even before the *Trulia* opinion – the rate of

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[2]See, e.g., Greg Markel & Gillian Burns, Assessing A Judicial Solution To Abusive Merger Litigation, *Law360* (November 19, 2015), availabel at http://www.law360.com/articles/728061/assessing-a-judicial-solution-to-abusive-merger-litigation.

[3]See, e.g., Sugarland Industries, Inc. v. Thomas, 420 A.2d 142 (Del. 1980).

[4]See, e.g., Fisch, Griffith, and Davidoff Solomon (2015, 612) ("perhaps the most straightforward approach for eliminating fee awards in disclosure-only settlements would be for courts to stop recognizing disclosure-only settlements as producing a shareholder benefit sufficient to entitle plaintiffs' lawyers to a fee award. Because the corporate benefit doctrine is a judicially created doctrine, courts could implement this change themselves"; Griffith (2015, 47) (arguing that the corporate benefit doctrine should "no longer [be] recognized as a justification for fee awards in the class action context," and that if such a reform were enacted, plaintiffs "could not recover attorneys' fees on the basis of non-pecuniary relief").

[5]Fordham Law Professor Sean Griffith is probably the most well-known serial objector. See, e.g., Chiappardi, Matt, "Meet The Man Changing Deal Litigation As We Know It", *Law360* (April 19, 2016), available at http://www.law360.com/articles/785037/meet-the-man-changing-deal-litigation-as-we-know-it.

[6]Some commentators have identified the kernel of the sea change as occurring in the now well-known Rural/Metro litigation, which in 2012 had originally been settled on a disclosure-only basis, but later overturned by Vice Chancellor Laster. See Friedlander (2016).

[7]C.A. No. 10020-CB, (Chancellor Bouchard) (January 22, 2016)

merger objection lawsuits quickly plummeted to around 25-30 percent of announced deals after the judicial sea change began to kick in.[8]

In many respects, the skepticism over disclosure-only settlements — and the doctrinal shift that accompanied it — seem justified. Indeed, such practices arguably expose the myopia of our habitual infatuation with "managerial" agency costs to the exclusion of other, arguably analogous agency costs. More specifically, much of corporate law focuses on identifying and regulating the incentive problems that pervade the relationship between those who own companies and those who manage them. Such attention seems richly deserved in the M&A context, where target boards and managers can be particularly prone to elevating their own private interests above that of shareholders. And yet, the principal tool that the law gives shareholders for redressing managerial malfeasance — the shareholder lawsuit — may be equally prone to incentive misalignment: The procedural rules governing shareholder class actions cede considerable control and authority over an MOL to the plaintiff attorney. It is generally she who recruits the client, commences litigation, negotiates a settlement and petitions for fees. And, just as managers may elevate their own interests above shareholders' in structuring a deal, plaintiff-side attorneys may put their own incentives above their passive shareholder-clients' interests in structuring a settlement — executing "peppercorn" agreements that manage to do little beyond generating a fee award. Factor in the willing confederate that plaintiff counsel typically finds in the defendant (who is anxious to secure a release and close the deal), and the disclosure settlement becomes a near-perfect storm for lawyer-borne agency costs, with shareholders (yet again) taking it in the chops. Viewed in this sense, the only surprising thing of Chancery's latest shellacking of disclosure settlements was the languidity of the response.

Notwithstanding the intuitive case against disclosure settlements, this paper offers a somewhat contrarian admonition to commentators and policy makers: *Not so fast.* We show that the plausible economic consequences of prohibition are complicated — far more so than meets the eye. It is *far* from clear that disclosure-only settlements systematically hurt target shareholders, nor is it clear that prohibiting (or otherwise restricting) the practice helps. We argue, in fact, that in many plausible situations, precisely the opposite can hold. And to the extent courts wish to embrace a default rule about such practices, there may be plausible reasons to set that default dial at the permissive end of the scale when it comes to disclosure settlements.

The kernel of our argument flows from three simple propositions. First, we assert that an important (indeed paramount) goal of corporate law in the M&A context is to maximize the target-company shareholders' *ex ante* welfare – e.g., by facilitating value-enhancing deals, increasing premia, and maximizing overall expected value. Consequently, if tolerating certain low value / speculative MOLs somehow furthered this objective (for whatever reason), then so doing would be justifiable on policy grounds.[9] Second, from the perspective of the plaintiff attorney and defendant, prohibiting peppercorn settlements operates as *de facto* "tax" on the settlement transaction – diverting from the plaintiff attorney some fraction of the monetary settlement consideration and directing it towards the plaintiff. As with any tax, much hinges on *the incidence of* and *strategic responses to* the levy, both of which can be complex. Third, this complexity is compounded by myriad agency costs involving a conglomerative cast of corporate characters (including buyers, target management, shareholders and attorneys). Thus, even if prohibiting peppercorns were a efficient response

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[8]Alison Frankel, "After Chancery Crackdown on M&A Settlements, Shareholder Filings Drop Off," *Reuters* (November 16, 2015), available at http://blogs.reuters.com/alison-frankel/2015/11/16/after-chancery-crackdown-on-ma-settlements-shareholder-filings-drop-off/ (reporting decline in litigation to approximately 30% of transactions).

[9]To be sure, one could take issue with this desideratum on first principles; but the underlying shareholder primacy objective has remained (and will likely continue to remain) sacrosanct in conventional corporate law and finance. If one were instead beholden to the policy objective of eliminating nuisance suits (subordinating other policy objectives), prohibiting disclosure settlements might be a good way to do it.

to the attorney-shareholder agency relationship viewed myopically, doing so can exacerbate other agency problems, generating costs that can swamp the benefits.

We identify several plausible distortions and unintended incidence consequences of prohibiting peppercorn settlements. They include:

1. Prohibiting and/or restricting disclosure settlements can dampen the *ex ante* incentives of plaintiff attorneys to search for and develop potentially legitimate cases where the deal price appears suspiciously low. Even for the litigation that still occurs, the plaintiff attorney's expected payoff shrinks, thereby reducing her incentives to investigate.[10]

2. Anticipating a lower sensitivity of litigation exposure to the deal price, target managers may attempt to extract – and acquirers may be willing to pay – larger managerial side payments (i.e, private benefits), sacrificing some of the transaction price in the process.

3. M&A negotiators may even have a perverse incentive push down the deal terms further still, with the inferior terms acting as a type of "house money" to underwrite top-up settlements entailing financial concessions in addition to disclosures, thereby manipulating judicial scrutiny of disclosure settlements. But because such top-up settlements (a) occur only probabilistically after a deal (see point 1 above), and (b) are effectively taxed by plaintiff attorney fees, shareholders would be worse off with such adjustments than if they simply received more attractive deal terms up front.

4. Faced with increased total costs (more side payments and larger settlements), some potential acquirers may be discouraged from pursuing certain deals. As a result, value-enhancing takeovers that would have otherwise occurred are rationed out of the market.

To illustrate our argument, we develop a theoretical framework of merger negotiations and ensuing MOLs to study the plausible economic effects of disclosure settlements (and the desirability of constraining them judicially). In our model, multiple strategic players with divergent interests interact, including buyers, target managers, target shareholders, and plaintiff attorneys. Misaligned incentives pervade these relationships, including those of the plaintiff attorney, who wishes to maximize her negotiated fee from the defendant and consequently favors peppercorn settlements conveying minimal (if any) value to shareholders. Although courts can potentially "fix" attorney-shareholder agency problem by forcing settlements to apportion a proportional monetary share of value to shareholders, we demonstrate that under plausible parametric conditions, this fix can actually be worse than the disease itself: *I.e.,* restricting peppercorn settlements could lead to reduced deal premia, reduced takeover probabilities, and reduced expected target shareholder value (as measured *ex ante*). Viewed in this light, the desirability of the recent move of Delaware courts to deter/prohibit disclosure settlements seems dubious, at least if one evaluates that doctrinal repositioning through the lens of shareholder welfare.

Several qualifications to our analysis warrant explicit mention before proceeding. First, it is important to emphasize that our key message in this paper is that *efficient policy responses to disclosure settlements are complicated,* and thus prudent policy design requires anticipating and contending with these complications. *This is not the same as* advocating for categorical and unconditional embrace of disclosure-only settlements – a position we are disinclined to take at this time. Rather, we argue the policy case for or against prohibition (and in what contexts) is simply a hard question, and the most critical empirical inquiries to guide policy have not — to our knowledge — been fully analyzed. (We propose several candidates at the end of this article.)

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[10]Cf. Friedlander (2016). Once a plaintiff attorney commits to developing a case, of course, she may well work harder after *Trulia* to uncover non-disclosure oriented claims; but her ex ante payoff will still tend to fall.

Second, our analysis below is (naturally) confined to disclosure settlements of plenary MOLs, but that scope of attention may actually understate the case. There may be several close-by alternatives to disclosure settlements that would render prohibition ineffective. For example, if a plaintiff attorney files a lawsuit seeking additional disclosures and the defendant immediately capitulates by making the sought-for disclosures, the plaintiff attorney may still be able to procure a fee award, asserting that her facially legitimate demands were mooted (resulting in a corporate benefit). The recent Delaware decisions give a wide berth to "mootness" fee applications (even permitting them to be negotiated with little judicial second guessing[11]). Alternatively, shareholders may also have an option of filing an appraisal action. Appraisal actions frequently settle as well, though the general rule is that such actions are in the appraisal plaintiff's private interests, and not for the common benefit of shareholders as a whole. Consequently, attorney fees are disfavored in such actions. On the other hand, once a plaintiff establishes standing, appraisal proceedings impose no explicit burden of proof on the parties, leaving it to the judge to assess fair value. To the extent that judicial scrutiny of disclosure settlements induces substitution into these alternatives, the complications of prohibition may be even stronger than we advertise here.

Third, our analysis counsels a cautionary tale about how best to understand and manage the dialogue between academic researchers and policy makers. While we believe such dialogue to be helpful and constructive, it is also important to keep in mind the stage of development of (and academic consensus about) research propositions that might be used to inform legal policy. In the case of MOLs, various actors may have inadvertently fed one another's enthusiastic condemnation of the practice, resulting in a type of echo chamber that quickly catalyzed a major doctrinal reform. That legal reform may yet prove beneficial. Perhaps it will not. But in any event, the case against disclosure settlements is (from our perspective) nowhere near as overpowering as portrayed in the rhetoric that initially spawned – and later impelled – the doctrinal sea change.[12]

Finally, our contribution here is substantially (though not entirely) a critical one, questioning a specific doctrinal change that has recently swept over MOL jurisprudence. We do not endeavor at length to take on the larger, "if we were king" question[13]: that is, is there some *other* reform be preferable to both the *status quo ante* and the new quasi-prohibition under *Trulia*? Although we reserve much of that task for future work, we also observe that an effective "generic" solution for agency problems is to sell the productive asset to the agent, causing her to internalize all relevant tradeoffs. For managerial agency costs, such asset transfers may not be practicable due to managers' wealth constraints and risk preferences. MOLs, however, may be different: Auctioning (or "spinning off") the MOL to outside attorney-bidders – with auction proceeds distributed to shareholders and ensuing damages/settlement retained by the purchasing attorney – may be a far more effective approach for protecting shareholder value and reducing M&A related agency costs. At present, the recent doctrinal reforms combined with the procedural rules governing representative actions[14] would appear to make such a transfer difficult to pull off. To the extent one is interested in larger structural reforms, however, an MOL auction process deserves some consideration.[15]

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[11]See *Trulia*, at 22-23.

[12]It may turn out that the recent changes in Delaware doctrine may function as a type of "field experiment" that facilitate better empirical assessments of the effects of prohibiting peppercorn settlements. Such field experimentation may well be desirable in complex financial markets settings. See, e.g., Spitzer and Talley (2014).

[13]The grammatically correct phrase here would be "if we were diarchs" (but who uses *that* word, anyway?).

[14]See, e.g., Del. Chancery Court Rule 23(aa) and Rule 23.1(b).

[15]Indeed, the canonical disclosure settlement sort of mimics this structure (sans the auction proceeds), with the attorney receiving 100% of the monetary compensation and the plaintiff class receiving (largely meaningless) peppercorn. The new scrutiny of disclosure settlements under *Trulia* has the effect of pushing us away from (and not towards) the auction solution. (We acknowledge – but cabin – the question of whether an auction process for the MOL might *itself* be susceptible to agency costs, suboptimal pricing, and ensuing shareholder litigation.) For more on equity-financing of representative litigation, see Issacharoff (2014).

Our analysis proceeds as follows. Section 2 offers a brief overview of the institutional structure of merger-related shareholder litigation, tracing through the recent case law regarding disclosure settlements. Section 3 sets out a theoretical framework of M&A negotiations followed by prospective shareholder litigation. There we analyze the effects of imposing judicial scrutiny of disclosure settlements — which we model as requiring a prescribed minimal threshold of value that must be received by shareholder plaintiffs (rather than attorneys) from a settlement. Section 4 characterizes the (unique) equilibrium that comes from our framework, exploring how litigation activity, deal incidence, deal pricing and overall shareholder welfare interact in equilibrium. Section 5 harnesses these equilibrium insights to generate predictions of how several welfare-relevant measures of interest (e.g., deal price, deal incidence, and expected shareholder welfare) plausibly change as one increases judicial scrutiny of peppercorn settlements. There we show that under relatively weak conditions, all three may decrease even as the settlement incentives of plaintiff attorneys and their clients become aligned. Section 6 [still to be drafted] discusses extensions and robustness of our argument, as well as positing empirical measures by which we calibrate an optimal legal rule. Section 7 concludes.[16] The Appendix contains details of the technical proofs.

2   MOL Structure, Process and Settlement

As should be clear, our analytical argument draws heavily on understanding how MOL litigation affects a variety of cross-cutting agency relationships. Consequently, to motivate that enterprise we must first sketch out (at a relatively high level) some of the core institutional contours of MOLs, and their plausible relationship to settlement procedures, fee awards, case selection, and acquisition structuring. This section proceeds along those lines, with emphasis on the recent judicial skepticism of fee award requests.

As is well known, public company acquisitions can be complicated. They are usually the end product of long and painstaking processes of valuation, auction design, due diligence, negotiation, and tax structuring (to name a few); and even after a deal is signed, it may take many months to receive the shareholder approvals necessary to close it. During that tenuous time between signing and closing, of course, a variety of hazards lurk, including unforeseen circumstances and market fluctuations that can materially affect both the synergies from the deal and the underlying division of surplus.

During the last fifteen years, shareholder litigation has been one such lurking hazard awaiting those who successfully navigate the above obstacles. It is not uncommon for one (or more) plaintiff attorneys to issue press releases within hours of a deal's public disclosure, announcing an investigation into possible breaches of fiduciary duty related to the merger. While not legal filings, such releases often serve as vehicles for client recruitment, with an actual complaint ensuing typically within a week or two of the announced deal — frequently even in advance of the proxy materials describing the precise terms of the transaction. Most MOLs are brought as direct class actions in state court, allowing them to skirt the enhanced procedural and pleading hurdles that attend either shareholder state derivative actions or federal actions (where pleading standards are higher since *Twombly* and *Iqbal*). Complaints usually feature a host of allegations, including standard fiduciary duty claims, "Revlon" claims, aiding and abetting allegations, and a variety of disclosure infirmities. In many cases, multiple MOLs are filed, sometimes in different states (though multi-forum litigation may be decreasing somewhat due to Delaware's 2015 embrace of forum selection charter provisions).

A key strategic moment in a typical MOL occurs when the plaintiff moves for a preliminary injunction motion, a factor that bears significantly on settlement dynamics. First, when filed by the plaintiff to enjoin a deal (as is typical), such motions afford plaintiffs some ability to obtain discovery on an expedited basis —

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[16]A technical appendix following Section 6 offers more detailed derivations of our results in the main text.

a process that Delaware courts have largely routinized.[17] Second, should the injunction issue, the plaintiff enjoys considerable bargaining leverage, allowing her to hold up a deal's closing until the injunction is lifted (e.g., through a settlement). Such hold-up threats can be particularly costly to both the transacting parties (especially the target). If the injunction is denied, in contrast, some measure of negotiation leverage swings back to the defendant, who now has the option of putting the litigation on the back burner until the closing of the deal.[18] Injunctions in this context can also be challenging to predict: Ordinarily, such preliminary orders are difficult to procure, because plaintiffs must be able to demonstrate not only a likelihood of success on the ultimate merits of their claim, but also "irreparable harm" if the injunction is not issued. While these elements are designed to favor defendants, the M&A context presents peculiar countervailing challenges when it comes to irreparable harm: for it is difficult at best (and impossible at worst) to unwind a closed merger after the fact (particularly for a public company target), and damages computation is often fraught with hazards and measurement error. Both factors plausibly weigh heavily on many a judge's mind when contemplating a denial of the injunction.[19] This ambivalence is arguably redoubled when the underlying complaint alleges disclosure infirmities, making it more difficult to retrace how (or whether) additional disclosures might have altered shareholder votes had the injunction issued.

Given the manifest risks and uncertainties in the process, it is not uncommon for the parties to engage in active settlement negotiations early on — sometimes even before the court rules on the preliminary motion. Such negotiations also take place in the shadow of what will likely transpire should the case proceed to litigation. In that case, fee awards for plaintiff attorneys are commonplace, and are granted under the "common fund" doctrine. Some jurisdictions base fees on (so-called) "lodestar" methods (effectively an hourly rate) or "percentage of the fund" assessments (which acts as a tax on the total dollar settlement amount / judgment). Delaware uses a hybrid approach. Several factors (sometimes known as the *Sugarland*[20] factors) come into play in assessing attorney compensation, including:[21]

1. The results achieved;

2. The time and effort of counsel;

3. The relative complexities of the litigation;

4. Any contingency factor; and

5. The standing and ability of counsel involved.

When a case generates a monetary settlement / judgment award, these factors naturally work into a fee award for the plaintiff attorney. In settlements, this fee award is typically agreed upon by the parties (though the defendant has the ability to contest an award demanded by the plaintiff). Delaware courts compensate the plaintiff attorneys with a contingency percentage of the monetary recovery that scales up (and down) with the extent of the benefit of the attorney's efforts. The exact percentage varies, but tends to scale up depending how "deep" the case went into the litigation process. The top of the range appears to be around 33% for cases that culminate in a litigated monetary judgment (or very late stage settlement). The percentage falls for

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[17]See Court of Chancery Guidelines for Expedited Discovery in Advance of a Preliminary Injunction Hearing, available at http://courts.state.de.us/chancery/docs/PIDiscoveryGuidelines.pdf.

[18]In reality, the incentive to settle still remains strong, particularly if D&O insurance excludes coverage for various allegations in the underlying complaint.

[19]This one-way ratchet effect is arguably reflected in the astonishing frequency with which M&A attorneys employ a variety of "no going back" aphorisms, such as "You can't put Genie back in the bottle," "You can't un-ring a bell," and (our personal favorite) "You can't put the toothpaste back in the tube."

[20]Sugarland Indus., Inc. v. Thomas, 420 A.2d 142, 149-50 (Del.1980).

[21]See Amer. Mining Corp. v. Theriault, 51 A.3d 1213, 1254 (Del. 2012).

cases that have settled long in advance of trial. Thus, when a case settles extremely early, typical awards are in the range of 10-15% of the monetary benefit conferred. When cases settle somewhere in the middle (e.g., after plaintiffs have engaged in meaningful litigation efforts, several depositions and some motion practice), typical fee awards hover in the Goldiloxian range of 15-25%. Ultimately, the award is left open to judicial discretion.[22]

When a settlement is non-monetary, in contrast (such as a disclosure or amendment settlement), percentage fee awards are untenable, and the lodestar approach is the only remaining option. In many such cases, moreover, the settling parties still typically present the court with a negotiated agreement the attorney's fee, both attesting that the fee is fair and reasonable, and leaving a court with little (if any) manifest opposition. Although the underlying *Sugarland* factors remain in play in such situations,[23] the lack of contestation can make it tempting for a court to sign off.[24] That said, starting in around 2009, the courts began to wonder aloud about the propriety of fee awards in disclosure-only settlements, which alter neither the pricing or terms of the underlying deal. Although such settlements generally still were approved, the opinions began consistently to float questions about whether the additional disclosures are material — or even helpful — to shareholders. Vice Chancellor Glasscock's ruminations on this score from 2011 are typical:

> There is a risk in any disclosure-only settlement that both the plaintiffs and the defendants have agreed to trivial disclosures as the path of least resistance to a desired end: for the defendants, the release of claims without significant cost, and for the plaintiffs, access to fees and costs. It is proper, therefore, for this Court to scrutinize disclosure-only settlements, both substantively and to determine whether the plaintiffs' efforts have conferred a benefit on the class.[25]

Two years later, in an unpublished bench opinion in 2013,[26] then-Chancellor Strine rejected a disclosure settlement, noting that nearly 100% of the shareholders voted to approve the proposed deal (after the additional disclosures were made), and questioning whether the additional disclosures "would have been meaningful, would have been interesting, in any real way to someone voting on this transaction[.]" Ultimately, Chancellor Strine dismissed the case based on class certification grounds, which (along with the unpublished nature of the opinion) left open whether and to what extent Delaware judges would be willing to reject such settlements in the future, and with what degree of regularity.

We did not have to wait long to find an answer. Beginning in the fall of 2015, in a rapid succession of opinions — each issued from a different judge — the Chancery Court systematically lowered the boom on disclosure-only settlements, resulting in the current status quo (where they are either heavily disfavored or functionally prohibited). We highlight the three most central cases in this progression below:

- *In re Riverbed Tech., 2015 WL 5458041 (Vice Chancellor Glasscock) (September 17, 2015).*

This case stemmed from the acquisition of network equipment manufacturer Riverbed Technology in a deal valued at $3.6 billion. Following the conventional pattern, plaintiff-shareholders filed shortly after the acquisition was announced, alleging conflicts of interest that tainted sales process and the insufficiency of disclosures about the transaction. Within weeks, the parties agreed to a settlement under which Riverbed made additional disclosures in exchange for a release of all federal and state claims in connection with the transaction. Plaintiffs' counsel also sought $500,000 in attorneys' fees for the common benefit conferred on the class. An intriguing twist in this case — and a phenomenon that would become more common — was the appearance

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[22]Amer. Mining Corp. v. Theriault, 51 A.3d 1213,1259-61.

[23]See, e.g., In re PAETEC Holding Corp. S'holders Litig., C.A. No. 6761-VGC, at 14-15 (Del. Ch. Mar. 19, 2013).

[24]See, e.g., In re. Sauer-Danfoss Inc. S'holders Litig., 2011 WL 2519210, at *18 (Del. Ch. Apr. 2011).

[25]Id. at 17.

[26]Transatlantic Holdings Inc. Shareholders Litigation, Case No. 6574-CS (2013).

of a Riverbed shareholder who objected to the settlement, arguing that it was "essentially valueless." The objector — Fordham Law Professor Sean Griffith — is a co-author of several recent studies criticizing disclosure settlements. Ultimately, Vice Chancellor Glasscock approved the settlement, but he raised serious doubts about the value of the prescribed disclosure to shareholders. These doubts ultimately induced the Vice Chancellor to whittle down the plaintiff attorney fee request to $329,000. The opinion takes particular note of the agency cost problems that the settlement represented:

> Such cases are particularly fraught with questions of agency: among others, the basic questions regarding the behavior of the fiduciaries that are the subject of the litigation; questions of meta-agency involving the adequacy of the actions of the class representative — the plaintiff — on behalf of the class; and what might be termed meta-meta-agency questions involving the motivations of counsel for the class representative in prosecuting the litigation. At each remove, there may be interests of the agent that diverge from that of the principals. This matter, involving the deceptively straightforward review of a proposed settlement, bears a full load of such freight. (p. 2)

Vice Chancellor Glasscock's opinion caused immediate ripple effects, both because it was based squarely on the common fund doctrine, and because it involved an active (and motivated) objector who manifested an intent to continue in this role.

- *In Re Aruba Networks SH Litigation CA# 10765 (Vice Chancellor Laster) (Oct. 9. 2015).*

Shortly after *Riverbed Technologies*, Vice Chancellor Laster chimed in to express his own skepticism of a disclosure settlement in a transcript opinion, in this case regarding litigation in connection with the Hewlett-Packard Co. acquisition of wireless network company Aruba Networks Inc. The plaintiff shareholders alleged that the $24.67-per-share cash deal price fell far short of Aruba's fair value, and they sought an injunction barring the merger from moving forward. A few months later, the parties reached a settlement calling for additional disclosures and a $387,500 attorneys' fee award for plaintiff counsel. The Vice Chancellor not only refused to sign off on the settlement, but he also refused to certify the class based on inadequacy of representation. Although the parties attested to the fair and reasonable nature of the settlement, Laster was unconvinced, writing:

> I think that we have reached a point where we have to acknowledge that settling for disclosure only and giving the type of expansive release that has been given has created a real systemic problem. We've all talked about it now for a couple years. It's not new to anybody. But when you get the sue-on-every-deal phenomenon and the cases-as-inventory phenomenon, it is a problem. It is a systemic problem. (at p. 65)... I have been told a lot of glowing things in the context of settlements that are less than reliable. And I don't think you're doing it consciously. I think it is the dynamic here, because the path to getting paid is to reassure me. One thing we know is when people have a path to getting paid, behavior starts to reflect how one gets paid. (p. 66) But once disclosure becomes the be-all and end-all measure for this form of social decision-making, then you start to get this repeat-process phenomenon and the indicator is no longer reliable. Parties respond strategically. You end up with a misshapen legal regime. (p. 71)

After dismissing the case outright, Laster left a final parting shot:

> I have just compensated you with lengthy disclosure about this case, so you've gotten now what you got for the class. I would not personally give you any more. It may not be disclosure you

like, just like a lot of times, when I get objections from class members, they look at the disclosure that you guys got for them and say, "What is this about? We don't need this. This is not helpful at all." You probably don't think what I've told you is helpful at all. That's fine. But you've had the benefit of disclosure. (pp. 74-75).

We interpret these excerpts as manifesting a decidedly (and even categorically) dismissive view of the value of disclosure settlements.

- *In re Trulia, Inc. Stockholder Litigation, C.A. No. 10020-CB, (Chancellor Bouchard) (January 22, 2016)*

Perhaps the most durable blow to disclosure settlements (culminating in a written opinion) came in early 2016, with consolidated litigation around Zillow, Inc.'s announced acquisition of Trulia in a stock-for-stock merger valued at approximately $3 billion. The plaintiffs alleged that Trulia's directors had breached their fiduciary duties in a variety of ways in approving the proposed merger on unfair terms. Four months after filing, the litigants reached a preliminary settlement under which Trulia would supplement its proxy materials so as to give shareholders additional (and purportedly more complete) information. In exchange, the plaintiff stockholders agreed to drop their preliminary injunction motion and provide broad release of claims, including "unknown claims" and claims "arising under federal, state, foreign, statutory, regulatory, common law or other law or rule." Finally, the parties proposed $375,000 fee for plaintiffs' counsel.

The additional disclosures that the parties stipulated to constitute the settlement came in four categories, but most of them essentially dealt with adding more granularity to the valuation analysis that was disclosed to shareholders: (1) certain synergy numbers in J.P. Morgan's valuation analysis; (2) selected comparable transaction multiples; (3) selected public trading multiples; and (4) implied terminal EBITDA multiples for a relative discounted cash flow analysis. (p. 27)

Chancellor Bouchard found these additional disclosures to be of questionable value, writing:

[U]nder Delaware law, when the board relies on the advice of a financial advisor in making a decision that requires stockholder action, those stockholders are entitled to receive in the proxy statement "a fair summary of the substantive work performed by the investment bankers upon whose advice the recommendations of their board as to how to vote on a merger or tender rely." This "fair summary" standard has been a guiding principle for this Court in considering proxy disclosures concerning the work of financial advisors for more than a decade." ... A fair summary, however, is a summary. By definition, it need not contain all information underlying the financial advisor's opinion or contained in its report to the board". In my view, disclosures that provide extraneous details do not contribute to a fair summary and do not add value for stockholders. (P. 28)

Concluding that the disclosures in this case constituted extraneous details (and little more), the Chancellor disallowed the settlement, taking the time to issue an ominous warning to future litigants about a heightened materiality standard disclosure settlements:

[T]o the extent that litigants continue to pursue disclosure settlements, they can expect that the Court will be increasingly vigilant in scrutinizing the "give" and the "get" of such settlements to ensure that they are genuinely fair and reasonable to the absent class members. (p. 2)...."[P]ractitioners should expect that disclosure settlements are likely to be met with continued disfavor in the future unless the supplemental disclosures address a *plainly material misrepresentation* or omission, and the *subject matter of the proposed release is narrowly circumscribed*

to encompass nothing more than disclosure claims and fiduciary duty claims concerning the sale process, if the record shows that such claims have been investigated sufficiently. *In using the term 'plainly material,' I mean that it should not be a close call that the supplemental information is material as that term is defined under Delaware law.*" (p. 10, emphasis added).

In many practitioners' minds, *In re Trulia* drove a significant nail into the coffin of disclosure settlements in Delaware, erecting a judicial standard — "plain materiality" — that many predict will prove prohibitively difficult to satisfy in practice.[27] In our view, this characterization rings true (even if the current case law leaves the door slightly ajar for other species of disclosure settlement[28]. Perhaps a better route for litigants going forward in seeking judicial approval of a settlement is simply to avoid the "pure-form" disclosure settlement altogether. That is, in addition to whatever additional disclosures may be prescribed (if any), a settlement can likely sidestep *Trulia* by prescribing either real price adjustments or amendments to deal terms. Although such substantive deal restructuring may be easier said than done (and it is far harder to pull off than simply making additional disclosures), we note that it was a relatively common settlement provision not long ago. And moreover, savvy counter-parties to the M&A transaction can prospectively facilitate judicial clearance if — as we predict below — they deliberately leave some surplus on the table during deal structuring to serve as a type of "house money" for settlement concessions, thereby either sidestepping *Trulia* or satisfying its materiality standard. Whether this strategic response (or others) to *Trulia* scrutiny is ultimately good, bad, or indifferent for shareholders is far from obvious, requiring a more systematic economic analysis. It is to this analysis we turn in the next Section.

3   A Model of Mergers, MOLs, and Settlement

In this section, we develop a game-theoretic model of merger negotiations and ensuing litigation to investigate the plausible equilibrium effects of settlement terms and judicial scrutiny of such terms. Our central question of interest is whether and how constraints placed on the terms of settlements negotiated between plaintiff attorneys and defendants can affect equilibrium behavior and ex ante measures of economic welfare. Our analysis highlights two simultaneous agency problems faced by the corporate shareholders: The first concerns the corporate manager, whose incentives to sell the company may not cohere with shareholder objectives. The second agency problem concerns the plaintiff's attorney, whose incentives to file and settle cases need not cohere with the plaintiff's (the representative shareholder). We are particularly interested in whether the efforts to stem the latter form of agency costs can exacerbate the former.

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[27]It should be noted that Delaware's new posture towards disclosure settlements — while noteworthy in its challenge to plaintiffs — is not the most demanding. For example, Texas Rule of Civil Procedure 42(i)(2) requires that "If any portion of the benefits recovered for the class are in the form of coupons or other noncash common benefits, the attorney fees awarded in the action must be in cash and noncash amounts in the same proportion as the recovery for the class." See Tex. Civ. Prac. & Rem.Code §§ 26.001(a) & 26.003. Texas courts have invoked this rule to deny attorney fees to class counsel in a disclosure-only case. Kazman v. Frontier Oil Corp. 398 S.W.3d 377 (14th Dist. 2013); Rocker v. Centex Corp., 377 S.W.3d 907 (Tex. App. 2012).

[28]As noted in the Introduction, there may be other ways to characterize what is essentially a disclosure settlement in different garb as a *mootness settlement.* If the defendant voluntarily makes the additional requested disclosures, then the plaintiff may declare the case moot, while seeking a fee award based on the "common benefit" of forcing the disclosure. While defendants can still (in theory) contest the attorney fee award, they may have an incentive to go along. Moreover, the "plainly material" standard announced in Trulia apparently does not apply in a mootness case. A February 2016 Delaware decision, for example, found that a lower standard applies for fee awards in moot cases. Louisiana Municipal Police Employees' Retirement System v. Black, C.A. 9410-VCN (Del. Ch. Feb. 19, 2016). Alternatively, a second way to obtain a fee for only supplemental disclosures is to resolve the dispute privately, with a stipulation of dismissal with prejudice only as to the named plaintiff, notice to the stockholders and a negotiated fee. Such an approach is expressly permitted under Trulia.

3.1 Firms and Players

Consider a business enterprise (or "firm") whose going concern value is normalized to be zero. The firm's ownership is divided between a collection of identical atomistic investors as well as a manager (who may also own a block of shares). The game involves five distinct players:

Outside shareholders: This is a population of atomistic outside investors, each owning a fraction $d\alpha$ of the firm, and owning in the aggregate a $(1 - \alpha)$ fraction. Shareholders are assumed required to vote on any acquisition with a buyer. Moreover, should such an acquisition occur, a randomly selected shareholder must be induced to permit the plaintiff's attorney to represent her in any litigation following a merger. (See below for details).

The manager: This is a unitary player,[29] who owns the remaining block of shares representing a fraction α of the overall equity. The manager dictates the firm's negotiating strategy in all merger negotiations. (Only if the manager signs a deal with the buyer do the shareholders have an opportunity to approve the transaction.) In addition to her ownership stake, the manager enjoys a private benefit of control (denoted as $\beta \geq 0$) from operating the firm under the status quo. She will not accept a deal with a buyer unless it compensates her for the loss of this private benefit. Consequently, the total consideration for an acquisition will consist of a package (p, b) demanded by the manager, where p represents the consideration paid for the shares (α of which is returned to the manager through her share ownership), and b is a direct side payment that goes to the manager.[30] The manager has two reasons to deviate from the maximization of shareholder welfare. On the one hand, the manager has a stronger incentives than the shareholder not to sell, since she loses the control premium β. On the other hand, conditional on reaching a deal, the manager has an incentive to channel as much of the consideration as possible through the side-payment b, which she pockets entirely, rather than through the price p, which she must split with outside shareholders.

The buyer (the defendant): Prior to the consummation of the deal, a buyer values the target corporation at $v \sim U[0, 1]$, where v is private information; its distribution is common knowledge. We make a simplifying assumption that the buyer is the surviving entity from the merger, and that consequently the buyer ultimately bears the risk of paying litigation-related expenses (such as costs, damages, and settlement amounts).[31]

The court: In the event an acquisition is signed and approved, and should litigation ensue, the court adjudicates the fairness of the deal's terms. We assume that the court observes the acquisition price p, and then compares that price to a judicial assessment of the "fair" price, denoted by p^*. We suppose this legal standard to be a noisy representation of the seller's optimal price, so that $p^* = \frac{1}{2} + \epsilon$, with $\epsilon \sim U\left[-\frac{1}{2}, \frac{1}{2}\right]$. As we will see in detail below, $p = \frac{1}{2}$ is the price that the manager would demand from the buyer if there were no managerial agency costs and if there were no risk of litigation. We assume the court to be the sole non-strategic actor (i.e., a "neutral referee"), mechanically applying her interpretation of the law. In contrast, all other players act strategically throughout the game.

The plaintiff's attorney: This is a unitary player who potentially represents shareholders in litigating the deal. To track the institutional structure of litigation, we assume that the attorney bears all costs of a

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[29]We merge boards and executive officers as a single player to concentrate on issues outside this relationship. We conjecture that our basic points would easily generalize into this richer context.

[30]We model this side payment as being in cash, but our framework is general enough to consider in-kind compensation (e.g., employment at the surviving entity).

[31]This implicitly assumes that the litigation is resolved after closing. It is possible to alter this simplifying assumption without changing the intuitions that emerge in the analysis below.

lawsuit, which has two parts. First, the attorney must bear a non-refundable fixed cost $k \sim U[0,1]$ to file suit, a sum meant to represent the effort costs of investigating the case; should the attorney bear this cost, a signal emerges about the applicable legal standard (p^*) that will apply to the case. Effectively, p^* is a realization of the noisy judicial signal of the price fiduciary duties demand, distributed ex ante $U[0,1]$.[32] After observing p^*, the attorney engages in settlement negotiations with the defendant (which we identify with the buyer, as the eventual surviving entity). The parties either settle or, if negotiations fail, go to trial where each party pays a litigation cost c and the court renders a judgment as described below. We assume that the attorney exclusively controls the litigation and settlement, but does not fully internalize the benefit to the shareholders (except as required by the court).

3.2 Timing

The strategic interaction among the players described above unfolds over five stages (with no discounting), summarized as follows:

Time 1 (policy-making). The policymaker sets τ (the minimal share of any settlement that must go to shareholders) and δ (the share of litigated damages amount that accrues to shareholders).

> **Assumption 1.** We constrain $\tau \leq \delta$ so that the shareholder-plaintiff's mandated portion of the settlement is no larger than the her mandated portion of the litigated damages award. We motivate this assumption on the basis that disclosure-only settlements have been controversial because of the fact that they have historically set $\tau = 0$, well below the usual percentage fees that accrue to litigated outcomes (on the order of $\delta = \frac{1}{3}$); the cases described in the previous section effectively require moving $\tau > 0$.

Time 2 (acquisition deal). The buyer learns its private valuation v, and the manager makes a take-it-or-leave-it offer (p, b), which the buyer can accept or reject. Rejection ends the game and the parties earn their reservation payoffs (which are all zero except for the manager, who earns β). If the buyer accepts, the deal is closed for the price p paid to the shareholders (as a group), and a second amount b is paid to the manager directly. (Note that the manager also receives αp pursuant to her ownership interest in the firm). The buyer's total costs of the acquisition at this stage are thus $p + b$, but may also entail later litigation exposure. The non-managerial shareholders vote whether to accept the deal terms or not. If they vote against, the game ends and all players receive their reservation payoffs.

> **Assumption 2.** Recall from the above that we normalize the going concern value of the firm at 0. This assumption makes all acquisition deals at a positive price weakly profitable for the shareholders. Relaxing this assumption does not affect the main results and it would only provide a floor for the minimum price that guarantees shareholders's approval.

Time 3 (filing decision). The plaintiff attorney observes her fixed investigation/filing cost k: she may at that juncture abstain from litigating (in which case the game ends). Alternatively, she can propose to a randomly selected shareholder to serve as named plaintiff in a representative action. We assume — following current law — that the shareholder is not permitted to receive any direct compensation from the attorney in exchange for her willingness to serve as a named plaintiff. If the shareholder declines, the game ends. If the shareholder accepts the attorney bears the cost k and learns p^*. Since the shareholder has nothing to lose from litigation, she will always accept the attorney's offer.

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[32]The distribution of p^* derives directly from the distribution of the noise term ϵ given above and is common knowledge because the distribution of ϵ is common knowledge.

Time 4 (settlement negotiations). The parties learn p^* and negotiate (à la Nash bargaining) for a settlement contract (s, σ), where s is the aggregate settlement fund and σ is the portion of the fund paid to shareholders (with the remainder going to the attorney). If the parties fail to settle, the parties go to trial.

Time 5 (adjudication and fee-shifting): The court adjudicates the case and, if the plaintiff wins, shifts the court fees to the defendant. If the executed price falls short of the judicial standard ($p < p^*$), the court finds liability and awards damages in the amount $p^* - p$, and additionally requires the defendant to bear the plaintiff's litigation costs of c. We assume that in addition to recovering incremental litigation costs, the plaintiff's attorney may also recover a fraction δ of the damages award, and thus the shareholders retain the remaining portion $(1 - \delta)(p^* - p)$. If instead the price satisfies the legal standard ($p \geq p^*$), there is no liability and no damages, and each active litigating party (the defendant and the plaintiff's attorney, described below) pays his or her own cost (of c). Note that, under a contingency-fee arrangement, the attorney, not the shareholder, bears the litigation costs if the court rules for the defendant.

4 Litigation and Settlement

We solve the model backwards, starting from the adjudication stage.

4.1 Adjudication Stage

Consider first the final stage where settlement efforts have failed and the plaintiff's attorney has not dropped the case. The court announces the pricing standard p^* and renders a holding in favor of the defendant if the transaction price satisfies the standard ($p^* \leq p$), in which case both parties pay their own litigation costs (of c) and the game ends. If in contrast $p^* > p$, the defendant must pay the differential ($p^* - p$) to the plaintiff, and in addition the defendant must compensate the plaintiff's attorney for litigation costs. The resulting continuation payoffs for the players in the game at this stage are as follows:

	$p^* \leq p$	$p^* > p$
Defendant	$-c$	$-(p^* - p) - 2c$
Plaintiff attorney	$-c$	$(1 - \delta)(p^* - p)$
Shareholders	0	$\delta(p^* - p)$

Table 1: Continuation payoffs at the adjudication stage

Note that only the defendant and the plaintiff attorney are active participants at this stage; the representative plaintiff, the manager and the other shareholders do not take part in the strategic decisions that govern the litigation stage (see below Section 4.3). Yet, they share in the shareholders payoff $\delta(p^* - p)$ according to their equity holdings: the named plaintiff and other non-managing shareholders each receive $\delta(p^* - p)\,d\alpha$, while the manager receives $\delta(p^* - p)(1 - \alpha)$.

4.2 Option to Abandon

Now move back to the moment before litigation, consider the credibility of the plaintiff attorney's case going forward. Note that when the acquisition price exceeds the applicable legal standard ($p^* \leq p$), the attorney cannot gain from litigation, and would voluntarily drop the case. Consequently, neither side would bear litigation costs in equilibrium, and thus the continuation payoffs of the parties would be:

	$p^* \leq p$	$p^* > p$
Defendant	0	$-(p^* - p) - 2c$
Plaintiff attorney	0	$(1 - \delta)(p^* - p)$
Shareholders	0	$\delta(p^* - p)$

Table 2: Continuation payoffs with option to abandon

4.3 Settlement

Backing up one more stage, we consider the possibility of a negotiated settlement between the defendant and the plaintiff's attorney, and the ensuing shareholder approval of the deal (with the settlement). Because there are three parties, we must specify settlement in two components: (a) the aggregate monetary value of the settlement amount s and (b) a sharing rule σ, so that the shareholders receive σs of the settlement,[33] and the attorney receives $(1 - \sigma) s$. By construction, the judicial constraint on settlement requires that $\sigma \geq \tau$, and thus any successful settlement must satisfy this lower bound.

We assume that the defendant and plaintiff attorney negotiate according to the Nash bargaining solution with bargaining power parameters of $(1 - \theta)$ and θ, respectively. This modeling approach reflects a deliberate assumption that negotiations reflect attorney-side agency costs, and largely exclude the named plaintiff herself; thus, the shareholders' welfare *per se* will not be internalized by the parties in settlement negotiations — beyond the minimum sharing portion τ mandated by the court. This reasoning immediately yields the following result:

Lemma 1. *For all $\theta \in [0, 1]$, it is strictly optimal for the settling parties to set σ at its minimal level, τ.*

Proof. Follows directly from the text above. □

We impose this condition hereafter, assuming $\sigma = \tau$ and solving for the optimal aggregate settlement amount. Consider two cases. First, if $p^* \leq p$, the attorney will drop the case and thus the unique settlement fund is $s = 0$. The sharing rule σ is irrelevant. Second, if $p^* > p$, the attorney would require a settlement sufficiently large to offset her net payoff from litigation, and thus the smallest total settlement the attorney would accept is:

$$s_L \equiv \frac{1 - \delta}{1 - \tau}(p^* - p)$$

The largest settlement fund the defendant would agree to, in contrast, is

$$s_H \equiv (p^* - p) + 2c$$

and thus the total bargaining surplus perceived to be available between the parties is:

$$s_H - s_L \equiv \frac{\delta - \tau}{1 - \tau}(p^* - p) + 2c$$

This surplus perceived by the negotiators exceeds the "true" social surplus available from settlement $(2c)$ by virtue of the fact that the negotiators will use the settlement to extract some of the payoff that would have gone to the shareholders in litigation, as captured by the difference $(\delta - \tau) > 0$, by Assumption 1. The

---

[33] Recall as well that the manager stands in turn to receive a $1 - \alpha$ share of the shareholders' settlement payoff in proportion to her equity stake.

equilibrium settlement is the weighted average between these two reservation payoffs

$$s = (1-\theta)\, s_L + \theta s_H = \psi\left(p^* - p\right) + 2c\theta$$
$$\text{where: } \psi \equiv \left(\tfrac{1-\delta}{1-\tau} + \theta\tfrac{\delta-\tau}{1-\tau}\right)$$

Note further that for all values of θ the aggregate settlement amount is strictly increasing in the sharing rule (τ) and hence that the settlement amount decreases if the deal price increases. Of particular interest here is the comparative static on τ, which is given by:

$$\frac{\partial s}{\partial \tau} = \frac{(1-\delta)(1-\theta)}{(1-\tau)^2}\,(p^* - p) \geq 0$$

Thus, holding fixed the deal price (p), the aggregate settlement amount increases for all $\tau < \delta$. The intuition is that larger values of τ shift more of the settlement s to the shareholders, and increases the attorney's reservation value s_L for the gross settlement amount, pushing up the equilibrium value of s.[34] Note that these comparative statics are – at this stage – only partial: The total effects of changes to τ (or other parameters) generally depends as well on how the equilibrium price of the deal changes in response to them (an issue we address explicitly below). Updating our running payoff matrix for the relevant parties, we have: Given this settlement structure, the shareholder approval decision follows immediately. Note that

	$p^* \leq p$	$p^* > p$
Defendant	0	$-s$
Plaintiff attorney	0	$(1-\tau)\,s$
Shareholders	0	τs

Table 3: Continuation payoffs at the settlement stage

the post-settlement merger is put to shareholder approval. Since the going concern value of the firm for the shareholders is equal to zero (Assumption 2) and the deal provides shareholders with a non-negative price plus a non-negative settlement, all voting shareholders approve the deal. (Note that this prediction follows for all values of τ and s, and thus our model does not predict that shareholder approval should increase or decrease based on the nature of the settlement — a prediction that seems to be borne out empirically; Fisch, Griffith, and Davidoff Solomon e.g.: 2015.)

4.4 Expected payoffs conditional on MOL, but before legal standard is revealed

We now back up one step further to the moment before the legal standard is revealed. As illustrated above, the value of the settlement depends critically on the value of the standard (p^*) relative to the deal price (p):

$$s = \begin{cases} 0 & \text{if } p \geq p^* \\ \psi(p^* - p) + 2c\theta & \text{if } p < p^* \end{cases}$$

And thus just prior to the revelation of the legal standard p^*, the expected value of the settlement (which we denote $\overline{s}(p,\tau)$) is given by:

$$\overline{s}\,(p,\tau) \equiv \mathrm{E}\,[s] = \int_p^1 \left(\psi\left(p^* - p\right) + 2c\theta\right) dp^* = (1-p)\left(\frac{1-p}{2}\psi + 2c\theta\right)$$

---

[34] Note that if we require $\tau = \delta$, the attorney agency cost problem as it pertains to settlement amount disappears, and the settlement amount is invariant in τ (or δ). (As we will see, however, the agency cost as it pertains to filing decisions remains.)

For future reference, it is worth noting that we can sign the following partial derivatives:

$$
\begin{array}{rcl}
\frac{\partial \overline{s}}{\partial \tau} & = & \frac{(1-\delta)(1-\theta)(1-p)^2}{2(1-\tau)^2} \quad \geq \quad 0 \\[2mm]
\frac{\partial \overline{s}}{\partial p} & = & -\psi\left(1-p\right) - 2c\theta \quad \leq \quad 0 \\[2mm]
\frac{\partial^2 \overline{s}}{\partial p \partial \tau} & = & -\frac{(1-\delta)(1-\theta)(1-p)}{(1-\tau)^2} \quad \leq \quad 0
\end{array}
$$

All else constant, the expected settlement is strictly increasing in τ, and strictly decreasing in p; in addition, the rate at which expected settlement decreases in p becomes increasingly steep as τ increases.

The plaintiff's attorney receives a $(1-\tau)$ share of this amount, or $(1-\tau)\,\overline{s}\,(p,\tau)$, while the shareholders receive a τ share, or $\tau\overline{s}\,(p,\tau)$ in total. Accordingly, the attorney will file and investigate the deal if her realized cost of doing so (k) is less than her expected settlement share. Therefore, given a deal at price p, the equilibrium filing probability is:

$$
\phi\left(p,\tau\right) = \Pr\left[k \leq (1-\tau)\,\overline{s}\,(p,\tau)\right] = (1-\tau)\,\overline{s}\,(p,\tau)
$$

Note that the filing probability is also equal to the attorney's continuation payoff — a convenient (but not critical) artifact of the uniform distribution on k. Both the attorney's continuation payoff and the probability of filing decrease with the deal price p, while the effect of an increase in τ has ambiguous effects on them. Differentiating the attorney's payoff with respect to τ yields:

$$
\frac{\partial \phi}{\partial \tau} = -\left(1-p\right)\theta\left(\frac{1-p}{2} + 2c\right) \leq 0
$$

This expression suggests that (again holding p constant), increasing τ reduces the filing probability. The intuition is straightforward: from the attorney's perspective, τ is analogous to a tax on her share of the settlement amount. Unless $\theta = 0$ (the attorney has no bargaining power), this tax will only partially be passed onto the defendant and hence will negatively affect the probability that the attorney files a case.[35]

Backing up to the point just prior to filing, the "expected exposure" of the defendant is the product of the probability of filing and expected settlement,[36] or

$$
g\left(p,\tau\right) \quad \equiv \quad \phi\left(p,\tau\right)\overline{s}\left(p,\tau\right) \quad = (1-\tau) \cdot \overline{s}\left(p,\tau\right)^2 = \quad (1-\tau)\left[\frac{(1-p)^2}{2}\psi + 2\left(1-p\right)c\theta\right]^2
$$

Note that there is an intuitive relationship between the defendant's expected exposure and the initial deal price p:

$$
\begin{array}{rcl}
\frac{\partial g}{\partial p} & = & -2\left(1-\tau\right)\left(\frac{(1-p)^2}{2}\psi + 2\left(1-p\right)c\theta\right)\left((1-p)\psi + 2c\theta\right) \leq 0 \\[2mm]
\frac{\partial^2 g}{\partial p^2} & = & 2\left(1-\tau\right)\left(\frac{3(1-p)^2}{2}\psi^2 + 6\left(1-p\right)c\theta\psi + 4c^2\theta^2\right) \geq 0
\end{array}
\tag{1}
$$

All else constant, the defendant's "marginal exposure" increases in p (albeit at a decreasing rate as the price grows). In the limit, if one were so inclined, it would be possible to reduce the defendant's liability exposure to zero by setting p equal to its maximal value of 1.0.

Alternatively, consider how expected exposure changes when τ is increased (holding p constant):

$$
\frac{\partial g}{\partial \tau} \quad = \quad \overline{s}\left(p,\tau\right)\left[(1-p)^2\left(\frac{1-\delta}{1-\tau}\frac{1-\theta}{2} - \frac{\theta}{2}\right) - \left(1-p\right)2c\theta\right]
$$

---

[35]The reason why the tax is completely borne by the defendant if $\theta = 0$ is that then the settlement amount is equal to the attorney's reservation value and hence, to settle, the defendant must bargain for a settlement that completely compensate the attorney for the additional cost of the tax.

[36]Note that, since p^* becomes known after filing, the filing decision is not conditioned on s being strictly positive.

As a general matter, this expression has an ambiguous sign. On the one hand, an increase in τ causes the expected liability to rise, conditional on filing. On the other hand, increasing τ reduces the probability of filing. The expected exposure rises or falls with τ depending on which of these two effects prevail. Analysis of the bracketed portion of the expression above suggests that expected exposure is more likely to be strictly decreasing in τ when: (1) the differential $(\delta - \tau)$ is large, (2) the attorney's bargaining power (θ) is large, and (3) the litigation cost (c) is large. The first three factors make the settlement amount less sensitive to τ (as evidenced by the derivative $\frac{\partial \overline{s}}{\partial \tau}$) and hence make the positive effect of τ on the settlement amount comparatively less important than its negative effect on the probability of filing. The last factor widens the bargaining range and hence makes it more difficult for the attorney to pass the tax onto the defendant, making again the negative effect on filing more prominent. The deal price p affects both the change in the settlement amount and the change in the probability of filing in similar ways and its effect is ambiguous.

Finally, consider how changes in τ affects the defendant's marginal exposure in p :

$$\frac{\partial^2 g}{\partial p \partial \tau} = \frac{(1-p)}{(1-\tau)^2} \left\{ \begin{array}{c} (1-p)^2 \left(\delta (2-\delta)(1-\theta)^2 + 2\theta - 1 \right) \\ + \theta^2 \left(8c^2 + 6c(1-p) - (1-p)^2 (2-\tau)\tau \right) \end{array} \right\} \gtrless 0$$

This effect (whose sign depends on several deep parameters) is important to our story, as it greatly influences whether judicial scrutiny of disclosure settlements is desirable from a shareholder-welfare perspective. If increasing τ causes the defendant's marginal exposure to become less sensitive to deal price (*i.e.*, if $\frac{\partial^2 g}{\partial p \partial \tau} > 0$), then the litigation risk of paying a low price price is muted, marginally freeing up the incumbent manager to extract private benefits in the deal. As we demonstrate below, this effect can easily occur.

4.5 Acquisition

Having fully characterized the attributes of the MOL/settlement continuation game, we move back yet the initial acquisition stage, considering the negotiations between the buyer and the manager in the light of prospective litigation exposure (as well as how changing τ affects those negotiations). Consider first the perspective of the buyer: If an acquisition is consummated, the buyer's payoff consists of:

1. her private valuation (v), minus

2. the combined price consideration paid to both target shareholders and the manager $(p + b)$, minus

3. the buyer's expected liability exposure $g(p, \tau)$ as defined above.

Accordingly, the buyer will accept a proposed contract (p, b) only if:

$$v \geq b + p + g(p, \tau)$$

Given the uniform distribution of buyer types, the buyer accepts with probability of:

$$\pi(p, b, \tau) \equiv Pr\{v \geq b + p + g(p, \tau)\} = 1 - b - p - g(p, \tau)$$

Now consider the manager, who receives a net payoff of $b + \alpha p$ plus a share $\alpha \tau$ of any future expected exposure, but she must forego her control benefit β. Accordingly, the manager's expected payoff from proposing contract (p, b) is:

$$M(p, b, \tau) \equiv (b + \alpha (p + \tau g(p, \tau)) - \beta)(1 - b - p - g(p, \tau))$$

As an aside, note that expected shareholder welfare is given by:

$$W\left(p, b, \tau\right) \equiv \left(p + \tau g\left(p, \tau\right)\right)\left(1 - b - p - g\left(p, \tau\right)\right)$$

Note from this latter expression how the shareholder-attorney agency problem and the shareholder-manager agency problem are intertwined. It would be possible to eliminate the agency problem with the attorney in its entirety, by setting $\delta = \tau = 1$, thereby eliminating the attorney's incentives to litigate altogether; the defendant's expected exposure would be $g\left(p, 1\right) = 0$ for any value of p. Consequently, the transaction price negotiated between the manager and buyer need not account for shareholder value, and accordingly it would would set $\hat{p} = 0$ and $\hat{b} = \frac{1+\beta}{2}$, leaving no gains for shareholders (and no legal recourse). This would hold true even though the manager owns an equity fraction $\alpha \in \left(0, 1\right)$ in the firm: Since non-managerial shareholders receive a pro-rata share of the transaction price price $\left(p\right)$ but not in the side payment $\left(b\right)$, the manager maximizes his payoffs by shifting the maximal amount of consideration into b and away from p. Hence it is optimal for the manager to set b as high as possible and p as low as possible. In eliminating the attorney-client agency cost problem (at least in this way), we have exacerbated *maximally* the shareholder-manager agency problem. Put another way, the MOL process – even though afflicted by its own agency problems – nonetheless provides a form of litigation exposure that incentivizes both the buyer and the manager to strike a deal at a higher price. Thus, typically, it is typically never optimal to set $\tau = \delta = 1$, so as to preserve some rents for the attorney to claim.[37]

In formulating his bargaining strategy, the target manager will demand terms $\left(\hat{p}, \hat{b}\right)$ to solve the following program:

$$\max_{p, b} M\left(p, b, \tau\right) \tag{2}$$

The first-order conditions associated with this maximization problem imply:

$$\begin{cases} b &= \frac{1}{2}\left(1 + \beta - \left(1 + \alpha\right)p - \left(1 + \alpha\tau\right)g\left(p, \tau\right)\right) \equiv \hat{b}\left(p\right) \\ 0 &= \alpha\left(1 + \tau\frac{\partial g}{\partial p}\right)\left(1 - b - p - g\left(p, \tau\right)\right) - \left(b + \alpha\left(p + \tau g\left(p, \tau\right)\right) - \beta\right)\left(1 + \frac{\partial g}{\partial p}\right) \end{cases}$$

Substituting $\hat{b}\left(p\right)$ from the first condition into the second, we obtain:

$$\frac{1}{2}\left(1 - \beta - \left(1 - \alpha\right)p - \left(1 - \alpha\tau\right)g\left(p, \tau\right)\right)\left(-\left(1 - \alpha\right) - \left(1 - \alpha\tau\right)\frac{\partial g}{\partial p}\right) = 0$$

which can be rewritten as

$$\hat{M}\left(p, \tau\right)^{\frac{1}{2}}\left(\left(1 - \alpha\right) + \left(1 - \alpha\tau\right)\frac{\partial g}{\partial p}\right) = 0 \tag{3}$$

where $\hat{M}\left(p, \tau\right) \equiv M\left(p, \hat{b}\left(p\right), \tau\right)$. Note that the first factor in (3) must necessarily be strictly positive for any proposed deal that the buyer accepts with a positive probability, while the second factor must be zero to satisfy the first-order condition. Therefore, any interior solution $\hat{p} > 0$ to this program must satisfy the conditions:

$$\begin{cases} g\left(\hat{p}, \tau\right) &< \frac{1 - \beta - \left(1 - \alpha\right)\hat{p}}{1 - \alpha\tau} \\ \left.\frac{\partial g}{\partial p}\right|_{p = \hat{p}} &= -\frac{1 - \alpha}{1 - \alpha\tau} \end{cases} \tag{4}$$

The first of these conditions is an inframarginal condition on the feasibility of the deal: if this condition is not satisfied then no deal is Pareto improving for both the buyer and manager, and thus no transaction occurs.

---

[37]It is worth observing that managerial agency costs may introduce a second source of inefficiency, from the shareholders' point of view: the manager's private control benefit β puts a minimum limit to what the manager can accept to be willing to sell, which in turn implies that fewer deals will be closed and, namely, a fraction $\frac{1-\beta}{2}$ instead of $\frac{1}{2}$.

The second condition is a marginal first-order condition that defines a stationary point for the manager's payoff function $\hat{M}(\hat{p}, \tau)$. In analyzing these conditions, it turns out that striking a deal at a positive price requires the incumbent manager to be sufficiently incentivized to sell. In particular, the manager's private benefits cannot be too high, and the manager's owner stake in the company cannot be too low. We formalize this intuition in the following lemma:

Lemma 2. *There exist threshold values of the manager's equity stake $\bar{\alpha}$ and her control benefits $\bar{\beta}$ such that*

- *If $\beta \geq \bar{\beta}$ then no deal is consummated;*

- *If $\beta < \bar{\beta}$ and $\alpha \leq \bar{\alpha}$ the deal is closed with a positive probability for a price $p_0 = 0$;*

- *If $\beta < \bar{\beta}$ and $\alpha > \bar{\alpha}$ the deal is closed with a positive probability for a price $\hat{p} > 0$, which is defined indirectly by the second expression in (3).*

Proof. See Appendix. $\square$

The insights of Lemma 2 can also be summarized in tabular form:

	$\alpha \leq \bar{\alpha}$	$\alpha > \bar{\alpha}$
$\beta \geq \bar{\beta}$	no deal	no deal
$\beta < \bar{\beta}$	$p_0 = 0$	$\hat{p} > 0$

Table 4: Deal price

The intuition is straightforward. If β is very large, the manager will demand a large side-payment b, which in turn drives down the price, increases the costs of ex post litigation and makes the deal undesirable for the buyer. Effectively, large benefits entrench management and deter transactions. And even when the manager and buyer can strike a deal, the manager must be sufficiently incentivized to direct some benefit to shareholders. If α is sufficiently large, the manager's incentives begin to align with shareholders' interests, driving up the deal price and making it more likely that the deal closes for $\hat{p} > 0$ rather than for $p_0 = 0$.

5 Welfare analysis

Having characterized the full equilibrium of the game, we now consider how, in equilibrium, an increase in τ affects various measures of interest that pertain to shareholder welfare. As noted above, our primary interest will focus on the recent Delaware reforms towards prohibiting pure disclosure settlements, which we interpret as an incremental increase from $\tau_0 = 0$ to some $\tau_1 > 0$.

5.1 Effects of settlement restrictions on deal price

A first important consideration in this paper concerns whether settlement restrictions have feedback effects on deal pricing. We show here that they do, and in ways that need not benefit shareholders. The preceding analysis has emphasized partial effects of changes in τ on the variables of interest. However, τ has also indirect effects on those variables through its effect on the equilibrium deal price. In this section we focus on the *total* effects of changes in τ, including it effect through the price. We first determine how the equilibrium deal price changes with τ and then examine the consequences on deal frequency and shareholder welfare.

Lemma 3. *If θ is sufficiently large relative to δ, and if τ is sufficiently small relative to c, then the equilibrium purchase price $\hat{p} > 0$ of the target firm is strictly decreasing in τ. The precise bounds for this sufficiency condition are as follows:*

$$
\begin{aligned}
\theta & \geq \frac{1-\delta}{2-\delta} \\
\tau & \leq 1 - \sqrt{\frac{(1-p)^2}{(2c+1-p)(4c+1-p)}}
\end{aligned}
$$

Proof. See Appendix. $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ □

Recall that δ denotes the share a final judgment that shareholders receive if the case is fully litigated. For all values of δ, the sharpest bound possible from Lemma 3 is $\theta \geq \frac{1}{2}$, which occurs when $\delta = 0$. As δ grows, the condition slackens, and as δ approaches 1 the condition is satisfied for all θ. As noted above, most derivative litigation sets approximately $\delta = \frac{2}{3}$ for cases that are fully litigated, which would imply $\theta \geq \frac{1-2/3}{2-2/3} = \frac{1}{4}$. The second condition on τ is always satisfied at $\tau = 0$ for any positive level of litigation costs (i.e., $c > 0$). Thus, Lemma 3 gives relatively weak conditions under which introducing judicial scrutiny of disclosure settlements reduces transaction prices and premia associated with negotiated deals. Effectively, an increase in τ dampens the marginal effect of pricing on later litigation expsoure. Consequently, the manager requests (and the buyer more willingly pays) a higher privet benefits payment, sacrificing deal price. We emphasize that even the (relatively weak) conditions provided in Lemma 3 are *sufficient* conditions, and there may be many others.

5.2 Effects of settlement restrictions on the number of deals

A second important consideration concerns the effect of settlement restrictions on deal frequency. The result is not obvious. Policies that increase the level of τ have possibly opposite effects on the price that the buyer pays ex ante (p), on her exposure to liability ex post ($g(p,\tau)$) and on the side-payment to the manager (b). Substituting $\hat{b}(p)$ into $\pi(b,p,\tau)$, we obtain:

$$
\hat{\pi}(p,\tau) \equiv \frac{1}{2}\left(1 - \beta - (1-\alpha)p - (1-\alpha\tau)g(p,\tau)\right)
$$

Note that $\hat{\pi}(p,\tau) = \hat{M}(p,\tau)^{\frac{1}{2}}$, which suggests that the direction of change in the frequency of deals is the same in the manager's payoff. Applying the envelope theorem, we can see the equilibrium effects on deal likelihood are[38]:

$$
\begin{aligned}
\left.\frac{d\hat{\pi}}{d\tau}\right|_{p=\hat{p}} & = \left.\frac{\partial\hat{\pi}}{\partial\tau}\right|_{p=\hat{p}} \\
& = \frac{1}{2}\left(\alpha g(\hat{p},\tau) - (1-\alpha\tau)\left.\frac{\partial g}{\partial\tau}\right|_{p=\hat{p}}\right)
\end{aligned}
$$

This expression is negative (deal frequency decreases in τ) if the following inequality is satisfied:

$$
\frac{1-\alpha}{1-\alpha\tau} > 2\frac{(1-\hat{p})\theta + 4c\theta}{(1-\hat{p})\psi + 4c\theta}
$$

Lemma 4. *If τ is sufficiently small, then there are non-unique threshold levels of (θ, c) such that the equilibrium deal frequency π decreases in τ for (θ, c) below the thresholds and increases otherwise.*

Proof. See Appendix.

Lemma 4 provides sufficiency conditions for the likelihood of a deal to be decreasing in τ. As with Lemma 3, the larger the values of θ and c relative to other parameters, the lower the possibility of a deal as τ increases. □

---

[38]The reason is that $\left.\frac{\partial\hat{M}}{\partial p}\right|_{p=\hat{p}} = \left.\frac{\partial\hat{\pi}}{\partial p}\right|_{p=\hat{p}} = 0$.

5.3 Expected Welfare

Finally, consider the effects of a change in τ on total expected shareholder welfare for the target. When a transaction is consummated (which occurs with probability $1 - b - p - g(p, \tau)$), the shareholders receive both the merger consideration (p) and a share of the expected settlement fund ($\tau g(p)$). Consequently, expected shareholder welfare (as measured ex ante) is $W(p, b, \tau)$ as defined above, which should be compared to the manager's expected payoff also defined above. For convenience let us recall these two expressions:

$$
\begin{aligned}
W(p, b, \tau) &= (p + \tau g(p, \tau))(1 - b - p - g(p, \tau)) \\
M(p, b, \tau) &= \alpha \left(p + \tau g(p, \tau) + \frac{b - \beta}{\alpha}\right)(1 - b - p - g(p, \tau))
\end{aligned}
\tag{5}
$$

Note that, in both expressions, the final multiplicative factor reflects the probability that the acquisition goes through. The preceding factor is different: the term $\frac{b - \beta}{\alpha}$ captures the divergence of interests between the manager and the shareholders. (The premultiplier α is not relevant for the maximization problem.)

It is in the payoffs conditional on a deal where the different objective functions vary. Comparing the manager to the shareholders, the manager's payoff earns a net private benefit $b - \beta$ from relinquishing control of the firm in exchange for a side-payment b from the buyer. Moreover, the manager trades of such side payments inefficiently whenever $\alpha < 1$, since increasing the share price of the deal provides the manager with only a pro-rata benefit, while increasing the side payment b benefits her directly. Moreover, increasing the side payment b also increases the buyer's per-deal costs and hence induces the buyer to accept fewer deals overall than would be executed in the absence of agency costs. In order to correct for this effect, the manager is induced to lower the price below the level that would maximize shareholder welfare. To see that the manager overweighs b at the expense of p, note that from (3), we can easily see that:

$$
\begin{cases}
\frac{\partial}{\partial \alpha}\left(\frac{\partial g}{\partial p}\Big|_{p=\hat{p}}\right) &= \frac{1 - \tau}{(1 - \tau\alpha)^2} &> 0 \\
\frac{d\hat{p}}{d\alpha} &= \frac{1 + \tau\frac{\partial g}{\partial p}}{(1 - \alpha\tau)\frac{\partial^2 g}{\partial p^2}} &> 0
\end{cases}
\tag{6}
$$

Note that the denominator in $\frac{d\hat{p}}{d\alpha}$ is positive. The numerator is also positive because $-\tau\frac{\partial g}{\partial p} < 1$.[39] Moreover, Lemma 2 establishes that increasing the manager's equity stakes shifts the equilibrium price from $p_0 = 0$ to $\hat{p} > 0$. A second source of agency problems if β, which, if too large, might make a deal unprofitable altogether. As can be seen from (8), a lower α lowers $\bar{\beta}$ in (8), and also hence reduces the range of deals that can be concluded. As a result of the externality factor $\frac{b - \beta}{\alpha}$, the shareholders lose on two counts: lower prices and fewer deals.

After substituting out $\hat{b}(p)$ in (5), the expected shareholder welfare becomes:

$$
\hat{W}(p, \tau) \equiv \frac{1}{2}(p + \tau g(p, \tau))(1 - \beta - (1 - \alpha)p - (1 - \alpha\tau)g(p, \tau))
$$

---

[39]We know that $\frac{\partial g}{\partial p}$ increases in p, c and θ, which should therefore all be set to 0 to obtain a necessary condition. We have that $-\tau\frac{\partial g}{\partial p}\Big|_{p=0, \theta=0, c=0} = \tau(1 - \delta) < 1$.

Consider the derivative of this expression with respect to τ, evaluated at $\hat{p}$. This is equal to

$$
\begin{aligned}
\frac{d\hat{W}(\hat{p},\tau)}{d\tau} &= \left(\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right)+g(\hat{p})+\tau\frac{\partial g}{\partial \tau}\right)\hat{M}(\hat{p},\tau)^{\frac{1}{2}} \\
&\quad +\frac{\alpha}{2}(\hat{p}+\tau g(\hat{p},\tau))\left(g(\hat{p},\tau)+(1-\tau)\frac{d\hat{p}}{d\tau}\right) \\
&\quad -\frac{1-\alpha\tau}{2}(\hat{p}+\tau g(\hat{p},\tau))\left(\frac{d\hat{p}}{d\tau}\left(1+\frac{\partial g}{\partial p}\right)+\frac{\partial g}{\partial \tau}\right)
\end{aligned}
$$

The sign of some of the terms is known:

$$
\begin{aligned}
1+\tau\left.\frac{\partial g}{\partial p}\right|_{p=\hat{p}} \;>\; 1+\left.\frac{\partial g}{\partial p}\right|_{p=\hat{p}} \;&>\; 0 \quad \text{[see (6)]}\\
\hat{M}(\hat{p},\tau)^{\frac{1}{2}} \;&>\; 0 \quad \text{[see (3)]}
\end{aligned}
$$

Nevertheless, the sign of the above derivative remains ambiguous, as it also depends on the sign of the terms $\frac{d\hat{p}}{d\tau}$ and $\frac{\partial g}{\partial \tau}$, that is, on how the change in τ affects the price negotiated by the manager and the filing and settlement decisions by the attorney. Given that we want to address the question whether, given no limit, a minimum lower bound on settlements should be introduces, we need to examine the above derivative at $\tau = 0$. We have $\left.\frac{\partial g}{\partial p}\right|_{p=\hat{p},\tau=0} = \alpha - 1$ and:

$$
\left.\frac{d\hat{W}}{d\tau}\right|_{p=\hat{p},\tau=0} = \left(\frac{d\hat{p}}{d\tau}+g(\hat{p},\tau)\right)\hat{M}(\hat{p},\tau)^{\frac{1}{2}}+\frac{\hat{p}}{2}\left(\alpha g(\hat{p},\tau)-\frac{\partial g}{\partial \tau}\right)
$$

We know that for $\tau = 0$ we have $\frac{d\hat{p}}{d\tau} < 0$, while the sign of $\frac{\partial g}{\partial \tau}$ is indeterminate. The final result will depend on the balance between these two effects. The expression above reveals that a positive price change $\frac{d\hat{p}}{d\tau}$ has a positive impact on shareholder welfare because, due to the side payment b, the manager tends to select a price that it too low from the shareholders' perspective and hence, if the price increases, shareholder welfare increases. The change in the expected exposure $\frac{\partial g}{\partial \tau}$, instead, has a negative impact. The reason is that the impact of a great g on the probability that the buyer accepts the manager's offer is full, while the impact on the payoff for shareholders is discounted by τ. We restate this in the following lemma.

Lemma 5. *Shareholder welfare increases in τ at $\tau = 0$ if and only if:*

$$
2\left(\frac{d\hat{p}}{d\tau}+g(\hat{p},\tau)\right)\hat{M}(\hat{p},\tau)^{\frac{1}{2}}+\hat{p}\left(\alpha g(\hat{p},\tau)-\frac{\partial g}{\partial \tau}\right)\Big|_{\tau=0} > 0 \tag{7}
$$

As noted above, this expression may or may not be satisfied, depending on underlying parameters. In the balance of our discussion, we illustrate several specific examples to demonstrate how the effect could go in either direction.

6 Extensions and Robustness

[To be drafted]

7 Conclusion

[To be drafted]

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Appendix

Proof of Lemma 2.

Proof. Since the right-hand side of the second equation in (4) is constant in p and falls between -1 and 0, while the right hand-side is negative and increases in p towards zero ($\frac{\partial g}{\partial p}\big|_{p=1} = 0$), there is a unique value $p \leq 1$ that satisfies this condition. Having established the existence and uniqueness of $\hat{p} \leq 1$, if the second order conditions are satisfied at $\hat{p}$, then $\hat{p}$ is a global maximum of the program in (2). The relevant derivatives are:

$$\begin{aligned}
\frac{\partial^2 M}{\partial b^2} &= & -b & < & 0 \\
\frac{\partial^2 M}{\partial b \partial p} &= & -\left(1 - \alpha + (1 + \alpha\tau)\frac{\partial g}{\partial p}\right)
\end{aligned}$$

Note that the first condition is always satisfied. The second expression implies that the condition $\left(\frac{\partial^2 M}{\partial b^2}\frac{\partial^2 M}{\partial p^2}\right)\Big|_{p=\hat{p},b=\hat{b}} > \left(\frac{\partial^2 M}{\partial b \partial p}\right)^2\Big|_{p=\hat{p},b=\hat{b}} = 0$ is satisfied whenever $\frac{\partial^2 \hat{M}}{\partial p^2}\big|_{p=\hat{p}} < 0$, which is therefore the critical second-order condition to verify.

Essentially, there are two possible solutions to the program in (2): $\hat{p} > 0$ and $p_0 = 0$. If $\frac{\partial^2 \hat{M}}{\partial p^2}\big|_{p=\hat{p}} < 0$ and $\hat{p} > 0$, then the solution is $\hat{p} > 0$. In turn, p_0 is a solution under the residual circumstances: (1) when $\frac{\partial^2 \hat{M}}{\partial p^2}\big|_{p=\hat{p}} < 0$ but $\hat{p} \leq 0$, because the price cannot be lower than zero; and (2) when $\frac{\partial^2 \hat{M}}{\partial p^2}\big|_{p=\hat{p}} \geq 0$, because the problem is then convex in p and has a corner solution (we can easily exclude $p = 1$ as a corner solution, because $M(1, b, \tau) < 0$).

Direct verification of the sign of $\frac{\partial^2 \hat{M}}{\partial p^2}\big|_{p=\hat{p}}$ is cumbersome, hence we use an indirect method. The fact that the stationary value is unique implies that the function $\frac{\partial \hat{M}}{\partial p}$ cannot change sign more than once and it does so exactly at $p = \hat{p} < 1$. Therefore, we can infer the sign of $\frac{\partial^2 \hat{M}}{\partial p^2}\big|_{p=\hat{p}}$ from the sign of $\frac{\partial \hat{M}}{\partial p}\big|_{p=0}$. If $\frac{\partial \hat{M}}{\partial p}\big|_{p=0} > 0$ and $\hat{p} > 0$, it follows that $\frac{\partial^2 \hat{M}}{\partial p^2}\big|_{p=\hat{p}} < 0$ and hence the solution is $\hat{p} > 0$. The conditions are:

$$\begin{cases}
\frac{\partial \hat{M}}{\partial p}\big|_{p=0} &> & 0 \\
\hat{p} &> & 0
\end{cases}$$

Otherwise, the solution is $p_0 = 0$. Note that, since $\frac{\partial g}{\partial p}$ is monotonically increasing in p, the second condition is equivalent to $\frac{\partial g}{\partial p}\big|_{p=0} < \frac{\partial g}{\partial p}\big|_{p=\hat{p}}$. Thus, substituting out $\frac{\partial \hat{M}}{\partial p}\big|_{p=0}$, we can write:

$$\begin{cases}
\frac{1}{2}(1 - \beta - (1 - \alpha\tau)g(0,\tau))\left(-(1-\alpha) - (1-\alpha\tau)\frac{\partial g}{\partial p}\big|_{p=0}\right) &> & 0 \\
\frac{\partial g}{\partial p}\big|_{p=0} &< & -\frac{1-\alpha}{1-\alpha\tau}
\end{cases}$$

Since the second factor in the first condition is always positive due to the second condition, we can simplify the problem to

$$\begin{cases}
\beta &< & 1 - (1 - \alpha\tau)g(0,\tau) &\equiv & \bar{\beta} \\
\alpha &> & \frac{1 + \frac{\partial g}{\partial p}\big|_{p=0}}{1 + \tau\frac{\partial g}{\partial p}\big|_{p=0}} &\equiv & \bar{\alpha}
\end{cases} \tag{8}$$

Note that the first condition mirrors the inframarginal condition in (4) for $p = 0$ and implies that that condition is also satisfied due to concavity. If both conditions are satisfied, then $\hat{p} > 0$ is a maximum. If the first condition fails, there is no deal, since the manager's payoff is negative. If only the second condition fails but the first is satisfied, then the price is $p_0 = 0$. $\square$

Proof of Lemma 3.

Proof. Let us restrict attention to cases in which $\hat{p} > 0$ is the equilibrium price. Consider the manager's first order condition stated in (3). Applying the implicit function theorem to the first order condition yields:

$$\frac{d\hat{p}}{d\tau} = \frac{\left(\frac{\alpha}{1-\alpha\tau}\right)\frac{\partial g}{\partial p} - \frac{\partial^2 g}{\partial p \partial \tau}}{\frac{\partial^2 g}{\partial p^2}} = \frac{(-) - (?)}{(+)}$$

It is clear from inspection that $\frac{\partial^2 g}{\partial p \partial \tau} \geq 0$ is sufficient to show that $\hat{p}$ is strictly decreasing in τ. Recall that:

$$\begin{aligned}
\frac{\partial^2 g}{\partial p \partial \tau} &= \frac{(1-p)}{(1-\tau)^2}\left\{\delta(2-\delta)(1-\theta)^2(1-p)^2 + (2\theta-1)(1-p)^2\right\} \\
&\quad + \frac{(1-p)}{(1-\tau)^2}\left\{\theta^2\left(8c^2(1-\tau)^2 + 6c(1-p)(1-\tau)^2 - (1-p)^2(2-\tau)\tau)\right)\right\} \geq 0
\end{aligned}$$

To derive conditions such that $\frac{\partial^2 g}{\partial p \partial \tau} \geq 0$, consider the term inside the curly brackets:

$$(1-p)^2 \left(\underbrace{\delta(2-\delta)(1-\theta)^2}_{(+)} + \underbrace{(2\theta-1)}_{(+/-)}\right) + \theta^2\left(\underbrace{8c^2 + 6c(1-p)}_{(+)} - \underbrace{(1-p)^2(2-\tau)\tau)}_{(-)}\right) \geq 0$$

Whenever both terms in the large brackets are nonnegative, then it follows that the cross-partial will be nonnegative as well.

Consider first bracketed term from the above:

$$\underbrace{\delta(2-\delta)(1-\theta)^2}_{(+)} + \underbrace{(2\theta-1)}_{(+/-)} \geq 0$$

Rearranging this term yields:

$$(2-\delta)\delta\left(\theta - \frac{1-\delta}{2-\delta}\right)\left(\theta + \frac{1-\delta}{\delta}\right) \geq 0$$

Which is equivalent to:

$$\theta \geq \left(\frac{1-\delta}{2-\delta}\right)$$

establishing a lower bound on θ relative to δ.

Now consider the second term:

$$\underbrace{8c^2 + 6c(1-p)}_{(+)} - \underbrace{(1-p)^2(2-\tau)\tau)}_{(-)} \geq 0$$

Solving this condition with respect to c yields:

$$c \geq \frac{(1-p)}{8}\left(\sqrt{1 + \frac{8}{(1-\tau)^2}} - 3\right)$$

Or in the alternative the following condition states a bound on τ:

$$\tau \leq 1 - \sqrt{\frac{(1-p)^2}{(2c+(1-p))(4c+(1-p))}} \leq 1$$

which establishes the second lower bound. □

Proof of Lemma 4.

Proof. Note first the following equalities:

$$
\begin{aligned}
g\left(p,\tau\right) & = \left(1-\tau\right)\bar{s}\left(p,\tau\right)^{2} \\
\tfrac{\partial g}{\partial \tau} & = \bar{s}\left(p,\tau\right)\left[\tfrac{(1-p)^{2}}{2}\left(\tfrac{1-\delta}{1-\tau}\left(1-\theta\right)-\theta\right)-2\left(1-p\right)c\theta\right] \\
& = \bar{s}\left(p,\tau\right)\left[\bar{s}\left(p,\tau\right)-\left(1-p\right)\left(1-p+4c\right)\theta\right]
\end{aligned}
$$

By using them we can write:

$$
\begin{aligned}
\left.\tfrac{d\hat{\pi}}{d\tau}\right|_{p=\hat{p}} & = \left.\tfrac{\partial \hat{\pi}}{\partial \tau}\right|_{p=\hat{p}} \\
& = \tfrac{1}{2}\left(\alpha g\left(\hat{p},\tau\right)-\left(1-\alpha\tau\right)\left.\tfrac{\partial g}{\partial \tau}\right|_{p=\hat{p}}\right) \\
& = -\tfrac{1}{2}\bar{s}\left(\hat{p},\tau\right)\left[\left(1-\alpha\right)\bar{s}\left(\hat{p},\tau\right)-\left(1-\alpha\tau\right)\left(1-\hat{p}\right)\left(1-\hat{p}+4c\right)\theta\right]
\end{aligned}
$$

Therefore, $\left.\tfrac{d\hat{\pi}}{d\tau}\right|_{p=\hat{p}} < 0$ if the bracketed expression is positive, or

$$
\begin{aligned}
\left(1-\alpha\right)\bar{s}\left(\hat{p},\tau\right) & > \left(1-\alpha\tau\right)\left(1-\hat{p}\right)\left(1-\hat{p}+4c\right)\theta \\
\left(1-\alpha\right)\left(\tfrac{(1-\hat{p})^{2}}{2}\psi+2\left(1-\hat{p}\right)c\theta\right) & > \left(1-\alpha\tau\right)\left(1-\hat{p}\right)\left(1-\hat{p}+4c\right)\theta \qquad (9)\\
\tfrac{1-\alpha}{1-\alpha\tau} & > 2\tfrac{(1-\hat{p})\theta+4c\theta}{(1-\hat{p})\psi+4c\theta}
\end{aligned}
$$

First let us establish the following two results: $\tfrac{\partial \hat{p}}{\partial c} > 0$ and $\tfrac{\partial \hat{p}}{\partial \theta} > 0$. Note that the function $\tfrac{\partial g}{\partial p}$ decreases both in c and in θ for each level of p and recall that $\tfrac{\partial^{2} g}{\partial p^{2}} > 0$. Therefore, the equation $\tfrac{\partial g}{\partial p} = -\tfrac{1-\alpha}{1-\tau\alpha}$, which implicitly defines $\hat{p}$, will be satisfied for higher level of $\hat{p}$ as c or θ increase. Let us now define $\Pi \equiv 2\tfrac{(1-\hat{p})\theta+4c\theta}{(1-\hat{p})\psi+4c\theta}$ and note that $\psi - \theta = \tfrac{1-\delta}{1-\tau}\left(1-\theta\right) > 0$. It is easy to verify that $\tfrac{\partial \Pi}{\partial c}, \tfrac{\partial \Pi}{\partial \theta}, \tfrac{\partial \Pi}{\partial \hat{p}} > 0$ and hence:

$$
\begin{aligned}
\tfrac{d\Pi}{dc} & = \tfrac{\partial \Pi}{\partial c}+\tfrac{\partial \Pi}{\partial \hat{p}}\tfrac{\partial \hat{p}}{\partial c} & > & \; 0 \\
\tfrac{d\Pi}{d\theta} & = \tfrac{\partial \Pi}{\partial \theta}+\tfrac{\partial \Pi}{\partial \hat{p}}\tfrac{\partial \hat{p}}{\partial \theta} & > & \; 0
\end{aligned}
$$

Furthermore, if τ is sufficiently small, the condition in 9 is surely satisfied for $\theta = c = 0$ and surely not satisfied for $\theta = c = 1$ (which implies $\psi = 1$). Therefore, there exist non-unique pairs of threshold values of $\left(\theta,c\right)$ such that $\left.\tfrac{d\hat{\pi}}{d\tau}\right|_{p=\hat{p}} < 0$ for $\left(\theta,c\right)$ below the threshold and $\left.\tfrac{d\hat{\pi}}{d\tau}\right|_{p=\hat{p}} > 0$ for $\left(\theta,c\right)$ above the threshold. □

Shareholder welfare

$$2\frac{d\hat{W}(\hat{p},\tau)}{d\tau} = \left(\frac{d\hat{p}}{d\tau} + g(\hat{p},\tau) + \tau\left(\frac{\partial g}{\partial \tau} + \frac{\partial g}{\partial p}\frac{d\hat{p}}{d\tau}\right)\right)(1-\beta-(1-\alpha)\hat{p}-(1-\alpha\tau)g(\hat{p},\tau))$$
$$+ (\hat{p}+\tau g(\hat{p},\tau))\left(-(1-\alpha)\frac{d\hat{p}}{d\tau} + \alpha g(\hat{p},\tau) - (1-\alpha\tau)\left(\frac{\partial g}{\partial \tau} + \frac{\partial g}{\partial p}\frac{d\hat{p}}{d\tau}\right)\right)$$
$$= \left(\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right) + g(\hat{p},\tau) + \tau\frac{\partial g}{\partial \tau}\right)(1-\beta-(1-\alpha)\hat{p}-(1-\alpha\tau)g(\hat{p},\tau))$$
$$+ (\hat{p}+\tau g(\hat{p},\tau))\left(-\frac{d\hat{p}}{d\tau}\left(1+\frac{\partial g}{\partial p}\right) + \alpha\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right) + \alpha g(\hat{p},\tau) - (1-\alpha\tau)\frac{\partial g}{\partial \tau}\right)$$
$$= \left(\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right) + g(\hat{p},\tau) + \tau\frac{\partial g}{\partial \tau}\right)(1-\beta-\hat{p}-g(\hat{p},\tau)+2\alpha(\hat{p}+\tau g(\hat{p},\tau)))$$
$$- (\hat{p}+\tau g(\hat{p},\tau))\left(\frac{d\hat{p}}{d\tau}\left(1+\frac{\partial g}{\partial p}\right) + \frac{\partial g}{\partial \tau}\right)$$
$$= \left(\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right) + g(\hat{p},\tau) + \tau\frac{\partial g}{\partial \tau}\right)\left(2\hat{M}(\hat{p},\tau)^{\frac{1}{2}} + \alpha(\hat{p}+\tau g(\hat{p},\tau))\right)$$
$$- (\hat{p}+\tau g(\hat{p},\tau))\left(\frac{d\hat{p}}{d\tau}\left(1+\frac{\partial g}{\partial p}\right) + \frac{\partial g}{\partial \tau}\right)$$
$$= \left(\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right) + g(\hat{p},\tau) + \tau\frac{\partial g}{\partial \tau}\right)2\hat{M}(\hat{p},\tau)^{\frac{1}{2}}$$
$$+ \alpha(\hat{p}+\tau g(\hat{p},\tau))\left(\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right) + g(\hat{p},\tau) + \tau\frac{\partial g}{\partial \tau}\right)$$
$$- (\hat{p}+\tau g(\hat{p},\tau))\left(\frac{d\hat{p}}{d\tau}\left(1+\frac{\partial g}{\partial p}\right) + \frac{\partial g}{\partial \tau}\right)$$
$$= \left(\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right) + g(\hat{p},\tau) + \tau\frac{\partial g}{\partial \tau}\right)2\hat{M}(\hat{p},\tau)^{\frac{1}{2}}$$
$$+ \alpha(\hat{p}+\tau g(\hat{p},\tau))g(\hat{p},\tau) + \alpha(\hat{p}+\tau g(\hat{p},\tau))\left(\frac{d\hat{p}}{d\tau}\left(\tau+\tau\frac{\partial g}{\partial p}\right) + \tau\frac{\partial g}{\partial \tau}\right) + \alpha(\hat{p}+\tau g(\hat{p},\tau))(1-\tau)\frac{d\hat{p}}{d\tau}$$
$$- (\hat{p}+\tau g(\hat{p},\tau))\left(\frac{d\hat{p}}{d\tau}\left(1+\frac{\partial g}{\partial p}\right) + \frac{\partial g}{\partial \tau}\right)$$
$$= \left(\frac{d\hat{p}}{d\tau}\left(1+\tau\frac{\partial g}{\partial p}\right) + g(\hat{p},\tau) + \tau\frac{\partial g}{\partial \tau}\right)2\hat{M}(\hat{p},\tau)^{\frac{1}{2}}$$
$$+ \alpha(\hat{p}+\tau g(\hat{p},\tau))\left(g(\hat{p},\tau) + (1-\tau)\frac{d\hat{p}}{d\tau}\right)$$
$$- (1-\alpha\tau)(\hat{p}+\tau g(\hat{p},\tau))\left(\frac{d\hat{p}}{d\tau}\left(1+\frac{\partial g}{\partial p}\right) + \frac{\partial g}{\partial \tau}\right)$$

At $\tau=0$ we have $\left.\frac{\partial g}{\partial p}\right|_{p=\hat{p},\tau=0} = \alpha-1$ and hence:

$$2\left.\frac{d\hat{W}}{d\tau}\right|_{p=\hat{p},\tau=0} = \left(\frac{d\hat{p}}{d\tau} + g(\hat{p},\tau)\right)2\hat{M}(\hat{p},\tau)^{\frac{1}{2}} + \alpha\hat{p}\left(g(\hat{p},\tau) + \frac{d\hat{p}}{d\tau}\right) - \hat{p}\left(\frac{d\hat{p}}{d\tau}\left(1+\frac{\partial g}{\partial p}\right) + \frac{\partial g}{\partial \tau}\right)$$
$$= \left(\frac{d\hat{p}}{d\tau} + g(\hat{p},\tau)\right)2\hat{M}(\hat{p},\tau)^{\frac{1}{2}} + \alpha\hat{p}\left(g(\hat{p},\tau) + \frac{d\hat{p}}{d\tau}\right) - \hat{p}\left(\alpha\frac{d\hat{p}}{d\tau} + \frac{\partial g}{\partial \tau}\right)$$
$$= \left(\frac{d\hat{p}}{d\tau} + g(\hat{p},\tau)\right)2\hat{M}(\hat{p},\tau)^{\frac{1}{2}} + \alpha\hat{p}g(\hat{p},\tau) - \hat{p}\frac{\partial g}{\partial \tau}$$
$$= \left(\frac{d\hat{p}}{d\tau} + g(\hat{p},\tau)\right)2\hat{M}(\hat{p},\tau)^{\frac{1}{2}} + \hat{p}\left(\alpha g(\hat{p},\tau) - \frac{\partial g}{\partial \tau}\right)$$