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CHICAGO

COASE-SANDOR INSTITUTE FOR LAW AND ECONOMICS WORKING PAPER NO. 691
(2D SERIES)
PUBLIC LAW AND LEGAL THEORY WORKING PAPER NO. 479

NUISANCE SUITS

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THE LAW SCHOOL
THE UNIVERSITY OF CHICAGO

June 2014

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June 24, 2014

Abstract

This paper develops a simple but general model of negative-expected-value (NEV) suit and settlement given symmetric information. It accounts for the roles of the merits, litigation costs, and bargaining power; incorporates complaints and answers for which parties' investments in pleading detail are endogenously determined; permits strategic default by the defendant; and nests several existing models of NEV litigation as special cases. It generates testable, counterintuitive, empirical predictions and facilitates normative analysis. For example, the model predicts that plausibility pleading standards will have modest effects in deterring low-merit suits but may be harmful to plaintiffs and defendants settling stronger cases.

1 Introduction

A persistent source of vexation for lawyers, both in practice and in the Ivory Tower, is “frivolous” or “nuisance” litigation. In the purest sense of the term, and the sense which I will employ herein, a nuisance suit is a suit filed because it has positive settlement value, notwithstanding the fact that it is common knowledge to the plaintiff and the defendant that the expected value plaintiff’s claim is less than the plaintiff’s cost of prosecuting the suit. Frivolous litigation, in common usage and in the sense that I will use the term herein,
is a species of nuisance litigation. In a frivolous suit, the expected value of plaintiff’s claim is less than plaintiff’s cost of litigating because the claim is extremely low merit—the likelihood of prevailing at summary judgment (let alone trial) is so low that the expected value of the claim is near zero. The notion is that the prospect of expensive litigation drives the defendant to pay a settlement despite knowing that, were the case to go to trial, the defendant would probably or certainly win.

This is not to say that nuisance litigation, let alone “frivolous” litigation, exists or is a significant phenomenon; indeed, practitioners and commentators disagree about the prevalence of nuisance suits.¹ There is no shortage of anecdotes of multi-million dollar settlements of specious claims, and for years entities such as trade associations have lobbied for legal reforms directed to curbing nuisance suits. But empirical evidence on the phenomenon of nuisance suits is scarce.

Further, it is not clear how one should judge nuisance litigation normatively: a claim could be nuisance-value because it is frivolous, or because it has high merit but the stakes are low relative to the plaintiff’s cost of litigating.

Because of this, theoretical work can help improve our understanding by establishing the conditions under which nuisance settlements might arise and by generating empirical predictions that can help academics test the prevalence of nuisance suits. Theoretical work can also assist normative judgments about whether and how law should address potential nuisance litigation.

The early conventional wisdom was that nuisance litigation should not occur, because nuisance suits are, by definition, negative-expected-value (NEV) suits, in that the cost to the plaintiff of litigating to judgment exceeds the expected judgment plaintiff would win. Thus, a plaintiff would rather drop his case than litigate. A series of papers beginning with Rosenberg and Shavell (1985) have developed models in which both parties are fully informed of the weakness of the plaintiff’s claim, but the plaintiff is nonetheless able to extract a positive settlement by taking advantage of the defendant’s costs of defending the suit. This literature on nuisance suits has generated a number of important insights, but most models have focused on explaining particular features of nuisance litigation. As a consequence, no unified model of nuisance litigation has emerged, and existing models do not attempt to explain even basic stylized facts about civil litigation.

Consider the seminal case on federal civil pleading standards, *Bell Atlantic Corp. v. Twombly* (550 U.S. 544 [2007]). In *Twombly*, the Supreme Court dismissed the complaint, requiring that the complaint meet a higher, “plausibility” standard of pleading than the liberal, “notice pleading” standard traditionally invoked by federal courts. A primary, explicit motivation

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¹See, for example, Bone (1997) for a discussion the rhetoric and lack of evidence surrounding the issue of frivolous litigation.
for this ruling was concern about asymmetrical costs of litigation favoring the
plaintiff that would lead to a nuisance settlement of a weak claim. Yet the
Twombly complaint was lengthy and contained significant factual detail, going
far beyond providing mere notice to the defendants. This raises two puzzles:
Why would the Twombly plaintiffs plead in detail at a time when the law did
not require detailed pleading? And more to the point, if the plaintiffs were
(as the Court implied) bringing a nuisance claim, whose value derives entirely
from the asymmetrically high litigation costs of the defendant, why would the
plaintiffs expend greater than necessary costs on detailed pleading, running up
their own costs in a case that they have no illusions of winning? This paper
offers an explanation for this and other potential puzzles about the oft-alleged,
but poorly understood, phenomenon of nuisance suits and settlements.

My objective in this paper is to develop a simple, but general, model of nuis-
ance litigation that incorporates existing insights but better describes actual
patterns of litigation and generates testable empirical predictions. Existing
models offer a host of important results. Rosenberg and Shavell (1985) and
Bebchuk (1996) showed that the sequencing of litigation costs affects the vi-
ability of NEV claims. Croson and Mnookin’s insight was to recognize that
the sequencing of the parties’ litigation costs can be endogenously determined
by the parties themselves, for strategic reasons. Miceli (1993), Farmer and
Pecorino (1998), and others showed that both parties can employ strategies
to commit to pursue, or to commit to refuse, nuisance settlements. Schwartz
and Wickelgren (2009) showed that even in a full-information environment,
an optimal strategy of stonewalling and delay can prevent settlement. These
models (and mine) recognize and embody the principle noted by Rosenberg
and Shavell (2006, p. 43): the strategies employed in NEV litigation are ex-
amples of “the well-appreciated general conclusion that a party may benefit by
removing future options, since this form of commitment can have advantageous
incentive effects.”

My model below captures each of these insights, generalizes and extends
them, maps them onto real-life features of civil litigation, and generates testable
empirical predictions. The model takes the form of a sequential, symmetrical-
information game, which incorporates endogenously determined costly plead-
ing and choice of pleading detail. Extensions to the model incorporate the
strategic use of default by the defendant, nuisance claims brought by multiple
plaintiffs, and different types of litigation-related costs. Rosenberg and Shavell
(1985), Bebchuk (1996), and Croson and Mnookin (1996) all nest as special
cases.2

This model explains several putative features of nuisance litigation that
previous models have either not accounted for, or been unable to explain:

2Related work on pre-filing negotiation and settlement explores the question, largely
unaddressed by this literature, of why (costly) lawsuits would ever be filed in a symmetric-
information environment. See Hubbard (2014a). The model in Hubbard (2014a) allows one
to nest Schwartz and Wickelgren (2009) as a special case as well.
1. Costly and detailed pleading by plaintiffs, even in a nuisance-suit context;
2. Low cost, sparse pleading by defendants, even in a nuisance-suit context;
3. Nuisance settlements that exceed the cost to defendant of filing an answer;
4. The widely held view that the burdens of nuisance litigation on defendants arise primarily from low-merit, rather than low-stakes, claims.

These patterns emerge endogenously in a simple model of suit and settlement in which the parties can determine the timing of their expenditures on litigation.

The remainder of this paper proceeds as follows: I review existing models of NEV litigation in Section 2. I describe my model informally and present a numerical example in Section 3. I present the formal model with proofs, discussion, and extensions in Section 4.

Section 5 considers the testable empirical predictions of the model. While not all of them can be confirmed or refuted without further study, some predictions, such as detailed pleading by some plaintiffs and minimal pleading detail from defendants, are consistent with established stylized facts.

While the focus of this paper is primarily positive, the model I present is broadly applicable to normative questions about nuisance litigation. In Section 6, I show how my model can generate predictions about the effects of the plausibility pleading standard announced by *Bell Atlantic Corp. v. Twombly* (550 U.S. 544 [2007]) on nuisance litigation, including potentially surprising negative effects on both plaintiffs and defendants.

Section 7 concludes.

2 Literature Review

The literature begins with Rosenberg and Shavell (1985). Their logic is straightforward. It is costly for a defendant to respond to the plaintiff’s complaint, and failure to respond will lead to a default judgment against the defendant. Thus, the defendant will be willing to settle with a plaintiff for any amount less than the cost of responding to the plaintiff’s complaint, even if the plaintiff’s claim is wholly meritless. Because of this, the plaintiff with a NEV claim will sue, so long as the cost of filing the complaint is less than the amount of the settlement the plaintiff would be able to extract.

The central insight of Rosenberg and Shavell (1985) is that a plaintiff with a NEV claim can succeed at obtaining a nuisance settlement. One can question the empirical relevance of this model, however. In this model, all a defendant
has to do to avoid a default judgment is file an answer. As Bone notes, because “answering is seldom more costly than filing, the model predicts that few frivolous plaintiffs will find it worthwhile to sue” (Bone 2003, p.150). Indeed, Bone (1997, p. 538) points out that in a full-information environment, the cost to the defendant of admitting or denying the allegations of the complaint should be trivial. Nor does observed practice jibe with the model. A stylized fact about litigation practice is that complaints are sometimes (not always) highly detailed accounts of the facts related to the plaintiff’s claim, but answers are almost invariably boilerplate documents denying the plaintiff’s central allegations or asserting a lack of information upon which an admission or denial can be made. Consequently, it is hard to imagine a scenario in which the Rosenberg and Shavell model maps on to observed patterns of litigation.

Bebchuk (1996) provides a more general approach to the same question. Bebchuk considers the possibility that litigation is divided into stages and the costs of litigation are divided among these stages. In each stage, one (perhaps randomly chosen) party has the opportunity to propose a settlement, which the other party can accept or reject. In this model, even if a lawsuit taken as a whole is NEV, if the costs are split among the stages of litigation, it is possible that, relative to the costs of litigating the very last stage, the plaintiff’s claim is PEV. Thus, the plaintiff has a credible threat to go to trial at the last stage of litigation, and the defendant will be willing to settle the case then. If the plaintiff has sufficient bargaining power, this settlement will be large enough that in the second-to-last stage of litigation, the plaintiff will also have a credible threat to move forward, thereby making the defendant willing to settle in that stage as well. By backwards induction, one sees that the plaintiff has a credible threat to sue in the first period, and the parties will settle immediately.

This result retains the central insight that NEV claims can generate positive settlements, and it overcomes the concern that the Rosenberg and Shavell model implies that the cost of a boilerplate answer places a ceiling on the settlement value of a NEV claim. Yet it does not explain truly “frivolous” litigation—claims which have no merit at all. For the backwards induction to generate a positive settlement, the expected judgment at trial must be large enough to outweigh the plaintiff’s costs in the final period of litigation, and this is impossible for a suit with zero merit.

Schwartz and Wickelgren (2009) argue that NEV claims can never generate nuisance settlements for plaintiffs. In their model, an indefinite number of offers and counter-offers can be made costlessly during litigation. Because of this, they argue, the plaintiff will not be able to extract a settlement during litigation large enough to make the initial threat to sue credible. This result challenges the claim that nuisance litigation exists at all, let alone is a serious problem. Yet this model has difficulty gaining traction as a model of litigation rather than a model of negotiation; it models costly litigation activity as the
plaintiff’s *outside option*, but this is only true before a suit is filed. Thus, I address this model in other work that considers pre-suit settlement; Hubbard (2014a) builds on these insights from Schwartz and Wickelgren (2009) in modeling both pre-filing and post-filing settlement.3

A recurring argument in the literature is that nuisance settlements are not possible because defendants can simply commit to a policy of refusing to settle and, by developing a reputation for doing so, will deter nuisance claims (Bone 1997, p. 540; Miceli 1993). This insight, though, fails to resolve either theoretical or empirical assertions about nuisance claims—the problem is that the same argument can be made to prove that nuisance litigation *is* possible, because plaintiffs can simply commit to a policy of refusing to be deterred (Farmer and Pecorino 1998; see also Chen 2006). These models thus leave unresolved the question of whether nuisance claims can be viable.

Closely related to this last point, and closest in spirit to the model I develop, is the model of Croson and Mnookin (1996). While papers since Rosenberg and Shavell (1985) have recognized that sunk costs can generate positive settlements for NEV claims (see Rasmusen [1998]), Croson and Mnookin were the first to present a model in which the amount of costs sunk were endogenously determined. They argue that a plaintiff can create a credible threat to sue by hiring an attorney on retainer, such that part of the plaintiff’s cost of litigating is sunk. If the plaintiff’s remaining litigation costs are less than the expected judgment from litigation, the plaintiff will have a credible threat to sue and can induce a settlement. They note, however, that a defendant could employ a symmetrical cost-sinking strategy. Thus, like reputation-based models, Croson and Mnookin’s model leaves unresolved the question of whether the plaintiff or the defendant will win the race to sink costs and deter the other from executing his preferred strategy. As I show below, the winner of the race to sink costs is not indeterminate (nor a draw). Rather, parties’ relative litigation costs determine the outcome of this contest, and I derive analytically the conditions under which the plaintiff or the defendant successfully sinks costs to the exclusion of the other.

Looking at these models, one might ask: To what extent can the parties control the timing and order of litigation costs? Do features of civil procedure permit the strategies identified in these (highly abstracted) models? Does the

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3In this regard, it is worth noting that an implication of each of the models discussed in this section is to predict, at most, some nuisance settlements but no nuisance suits. In a symmetrical-information environment, why would the parties wait for a filed complaint before settling, when they could settle the claim pre-complaint and save the cost of filing? Yet, claims of “abusive” or “frivolous” litigation by practitioners revolve around accounts of *filed* lawsuits that are frivolous. Existing models of NEV litigation, however, rule out pre-suit settlement *a priori*. Consistent with this approach, my model assumes that settlement, if it occurs, occurs in litigation. The basic, if unstated, assumption here is that some form of pre-suit bargaining failure leads to litigation, even in a symmetric-information context. In related work, I show that a simple, general model of bargaining under symmetric-information can lead to precisely such bargaining failures. Hubbard (2014a).
sequencing of civil litigation make it easier for one party or another to sink costs to precipitate or deter settlement? I address these questions in the model below.

3 Informal Treatment

3.1 Overview of the Model

My model represents litigation as a sequential, symmetric-information game in the spirit of Rosenberg and Shavell (1985) and Bebchuk (1996). The goal of this model is to represent the basic dynamics of pleading and settlement in a way that is both reasonably realistic and analytically tractable. This model is set up as follows: A potential plaintiff has a claim against a potential defendant.\(^4\) The amount at stake and plaintiff’s likelihood of winning in court are known to both parties, as are the parties’ costs of litigation. While this model applies to all claims, whether PEV or NEV, the interesting cases for our purposes involve NEV claims. Except where otherwise noted, the discussion below will assume a NEV claim.

The total cost of litigating a case to judgment is assumed to be fixed, but the plaintiff’s cost of filing a complaint is not. The cost of filing a complaint includes both the (presumably nominal) filing fee charged by the court and the cost of preparing the complaint. The plaintiff can choose how much to spend on the complaint; a long, detailed complaint that reflects thorough preparation for litigation will cost more than a bare-bones complaint that describes the plaintiff’s claim in a cursory manner. Importantly, much of the work that a plaintiff would have to do later in the litigation can be done before filing—collecting and organizing evidence, conducting legal research, drafting memoranda, organizing a litigation team, and so on. These pre-litigation costs thus reduce the cost that would have to be spent during litigation.

Note that I do not require the possibility of a motion to dismiss for failure to state a claim. Instead, the model at this point assumes that a filed complaint will never be dismissed.\(^5\) (I turn to the effect of pleading standards in Section 6.)

\(^4\)For brevity, I omit “potential” in describing plaintiffs and defendants herein, even when describing pre-litigation behavior.

\(^5\)My focus is on the extent to which low-merit cases are (or are not) screened out by the deliberate, strategic behavior of potential litigants, even in the absence of any gatekeeping function of the courts at the pleading stage. One could also treat this absence of any risk of dismissal as a rough approximation of the idealized conception of “notice pleading.” Implicit in this setup is also the assumption that Federal Rule of Civil Procedure (“Rule”) 11 (or a state-court counterpart), which sanctions pleadings which contain frivolous claims or “needlessly increase the cost of litigation,” does not foreclose filings in all of the scenarios considered herein.
The defendant may also have the ability to sink its litigation costs in advance of litigation. This model allows for the defendant to sink its litigation costs by paying a non-refundable retainer to its lawyers in advance of the plaintiff’s opportunity to demand a settlement or draft a complaint.6

In the simplest version of this model, plaintiff first decides whether to file suit or abandon the claim. If he files suit, he chooses how much to invest in preparing the complaint. Next, the defendant must prepare its answer. The parties then have opportunity to settle.7 If the parties do not settle, they pay their litigation costs, and the court enters judgment. (Recall that because this is a full-information model, the expected judgment is common knowledge.)

What is the solution to this model? I present a rough outline here, omitting nuances and qualifications that will be made explicit during the formal treatment of the model.

The first question to consider is whether the plaintiff has a credible threat to sue, given that his claim is NEV. If he has no credible threat to sue, the defendant will never agree to a positive settlement amount, and the plaintiff will abandon the claim. Here is where pleading comes in. By investing heavily in pre-complaint investigation, the plaintiff is able to sink the costs of discovery that he otherwise would have to bear after filing. Conditional on having sunk these costs, the plaintiff’s expected judgment is large enough relative to the remaining costs of litigation that he now has a credible threat to sue. By voluntarily undertaking highly detailed pleadings, the plaintiff makes these sunk costs observable to the defendant, thereby making credible the threat to continue litigating through to judgment.8

Given a credible threat to go to trial from the plaintiff, the defendant will settle. Thus, a plaintiff who sinks litigation costs and then files a detailed complaint may be able to obtain positive settlement from the defendant, despite having a NEV claim.

If a plaintiff can, under some conditions, use detailed pleading to sink

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6Implicit in this sequencing of events are the notions that the nuisance claim arises after the defendant has an opportunity to pay a retainer, and the plaintiff cannot act until the nuisance claim arises. This sequence seems to fit the typical narrative of nuisance litigation: the defendant is a large corporation frequently subject to lawsuits, and which therefore expects to face nuisance claims even if it currently faces none. As such, it can prepare for litigation in advance of a discrete claim. The plaintiff is an individual and cannot act until he has suffered some (real or perceived) legal injury. Importantly, though, the results of the model are not sensitive to these assumptions. As I discuss in Section 4.4, a model in which plaintiff can pay a retainer in advance of a specific claim arising is simply a special case of the model presented here.

7As will become obvious below, the results are no different if the parties have an opportunity to settle before the defendant prepares an answer.

8For brevity, I will occasionally refer to “going to trial” rather than “taking the claim to judgment.” Though the literature tends to refer to “trial,” I prefer “judgment,” given that few claims go to trial, and in the nuisance suit context, the real endgame is summary judgment anyway. Nonetheless, “trial” is a convenient shorthand.
litigation costs and generate nuisance settlement value in a NEV claim, then
the question arises whether the defendant can preempt this strategy through
sinking costs of its own. The idea is that by sinking part of its litigation costs,
the defendant reduces the expected settlement that the plaintiff will be able to
obtain (because saved litigation costs create the surplus from settlement that
the parties share). So long as the loss from paying these litigation costs up
front is preferable to the cost of paying a nuisance settlement, the defendant
benefits from this sunk-cost strategy. This strategy can deter some, but not all,
NEV claims. It does not always work because the parties split the surplus (the
saved litigation costs) in settlement. Thus, a defendant only pays a fraction
of its litigation costs in settlement. If this fraction is lower than the share
of costs the defendant must sink in order to deter the plaintiff, a sunk-costs
strategy simply is not worthwhile to the defendant.

3.2 Numerical Example

Imagine a single plaintiff and a single defendant. The plaintiff has a frivolous
claim (he demands $1000 but has zero chance of winning, so the claim is worth
$0), and it would cost plaintiff $100 to litigate the claim to judgment. It would
cost the defendant $500 to defend the claim.

For the moment, set aside the possibility of the defendant paying a retainer
to deter settlement or the possibility of defendant filing a detailed answer. I
will show in a moment that neither of these possibilities will occur. But to be
concrete, let us begin with what the plaintiff can do to obtain a settlement.

The plaintiff creates a credible threat to sue by front-loading litigation costs.
The plaintiff has a NEV claim—he expects to win $0 in court, but would pay
$100 in litigation costs. Given this, the plaintiff will spend $100 preparing
for litigation and drafting a detailed complaint. This eliminates the cost of
litigating to judgment for the plaintiff. With nothing left to lose, plaintiff
credibly threatens to litigate to judgment.

This credible threat will generate a positive settlement. Given that the
plaintiff is willing to take the case to judgment, the defendant stands to lose
$500 in litigation costs if it does not settle. For this reason, the defendant
is willing to pay up to $500 to settle the case. (And because settlement is
less costly than default, the defendant will of course choose to answer rather
than default.) If the case goes to judgment, the plaintiff pays no additional
litigation costs but wins no judgment, so the plaintiff is willing to accept as
little as $0 to settle the case. With equal bargaining power of the parties,
they will split the difference and settle for $250. Since the plaintiff spent $100

Note that the sorts of costs that can’t be front-loaded—trial preparation, reviewing
defendant’s production in discovery, responding to a summary judgment motion—are not
litigation costs to a plaintiff with a frivolous suit, because the plaintiff will abandon the case
once the litigation reaches the summary judgment stage.
preparing the complaint, the plaintiff’s net payoff is $150.

Now let us consider whether the defendant can do better by sinking litigation costs when preparing an answer. The answer is no. *The defendant, unlike the plaintiff, will not use detailed pleading.* As noted above, without a detailed answer the plaintiff settles for $250. The defendant can prevent settlement by reducing the plaintiff’s payoff to zero—but defendant can only do this by sinking all $500 of its litigation costs. Anything less, and the plaintiff can still extract a positive settlement upon the threat of going to judgment and forcing the defendant to spend its remaining litigation costs. The defendant is better off paying a fraction of its litigation costs in settlement than paying all of them to prevent settlement.

Next, consider the possibility that the defendant can preempt the nuisance claim by paying a retainer before the plaintiff even appears on the scene. *In this example, the defendant will not deter the plaintiff by sinking its costs.* In order for the defendant to deter suit, the retainer must be sufficient to reduce to zero the expected payoff from filing suit and then settling. To do this, the defendant must pay a retainer of $300. With $300 of the defendant’s $500 in litigation costs already sunk, the plaintiff can demand no more than $200 in settlement after filing suit. (The defendant will still demand $0.) This reduces the expected value of settlement to $100, which merely offsets the cost of filing the complaint and leaves the plaintiff with an expected net payoff of $0. A retainer of $300, though, is more than the cost of settlement! In this example, sinking costs allows the plaintiff to make a credible threat to bring a NEV claim, but does not allow the defendant to deter the threat.

Note, however, that if the asymmetry in litigation costs were not as great, the defendant could deter nuisance settlements by paying a retainer. If, for example, defendant’s litigation costs were only $300, the expected settlement in litigation would be $150. By paying a retainer of only $100, the defendant could reduce the expected settlement to $100 (equal to the plaintiff’s cost of filing a credible suit) and deter the threat of a nuisance settlement.

## 4 Formal Treatment

### 4.1 Basic Model

There is a dispute between plaintiff $P$ and defendant $D$. The potential monetary judgment at stake is $J$, and both plaintiff and defendant believe that plaintiff has probability of winning at trial equal to $\pi$. The expected judgment at trial is thus $\pi J$. Party $i$ has cost of litigation $C_i$. The cost of litigation is party-specific to reflect potential asymmetries in the cost of pre-trial litigation.

Crucially, one component of the total cost of litigation for the plaintiff is the cost of filing $F$, which reflects the plaintiff’s cost of drafting the complaint,
as well as the plaintiff’s investment in pre-complaint investigation and informal discovery. I treat the filing fee to be nominal, and thus the plaintiff can choose any $F \in [0, C_P]$. The plaintiff has control over whether to devote resources to factual investigation in the pre-complaint stage of the dispute, rather than spending those resources (and developing those facts) during litigation. The plaintiff’s cost of litigation, $C_P$, is thus reduced by the cost of pleading $F$. Past models, such as Rosenberg and Shavell (1985), have treated $F$ as an exogenous constant. A key change in this model is allowing plaintiff to choose $F$. $F$ in turn determines the amount of factual and legal detail in the complaint. The complaint is the mechanism by which $F$ is made observable to the defendant.\(^{10}\)

As the very beginning of the game, the defendant has an opportunity to pay a retainer $R \in [0, C_D]$ for legal fees. This is a non-refundable pre-payment for legal services that offsets the defendant’s litigation costs.\(^{11}\)

The opportunity to file a complaint comes next. The defendant then files an answer at cost $A \in [0, C_D - R]$.\(^{12}\) Spending on $A$ reduces the defendant’s cost of litigation $C_D$.

There is a single period of litigation, in which the plaintiff has a probability $\alpha$, and defendant has a probability $(1 - \alpha)$, of making a take-it-or-leave-it offer of settlement. The discussion so far has assumed $\alpha = 0.50$ (i.e., each party has an equal chance to make a settlement offer), which I will continue to do.\(^{13}\) For sake of generality, however, the proofs below allow for arbitrary bargaining power $\alpha \in [0, 1]$.

If the parties do not settle, the plaintiff and defendant spend remaining litigation costs $C_P - F$ and $C_D - A - R$, respectively, and the court enters judgment with expected value $\pi_J$.

The sequential, subgame perfect equilibrium given $C_P > \pi_J$ (i.e., the plain-

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\(^{10}\)Of course, in real life pleading detail imperfectly communicates pre-suit expenditure of litigation costs. Nonetheless, it is a valuable proxy, and information other than pleading detail—information such as the identity of the plaintiff’s lawyers, for example—also communicates information about plaintiff’s costs.

\(^{11}\)Note that the retainer is bounded above by the defendant’s total litigation costs; sinking the expected judgment is not possible. Sinking of the expected judgment by paying it to a third party who is then liable for the judgment is no more than an assignment of the claim, which simply shifts the commitment problem to the third party. In any event, relaxing this constraint on $R$ has little effect on the results.

\(^{12}\)Fixing $F = \bar{F}$ and $A = \bar{A}$ and allowing settlement pre-answer allows one to nest the model of Rosenberg and Shavell (1985) in this model. As Proposition 1b below makes clear, allowing or disallowing pre-answer settlement has no effect on the predictions of the model.

\(^{13}\)Note that this model is equivalent to an alternating offer, split-the-dollar game with no outside option. In the limit (i.e., as the number of opportunities to make offers goes to infinity and as the parties’ shared discount factor goes to 1), the equilibrium division of surplus in a split-the-dollar game goes to one-half, i.e., $\alpha = 0.50$. See Rubinstein (1982). Because this model of a single opportunity for settlement closely approximates a model with an arbitrary number of periods, this model easily nests Bebchuk’s (1996) model of multiple periods of litigation and settlement negotiation. See Section 4.4 for further discussion.
tiff has a NEV claim), is as follows (star superscripts denoting equilibrium values):\(^1\)

**Proposition 1.**

(1a) **Settlement.** If the plaintiff files suit and has a credible threat to go to judgment, the parties will immediately settle for \(S^*(R) = \alpha(\pi J + C_D - R)\).

(1b) **Answer.** A defendant will never file a detailed answer: \(A^* = 0\).

(1c) **Complaint.** If a plaintiff files suit, the plaintiff will spend \(F^* = C_P - \pi J\) in preparing the complaint.

**Proof.** Once the defendant has answered and the plaintiff has a credible threat to go to judgment, the defendant’s payoff if the case goes to judgment will be \(-\pi J - C_D + A + R\). Defendant is willing to incur up to this amount in settlement costs to avoid going to judgment. With likelihood \(\alpha\), the plaintiff makes a take-it-or-leave-it settlement offer. In this event, the plaintiff demands this amount, and the defendant pays. With likelihood \((1 - \alpha)\), the defendant makes a take-it-or-leave-it settlement offer. Given that the plaintiff will have payoff \(\pi J - C_P + F\) if the case goes to judgment and zero if the plaintiff drops the case (the cost \(F\) is sunk at this point), the defendant will offer \((\max\{0, \pi J - C_P + F\})\) and the parties will settle. (If the defendant offers less than zero, the plaintiff will simply drop the case, which is equivalent to a settlement at zero.) The expected settlement is thus \(S^* = \alpha(\pi J + C_D - A - R) + (1 - \alpha) \max\{0, \pi J - C_P + F\}\).

Given that after answering, the defendant will settle for \(S^*\), the defendant’s payoff will be \(-S^* - A - R = -\alpha(\pi J + C_D) - (1 - \alpha)(\max\{0, \pi J - C_P + F\} + A + R)\). Defendant maximizes this payoff by choosing \(A^* = 0\). (Proposition 1b QED.)

After filing suit, plaintiff’s expenditure \(F\) is sunk, and going forward plaintiff’s payoff from going to judgment is \(\pi J - C_P + F\) and plaintiff’s payoff from dropping the suit is 0. Thus, plaintiff will only have a credible threat to go to judgment if \(\pi J - C_P + F \geq 0\), which implies \(F \geq C_P - \pi J\).

With a credible threat to go to judgment, plaintiff can obtain the settlement described above, \(S^* = \alpha(\pi J + C_D - A - R) + (1 - \alpha) \max\{0, \pi J - C_P + F\}\). The plaintiff’s net payoff is therefore \(\alpha(\pi J + C_D - A - R - F) + (1 - \alpha)(\pi J - C_P)\) for \(F \geq C_P - \pi J\). Since the plaintiff’s net payoff is decreasing in \(F\), conditional on having a credible threat to go to judgment (and filing suit rather than dropping the claim being optimal), the plaintiff chooses \(F^* = C_P - \pi J\). (Proposition 1c QED.)

\(^{14}\)Note that for simplicity of notation, I assume that a plaintiff indifferent between filing suit or not will not file suit. I assume that a plaintiff indifferent between continuing a suit and dropping a suit will continue the suit. I assume that a party indifferent between settling and not settling will settle. These assumptions dealing with knife-edge conditions allow me to define equilibrium conditions precisely (with equalities rather than inequalities), but otherwise do not affect the analysis.
Given Propositions 1b and 1c, the optimal settlement \( S^*(R) = \alpha(\pi J + C_D - R) \). (Proposition 1a QED.)

**Comment:** As shown below, plaintiff will only file suit in equilibrium if \( R^* = 0 \). Thus, if \( S^* > 0 \), \( S^* = \alpha(\pi J + C_D) \).

**Proposition 2: Credibility.** The plaintiff will have a credible threat to sue if the following *Credibility Constraint* holds:

\[
\alpha(C_D - R) - C_P + (1 + \alpha)\pi J > 0
\]  
(1)

If this condition is not met, the plaintiff does not sue or otherwise press the claim, and the defendant does nothing.

**Proof.** From Propositions 1a and 1c, plaintiff’s payoff from settlement is \( \alpha(C_D - R) + (1 + \alpha)\pi J - C_P \). Thus, plaintiff is only willing to sue if suit and settlement is better than dropping the claim, i.e., \( \alpha(C_D - R) + (1 + \alpha)\pi J - C_P > 0 \). QED.

**Proposition 3: Retainer.** The defendant will pay a strictly positive retainer

\[
R^* = \left( \frac{1 + \alpha}{\alpha} \right) \pi J - \frac{C_P}{\alpha} + C_D
\]  
(2)

if the plaintiff’s credibility condition is met for \( R = 0 \) and two conditions are met. First, the *Optimality Constraint* must hold:

\[
\alpha(1 - \alpha)(\pi J + C_D) \leq C_P - \pi J
\]  
(3)

Second, the *Feasibility Constraint* must hold:

\[
(1 + \alpha)\pi J \leq C_P
\]  
(4)

Otherwise, defendant pays no retainer: \( R^* = 0 \).

**Proof.** The net payoff to defendant if defendant chooses \( R \) such that plaintiff still sues is \(-\alpha(\pi J + C_D) - (1 - \alpha)R\), which is decreasing (more negative) in \( R \). Thus, unless defendant can deter filing all together, defendant will choose \( R^* = 0 \).

To deter the plaintiff from filing, defendant must pay a retainer \( R \) sufficient to reduce plaintiff’s expected payoff from suit to zero. From Proposition 2, this is \( R \) such that \( \alpha(C_D - R^*) + (1 + \alpha)\pi J - C_P = 0 \), which is \( R^* = \left( \frac{1 + \alpha}{\alpha} \right) \pi J - \frac{C_P}{\alpha} + C_D \). This value is strictly positive so long as \( S^*(0) - F^* > 0 \), which is met if and only if the credibility condition obtains.

Defendant will only do this, however, if it yields a better payoff than simply settling. Thus, to choose \( R > 0 \), it must be that \( R^* \leq S^*(0) \). This implies \( \alpha(1 - \alpha)(\pi J + C_D) \leq C_P - \pi J \). This optimal \( R^* > 0 \) is feasible if \( R^* \in [0, C_D] \), which implies \( (1 + \alpha)\pi J \leq C_P \). QED.
Comment. Although the analysis has assumed a NEV claim, applying this model to PEV claims is straightforward. From the results above (and keeping in mind the constraint that $F$ cannot be negative), it immediately follows that for a PEV claim ($C_P \leq \pi_J$) the following equilibrium values obtain: $S^{PEV} = \pi_J + \alpha C_D - (1 - \alpha) C_P$, $A^{PEV} = 0$, $F^{PEV} = 0$, and $R^{PEV} = 0$. A plaintiff with a PEV claim always has a credible threat to sue, and in this model always files suit, at which time the parties then immediately settle.

Comment. The solution to the basic model reduces to a set of key conditions: the Credibility Condition, Feasibility Condition, and Optimality Condition. These conditions together define the sets of parameter values for which nuisance settlements are possible. Figure 2 illustrates how litigation costs and expected judgment values affect settlement outcomes. Defendant’s litigation costs $C_D$ increase along the x-axis, the expected judgment $\pi_J$ increases along the y-axis, and all values are relative to plaintiff’s litigation costs, i.e., $C_P$ is normalized to 1. As before, I set $\alpha = 0.5$. We see that among NEV claims, those with both sufficiently low $C_D$ and sufficiently low $\pi_J$ will never be filed; no cost-sinking strategy can yield plaintiff a positive net payoff. Importantly, though, cost asymmetry in favor of the plaintiff is not necessary for the plaintiff to obtain a settlement given a NEV claim—even when defendant has no litigation costs, a plaintiff can induce settlement so long as $\pi_J > \frac{2}{3}!$ Conversely, claims involving either relatively high expected judgment or high defendant’s litigation costs will lead to nuisance settlements, notwithstanding the ability of the defendant to spend on retainers to deter nuisance suits. There is a region, however, where the expected judgment is relatively low and defendant’s litigation costs are moderate, in which a retainer strategy can protect the defendant from nuisance settlements.

4.2 Extension: Strategic Default by the Defendant

One option available to the defendant in real-life litigation that the basic model does not incorporate is default. The defendant can simply decline to respond to the plaintiff’s complaint, at which point the court (on motion by the plaintiff) will enter judgment in favor of the plaintiff.\footnote{See Rule 55 and its state analogues.} The option to default is valuable when litigation costs asymmetrically favor the plaintiff—and thus a settlement, part of whose value comes from saved litigation costs, may actually exceed the full value of the plaintiff's claim! This option to default is most valuable when the stakes are low but defense costs are high.

To formalize this idea, insert an additional step into the basic game. After the plaintiffs files a complaint at cost $F$ and before the defendant answers at cost $A$, the defendant may choose default, at which point the game ends, and the parties receive payoffs $(J - F, -J - R)$. 

\footnote{See Rule 55 and its state analogues.
Proposition 4: Solution Given Strategic Default. The sequential, sub-game perfect equilibrium given $C_P > \pi J$, is as follows:

(4a) Default. If the plaintiff files suit, defendant will default if

$$ (1 - \alpha \pi) J < \alpha C_D $$

(5)

(For PEV claims, the threshold for default rather than settlement is $J < \pi J + \alpha C_D - (1 - \alpha) C_P$.)

(4b) Pleading and Settlement. As before, if plaintiff files suit, plaintiff will spend $F^* = C_P - \pi J$ in preparing the complaint; defendant will not file a detailed answer: $A^* = 0$; and if plaintiff files suit and defendant does not default, the parties will settle for $S^* = \alpha (\pi J + C_D)$.

(4c) Credibility. The plaintiff will have a credible threat to sue if the following Credibility Constraint holds:

$$ (1 + \pi) J - C_P > 0 \quad \text{if} \quad J < \alpha (\pi J + C_D - R) $$

$$ \alpha (C_D - R) - C_P + (1 + \alpha) \pi J > 0 \quad \text{otherwise} $$

(6)

If this condition is not met, the plaintiff does not sue, and the defendant does nothing.

(4d) Retainer. The defendant will pay a strictly positive retainer

$$ R^* = \left( \frac{1 + \alpha}{\alpha} \right) \pi J - \frac{C_P}{\alpha} + C_D $$

(7)

if the plaintiff’s credibility condition is met for $R = 0$ and two conditions are met. First, the Optimality Constraint must hold:

$$ J \geq R^* \quad \text{if} \quad J < \alpha (\pi J + C_D) $$

$$ \alpha (1 - \alpha) (\pi J + C_D) \leq C_P - \pi J \quad \text{otherwise} $$

(8)

Second, the Feasibility Constraint must hold:

$$ (1 + \alpha) \pi J \leq C_P $$

(9)

Otherwise, defendant pays no retainer: $R^* = 0$.

Proof. See Appendix.

Comment. The availability of default as a strategic option for the defendant reduces the set of parameter values for which the plaintiff has a credible threat to sue, and it caps (at $J$) the amount that defendant must pay to plaintiff when plaintiff does sue. In this way, strategic default limits the scope and cost of nuisance suits to defendants. See Figure 3 for an illustration of how the
equilibrium in the game depends on case strength $\pi$ and stakes $J$.$^{16}$

Figure 3 reveals an asymmetry between high-merit, low-stakes cases and low-merit, high-stakes cases.$^{17}$ In the basic model, high-merit, low-stakes claims and low-merit, high-stakes claims are equivalent. All claims with combinations of $\pi$ and $J$ yielding the same product $\pi J$ generate an identical set of payoffs for the parties, because $\pi$ and $J$ never appear separately. But the possibility of default breaks the symmetry.

With default, we see that default is employed in higher-merit, lower-stakes cases. This has three effects. First, some plaintiffs with higher-merit, lower-stakes claims who would have had a credible threat to sue in a world without default, no longer have a credible threat to sue when the defendant has the option to default. Second, some plaintiffs with higher-merit, lower-stakes claims who would have obtained a nuisance settlement in a world without default, now receive a default judgment for a lower payoff. Third, some plaintiffs with lower-merit claims, who would have been deterred by defendant’s investment in a retainer in a world without default, now sue and receive a default judgment; in these cases, the option of default is less costly to the defendant than deterring suit by paying a retainer.

Figure 4 illustrates these three regions for the case where $C_D = 3C_P$. Without default, plaintiffs with merits and stakes in region A have a credible threat to sue and obtain a settlement; with default, they do not have a credible threat to sue. Without default, plaintiffs with merits and stakes in region B have a credible threat to sue and obtain a settlement; with default, they still have a credible threat to sue, but now receive a smaller payoff from a default judgment. Without default, plaintiffs with merits and stakes in region C would be deterred by the defendant’s strategic payment of a retainer; with default, the defendant does not pay a retainer and the plaintiff obtains a default judgment.

**Proposition 5: Plaintiff Welfare.** Take the set of cases such that it is not optimal for defendant to deter suit by retainer regardless of whether default is an option. Then, all else equal, plaintiffs with lower-merit cases are weakly better off than plaintiffs with higher-merit cases.

**Proof.** See Appendix. The intuition for this proof is straightforward. The added option of default makes the defendant (at least weakly) better off. Except in the case where a default judgment replaces deterrence by retainer, this means that the plaintiff is (at least weakly) worse off, because the defendant

$^{16}$Note that while this illustration assumes a slight cost asymmetry in favor of plaintiff (defendant’s litigation costs are 1.5 times plaintiff’s), the availability of default affects some outcomes so long as defendant’s litigation costs are higher than one-half plaintiff’s. This follows from comparing the criteria for default in Proposition 4(a) with plaintiff’s credibility condition in Proposition 4(c).

$^{17}$Analytically, this asymmetry follows immediately from Expression (5), defendant’s criteria for default: $(1 - \alpha \pi) J < \alpha C_D$. 


is paying less to the plaintiff. Because the cost of default is $J$, this option is better for the defendant (and thus worse for the plaintiff) when $J$ is low and $\pi$ is high, rather than vice versa.

**Comment.** This pattern helps explain the strong, anecdotal association between nuisance litigation and low-merit cases, despite the fact that the American Rule consigns many high-merit claims to NEV status. Not only are low-merit cases more troublesome from a normative point of view, but all else equal they are a greater burden on the parties who must pay to resolve NEV claims.

### 4.3 Sinking Costs in a Game with Multiple Plaintiffs

The basic model above assumes a game between a single plaintiff and a single defendant. One might imagine that in reality, a single defendant may face many potential plaintiffs with nuisance-value suits. If so, then investing in retained legal services may become even more attractive to the defendant. This depends crucially, however, on the extent to which the plaintiffs act independently or can coordinate their actions.

To formalize this idea, take the basic model, but with $N \in [1, \infty)$ identical plaintiffs for whom the credibility constraint is met if $R = 0$. Assume that each plaintiff must decide independently and sequentially whether to demand settlement. Define $R_N^*$ to be the optimal retainer given $N$ plaintiffs (i.e., $R_1^* = R^*$).

**Proposition 6: Multiple Independent Plaintiffs.** So long as the defendant invests $R_N^* = R^*$, i.e., pays a retainer sufficient to deter one plaintiff, then defendant deters all plaintiffs. Defendant chooses $R_N^* = R^*$ if the following two conditions are met:

- **Optimality Constraint:** \( \alpha(1 - N\alpha)(\pi J + C_D) \leq C_P - \pi J \).
- **Feasibility constraint:** \((1 + \alpha)\pi J \leq C_P\).

Otherwise, defendant chooses $R_N^* = 0$.

**Proof.** If $R_N^*$ deters the first plaintiff, the retained legal services are not consumed. Thus, when the second plaintiff must decide whether to press his claim, he is identically situated to the first plaintiff, who was (by construction) deterred. For this reason, the second plaintiff and all subsequent plaintiffs are deterred. Thus, so long as the retainer deters the first plaintiff, it deters all plaintiffs. Further, a retainer larger than necessary to deter one plaintiff is never optimal, as it increases defendant’s costs without changing the expected total settlement payments (zero).

From the Proof of Proposition 3, note that a retainer that does not deter a single plaintiff is never optimal. Thus, the defendant’s choice is between $R_N^* = R^*$, which deters all plaintiffs, and $R_N^* = 0$, which leads to $N$ settlements,
each for $S^*$. Paying $R^*$ is optimal if $R^* \leq NS^*$. This implies that $R^*_N = R^*$ is optimal if $\alpha(1 - N\alpha)(\pi J + C_D) \leq C_P - \pi J$. Given the requirement that $R^* \in [0, C_D]$, the optimal value of $R^*_N$ is only feasible if $R^* \leq C_D$. This implies $(1 + \alpha)\pi J \leq C_P$. QED.

**Numerical Example.** Take the example from Section 3.2 where $\alpha = 0.5$, $\pi J = 0$, $C_P = 100$, and $C_D = 500$. As shown there, if the defendant faces a single potential plaintiff, sinking defendant’s litigation costs will not be optimal. Yet if this defendant faces two plaintiffs who must independently decide, one at a time, whether to threaten suit, each plaintiff will be deterred by $R^*_N = 300$. A retainer is optimal; the defendant would rather pay a retainer of $300$ than two $250$ settlements.

Now, instead of assuming independent plaintiffs appearing sequentially, assume that the plaintiffs can coordinate with each other and file suit simultaneously.

**Proposition 7: Multiple Coordinated Plaintiffs.** If it is optimal and feasible when $N = 1$ for the defendant to pay retainer $R^*$, then defendant pays retainer $R^*_N = NR^*$ and deters all plaintiffs. Otherwise, defendant chooses $R^*_N = 0$.

**Proof.** When plaintiffs can coordinate their actions, they will all simultaneously file suit so long as the expected value of suit is greater than zero. Given this, the retainer must be sufficient to reduce the expected value of suit for each plaintiff to zero, conditional on all plaintiffs suing. This is achieved only with $R^*_N = NR^*$. Thus, the optimality and feasibility conditions reduce to the conditions for $N = 1$, given in Proposition 3. QED.

There is an intermediate case involves multiple plaintiffs who act independently but move simultaneously, rather than sequentially. In this game, for $R > 0$, there are three possible equilibria: no plaintiffs bring claims, all plaintiffs bring claims, or all plaintiffs employ a mixed strategy. (The latter two are ruled out if the defendant pays retainers sufficient to deter each plaintiff individually; i.e., given $N$ plaintiffs, the defendant sinks costs equal to $NR^*$. This scenario reduces to the case of a single plaintiff.) Define $M$ to be the largest whole number such that $M \leq \frac{R^*_N}{N}$. Each plaintiff strictly prefers suing if at least $M$ other plaintiffs sue, and strictly prefers not suing if fewer than $M$ other plaintiffs sue. One immediately sees that both symmetrical, pure strategy equilibria are possible (i.e., for any $R^*_N \geq R^*$, all plaintiffs sue or no plaintiffs sue). The mixed strategy equilibrium is degenerate, in that only a zero-measure set of plaintiffs will sue. This is because any mixed strategy involves some positive probability of suing and the defendant not being able to deter the plaintiff with a retainer. Since this outcome involves a strictly positive settlement, and all other outcomes involve a zero payoff, plaintiffs are not indifferent to suing, and thus will choose a pure strategy. In any event, the basic claim in the text—that plaintiffs stand to gain dramatically from coordination—holds in this scenario as well, given that one equilibrium is strictly preferred to the other, and coordination may be required in order for plaintiffs to act simultaneously at all.
4.4 Other Extensions

This model accommodates a number of other extensions. Importantly, none of these extensions change the essence of the model or its empirical predictions. These extensions include the following:

1. **Limited Front Loading of Costs.** Although the basic model placed no limits on the extent to which the plaintiff could (observably) sink litigation costs in advance of litigation, it is more realistic to assume that some types of litigation costs cannot be sunk in the pre-litigation phase. If some share of costs cannot be frontloaded, this shrinks the set of parameters for which a nuisance settlement is feasible but does not change the central results above. I discuss this further in the Appendix.

2. **Costly Front Loading of Costs.** The costs of gathering a given set of facts may be higher in the pre-litigation setting than in the discovery setting, given that fewer procedural devices are available to the plaintiff in this situation. This shrinks the set of parameters for which a nuisance settlement is feasible but does not change the central results above. I discuss this further in the Appendix.

3. **Multiple Periods of Bargaining During Litigation.** For simplicity, the model above presents litigation as occurring in a single period. Following the approach of Bebchuk (1996), one can extend the model to incorporate multiple periods of litigation in which the parties have opportunities for bargaining and in which costs and benefits of future periods are discounted. For a litigation divided into $N$ periods, over which litigation costs are spread evenly, the condition for a plaintiff’s claim to be NEV becomes $C_{F}/N > \pi J$. This expands the set of claims for which a claim is PEV, but conditional on a claim being NEV, it is straightforward to show that the optimal cost-sinking strategy of $F^{*} = C_{F} - \pi J$ remains the same. Thus, this expands the set of parameters for which a nuisance settlement is feasible, but does not change the central results above.

4. **Plaintiff’s Attorney Retainers.** One might also allow a plaintiff to sink litigation costs through a retainer. As the analysis above shows, to the extent that the plaintiff identifies a claim to bring before the defendant has an opportunity to pay a retainer, the plaintiff will press the claim (including, potentially, sinking litigation costs through costly pleading) immediately. Thus, a model in which the plaintiff can pay a retainer before the defendant can do so is equivalent to a model in which neither party can pay a retainer (and thus nests within the model as presented above). Conversely, a model in which the plaintiff can pay a retainer after the defendant can do so is equivalent to the model as presented; costly pleading is simply a case-specific retainer.
5. **NEV Defenses with Settlement Value.** The analysis so far has examined the conditions under which a plaintiff with a NEV claim can obtain a positive settlement. The analysis can also be applied to examine the conditions under which a defendant with a NEV defense can raise that defense (which is costly to litigate and may affect the expected judgment). The analysis is the same as above (with the parties reversed), except that the game for the NEV defense is a subgame within the litigation filed by the plaintiff.

6. **Risk Aversion, Unequal Discount Rates, and Non-Monetary Litigation Costs.** As I discuss in the Appendix, the model easily accommodates risk aversion, unequal discount rates, and non-monetary litigation costs with no changes to the central results above.

### 5 Empirical Predictions

The model above is intuitive and analytically tractable, but is it accurate? In this respect, the model has an advantage over existing models of nuisance suits and settlements: by incorporating not only litigation costs and expected judgments, but pleading, default, multiple plaintiffs, retainers, and so on, the model generates a number of rough, empirical predictions that are either consistent with well-recognized stylized facts or susceptible to testing. I discuss these predictions below. One must apply predictions from the model to data with care, however, as this is a symmetric-information model of litigation, and a comparable asymmetric information model may generate different predictions. Real-world litigation, of course, involves a mix of cases that can be characterized as symmetric-information and asymmetric-information disputes.

#### 5.1 Which NEV Claims Lead to Settlement or Default

The model makes a number of sharp predictions about the relationships between litigation costs, stakes, merits, and litigation outcomes. These are best illustrated in Figures 2 and 3. Unfortunately, testing all of these relationships directly requires richer data than generally available in the past. Data on case merit, in particular, is notoriously elusive.

**Prediction:** Patterns of alleged nuisance settlement activity should conform to the relationships between $C_D$ and $\pi J$ (conditional on $C_P$) summarized in Figure 2.

**Prediction:** Patterns of alleged nuisance settlement activity should conform to the relationships between $\pi$ and $J$ (conditional on $C_D$ and $C_P$) summarized in Figure 3.

**Comment.** One category of litigation that probably reflects the use of default
in a NEV litigation context is litigation by the U.S. government to recover unpaid student loan debt. Litigating a modest-sized claim to judgment may cost a plaintiff upwards of tens of thousands of dollars in federal court, a cost that will usually eclipse most federally-subsidized student loan balances.\textsuperscript{19} Thus, these claims are NEV for the plaintiff. But these claims are likely to have relatively high merit and be at least as costly to defendants to litigate. Perhaps not surprisingly, then, while defaults account for less than 5 percent of federal civil case dispositions, they account for more than half of all dispositions in cases to recover unpaid student loans.\textsuperscript{20}

5.2 Horizontal and Vertical Integration of Legal Services

Retainers paid by defendants and coordination among plaintiffs play roles in determining whether NEV claims will have settlement value. To the extent that NEV claims are a significant part of litigation practice, we should expect to see these strategies arising in contexts where they are most likely to be effective.

With respect to retainers, the ubiquity of hourly-fee arrangements rather than retainer agreements between potential defendants and their law firms seems to cut against the predictions of the model (at least if nuisance litigation is as serious a problem as sometimes alleged). Yet it is also the case that many large companies employ significant numbers of litigation attorneys in-house. These attorneys are paid a salary and thus their pay is, in function if not form, a retainer.

With respect to coordination, there are certainly many ways in which plaintiffs can, in practice, coordinate their efforts. The most obvious, though, is through retaining common counsel. For this mode to be effective, the law firm representing the plaintiffs must be large enough to coordinate the claims of many plaintiffs simultaneously.

Of course, the existence of in-house litigation departments and large plaintiffs’ law firms hardly proves the model, although they are consistent with it.\textsuperscript{21} But the model makes more specific predictions—predictions which have yet to be specifically studied, but which could be confirmed or falsified.

\textsuperscript{19}According to a recent survey by the Federal Judicial Center (Lee and Willging 2009), the median per-party cost of litigating a civil case in federal court $44,000.

\textsuperscript{20}To be specific, according to data from the Administrative Office of the U.S. Courts on all federal civil cases filed 2005–2009, 3.6 percent of all cases ended in default judgments, but 56.7 percent of student loan default cases did. (Unreported data analysis; available from author upon request.)

\textsuperscript{21}Also suggestive is the fact that retainers appear more common among defendants than among plaintiffs. As shown in Section 4.4, paying a retainer is a redundant strategy for plaintiffs, but not, as shown in Section 4, for defendants.
Prediction: Coordination by plaintiffs only affects plaintiffs’ outcomes in cases where, under the conditions of Proposition 5, parameter values are such that $R_1^* = 0$ but $R_N^* = R^*$. In other words, coordination improves plaintiffs’ outcomes when the defendant cannot deter a coordinated plaintiff strategy (i.e., when $R_N^* = NR_N^*$ is not optimal) but can deter plaintiffs acting independently. From Propositions 4 and 5, these are cases where $C_P$ is very small, or $\pi J$ is not small, relative to $C_D$. Thus, holding defendant’s costs and the merits constant, the model predicts larger plaintiffs’ law firms in contexts where plaintiffs’ costs are lower—an otherwise counterintuitive result.

Prediction: Retainers by defendants are only effective if the defendant’s optimality and feasibility conditions are met. This requires cases with relatively low $\pi J$ but also relatively low $C_D$ compared to cases that are filed and settled.

Prediction: Law firms representing plaintiffs will tend to be more specialized than law firms representing defendants. This is because, in the model, efficient cost-sinking matters to the drafting of complaints, but not answers. If specialization generates economies in the preparation of similar pleadings, then specialization should be more valuable to plaintiffs’ attorneys than defense attorneys, all else equal.

5.3 Pleading and Settlement

The model makes fairly crisp predictions for pleading behavior and the timing and value of settlements of NEV claims.

Prediction: In the model, $A^* = 0$. Thus, answers will be pleaded in minimal detail.

Prediction: In the model, if a plaintiff with a NEV claim files suit, the plaintiff will spend $F^* = C_P - \pi J$. Thus, some complaints will be pleaded with great detail (regardless of the pleading standard). Even complaints for no-merit claims will be pleaded with a degree of detail commensurate with the plaintiff’s cost of litigating.

Comment. The usual explanation for the fact that plaintiffs have long written detailed complaints, despite no legal requirement to do so, is that the complaint is the first opportunity for the plaintiff to “tell his story” and influence the judge’s attitude toward the case. This is surely true; but if so, then how can one explain the fact that defendants almost invariable answer with essentially zero detail? In contrast, this model provides clear intuition for why we might see such a striking asymmetry in the extent to which the plaintiff and the defendant “tell their stories” to the judge in the pleadings.22

22Of course, the defendant, unlike the plaintiff has a relatively short amount of time in which to draft its pleading—usually either 21 or 60 days from service of the complaint in federal court. See Rule 12(a). Yet this is the same amount of time in which a defendant may file a motion to dismiss for failure to state a claim (see Rule 12(b)), and motions
The primary objective of this paper has been to generate a general model of NEV litigation in a symmetric-information environment that synthesizes existing models, examines previously neglected aspects of NEV litigation, and generates empirical predictions that are either consistent with existing stylized facts or susceptible to testing based on new data. But this model, precisely because of its generality, may be useful in answering normative and prescriptive questions as well. I will present one example here.

This model so far has assumed no pleading standards, instead assessing what degree of pleading detail would arise endogenously as a matter of litigation strategy. This assumption, that the law requires nothing more than a nominal amount of factual and legal detail, is consistent with the traditional account of “notice pleading,” a regime of liberal pleading standards that may have prevailed in the federal courts from the promulgation of the Federal Rules of Civil Procedure in 1938 until the Supreme Court’s watershed cases *Bell Atlantic Corp. v. Twombly* (550 U.S. 544 [2007]) and *Ashcroft v. Iqbal* (556 U.S. 662 [2009]). These cases require more than “notice”: a complaint must plead facts “plausibly suggesting (not merely consistent with)” the plaintiff’s legal claim (544 U.S. at 557), and “only a complaint that states a plausible claim for relief survives a motion to dismiss” (556 U.S. at 679).23

Plausibility pleading may change the calculus of pleading and settlement in the model of nuisance suits—indeed, the Supreme Court’s opinion in *Twombly* suggests that plausibility pleading’s purpose is to change this calculus! In deploying the plausibility standard to dismiss the claims in *Twombly*, the Supreme Court implied its focus was litigation in a full-information environment. It made little secret that it was motivated by concerns about weak cases being brought against defendants who know the cases are weak but are vulnerable because their costs of defense are so high. The Court fretted over the possibility that a “plaintiff with a largely groundless claim be allowed to take up the time of a number of other people, with the right to do so representing an *in terrorem* increment of the settlement value” (550 U.S. at 558 (internal quotation marks omitted)). The very language of “plausibility” implies an attempt to weed out cases unlikely to succeed, and with respect to litigation costs, the Court in *Twombly* devoted more space in its opinion to documenting the high cost of defending an antitrust case than it did interpreting the text to dismiss are often comparable in length and cost to complaints, so detailed answers are not impracticable. But neither detailed answers nor motions to dismiss are common. As Hubbard (2014b) notes, motions to dismiss are filed in about 6 percent of cases.

23See also Rule Rule 8(a) (“A pleading that states a claim for relief must contain … a short and plain statement of the claim showing that the pleader is entitled to relief”). Once a plaintiff files a complaint, the defendant can file a motion to dismiss for “failure to state a claim upon which relief can be granted” under Rule 12(b)(6). The approach in this Section may also be sensible for studying “fact pleading,” which is required in some state courts, or other heightened standards, such as those under Rule 9 and the PSLRA.
of Rule 8 or court precedents on pleading.\textsuperscript{24}

Mapping these concepts from \textit{Twombly} and \textit{Iqbal} onto the model of nuisance suits is not without difficulty. Making plausibility pleading operational constitutes a contentious and ongoing project for the federal courts. For my purposes, I will set aside the many nuances of plausibility pleading doctrine and assume that it requires some minimum level of costly detail greater than before: $\bar{F} \in (0, C_P)$. It also requires some minimum level of merit, when previously none was required: $\bar{\pi} > 0$ but $\bar{\pi} << 1$. (Recall that this model addresses only the symmetric-information environment, so in this context merit is observable to the court conditional on spending $F$ preparing the complaint.) For simplicity, assume further that enforcing these requirements through a motion to dismiss is costless.

Given this, we obtain two sets of results. The first pair of results address the extent to which imposing plausibility pleading will change the set of claims for which the plaintiff will file suit and obtain a settlement. These results indicate that plausibility pleading has a relatively small deterrent effect on suit and settlement, even among the set of disputes that involve NEV claims and full information.

\textbf{Proposition 8: Effect on suits.}

\begin{itemize}
  \item[(8a)] $F$. The detailed pleading requirement $\bar{F}$ will have no effect on which claims the plaintiff will abandon, the defendant will deter, or the parties will settle after suit is filed, so long as $\bar{F} \leq \frac{\alpha - \alpha^2 C_P}{1 + \alpha - \alpha^2} C_P$.
  
  \item[(8b)] $\bar{\pi}$. For “frivolous” claims, such that $\pi = 0$, the pleading requirement $\bar{\pi} > 0$ will have no effect on which claims the plaintiff will file and settle rather than abandon his claim, so long as $C_D \leq \frac{C_P}{\alpha(1 - \alpha)}$. When default is an option, the threshold is $C_D \leq \frac{1 + \alpha}{\alpha} C_P$.
\end{itemize}

\textbf{Proof.} See Appendix.

\textbf{Comment.} Given equal bargaining power (i.e., $\alpha = 0.5$), pleading standard $\bar{F}$ has no effect on which claims are filed so long as $\bar{F} \leq \frac{1}{5} C_P$. In other words, so long as the plausibility pleading does not require plaintiffs to spend more than one-fifth of their total litigation costs up front, this requirement of detailed pleading will have \textit{no} effect on the rate at which claims are filed or settled! And while it is uncertain precisely how much detail is required by plausibility pleading, it seems safe to say that it does not require a plaintiff to spend more than 20 percent of his litigation costs up front. Though counterintuitive, this prediction is bolstered by the considerable evidence that the effect of \textit{Twombly} and \textit{Iqbal} has been modest at best. See Hubbard (2014b).

\textbf{Comment.} As shown above in Section 4, even without plausibility pleading,

\textsuperscript{24}The issue of costs in \textit{Iqbal} is less explicit, but the fact that the petitioners before the Supreme Court were John Ashcroft, former Attorney General of the United States, and Robert Mueller III, former Director of the FBI, loomed over the entire decision.
most of the lowest-merit claims have no settlement value or will be deterred by retainers. For \( \alpha = 0.5 \), \( \bar{\pi} \) will have no effect on frivolous case filings unless \( C_D \) is four times higher than \( C_P \). Thus, imposing the pleading requirement \( \bar{\pi} \) will affect only two sets of cases: those with very high defendant’s litigation costs relative to plaintiff’s litigation costs, and those with very high \( J \), such that \( \pi J \) is large despite \( \pi \) being low. In other words, screening on merit will have no effect on filing except for claims involving extremely asymmetric costs or extremely high stakes. It is perhaps little surprise, then, that the watershed plausibility pleading cases, \textit{Twombly} and \textit{Iqbal}, both easily fit the mold of cases with extremely asymmetric litigation costs and gigantic stakes.

The second pair of results address the extent to which plausibility pleading will affect settlement values.

**Proposition 9: Effect on settlement values.**

\( 9a \). \( \bar{F} \). Assume \( \bar{F} \leq \frac{\alpha - \alpha^2}{1 + \alpha - \alpha^2} C_P \) (i.e., no suits are deterred by \( \bar{F} \)). For claims where \( \bar{F} > C_P - \pi J \), defendants pay higher settlements, and plaintiffs receive lower net payoffs, than without \( \bar{F} \).

\( 9b \). \( \bar{\pi} \). For “frivolous” claims, such that \( \pi = 0 \), the pleading requirement \( \bar{\pi} > 0 \) will reduce to zero the settlement values of claims for which \( C_D > \frac{C_P}{\alpha(1-\alpha)} \) (or, in the extended model with default, \( C_D \leq \frac{1+\alpha}{\alpha} C_P \)). For claims with \( \pi \geq \bar{\pi} \), it will have no effect.

**Proof.** Given \( \bar{F} > C_P - \pi J \) and the Proof of Proposition 1, the equilibrium settlement is \( S^{\bar{F}} = \pi J + \alpha C_D - (1 - \alpha)(C_P - \bar{F}) > S^* \). Plaintiff’s payoff is \( S^{\bar{F}} - \bar{F} = \pi J + \alpha(C_D - \bar{F}) - (1 - \alpha)C_P < S^* - C_P + \pi J = (1 + \alpha)\pi J + \alpha C_D - C_P \).

Proposition 9(b) follows immediately from Proposition 8(b). QED.

**Comment.** Counterintuitively, plausibility pleading has an effect on strong claims. In the nuisance suit model, strong claim are pleaded in less detail, because the threat to sue is credible even without fewer costs sunk. Plausibility pleading forces plaintiffs with high-expected-value claims to sink more costs in detailed pleading in order to induce settlement. This reduces the surplus from settlement and—because the parties split the surplus when settling—reduces the net payoffs of both the plaintiff \textit{and the defendant}.

**Comment.** If enforcing the pleading standard is costly, even meritless claims may still have nuisance value, if the cost to the defendant of filing a motion to dismiss is sufficiently high that a post-filing and pre-motion-to-dismiss settlement will yield the plaintiff a positive net payoff. (This is an example of the original Rosenberg and Shavell (1985) model.) But so long as filing a motion to dismiss is not too costly, plausibility pleading will deter those claims of the lowest merit that otherwise would be filed.

Although most of the commentary on plausibility has focused on the potentially harmful effect of plausibility pleading on claims involving asymmetric
information, there are reasons to doubt that plausibility pleading standards are unlikely to have a large effect on such litigation (Hubbard 2014b; Kaplow 2013, 1269–70). Yet the model above suggests, somewhat ironically, that unintended and undesirable consequences of a higher pleading standard may arise in the context of symmetric-information litigation.

7 Conclusion

This paper presents a model that explains the (widely reported, although hard to confirm empirically) phenomenon of nuisance suits and settlements. It synthesizes insights of existing symmetric-information models of NEV litigation while maintaining analytical tractability. It shows how observed patterns of pleading practice can arise endogenously from litigation strategy, even in the absence of pleading standards. And it predicts previously unconsidered effects of plausibility pleadings standards: in the full information context, plausibility pleading may have a relatively small effect in terms of discouraging weak claims, but may worsen the outcomes for both plaintiffs and defendants in cases involving strong claims.

Nonetheless, one must exercise care in applying this model to questions of policy, as only a few of the testable empirical predictions of the model have yet been explored. The rich set of empirical predictions provided by this model may open up opportunities for empirical research on nuisance litigation; in the past, the unobservability of true case merit, coupled with few testable predictions in existing models, provided little fodder for empirical work on nuisance litigation.

Further, real-life litigation comprises a mix of symmetric-information and asymmetric-information disputes. A more complete analysis of NEV litigation would examine asymmetric-information disputes as well, a topic that a large literature has already begun to plumb.

A Appendix: Additional Extensions

As discussed in Section 4.4, a number of extensions can enrich the model, although none fundamentally change the results presented in the main body of the paper. I discuss several of them further here.

Limited Front Loading of Costs. Although the basic model places no limits

25For example, Reineke (2010) notes the historical importance of federal courts to civil rights claimants, as well as the particular difficulty that individuals with claims such as employment discrimination will have pleading specific facts about the defendant’s motives. The concern here is one of asymmetric information: only the defendant knows the defendant’s motives.
on the extent to which the plaintiff could (observably) sink litigation costs in advance of litigation, it is more realistic to assume that some types of litigation costs cannot be sunk in the pre-litigation phase. Preparing for many aspects of trial; deposing the defendant, defendant’s employees, or other potential witnesses known only to the defendant; and reviewing documents produced by the defendant in discovery are some of the costs of litigation that cannot be sunk in advance by the plaintiff.

Nonetheless, major categories of litigation cost can be sunk. Interviewing the plaintiff; identifying and interviewing any cooperative potential witnesses and preparing them to be deposed; preserving, collecting, and reviewing documents for production in discovery; drafting discovery requests; legal research and the drafting of legal arguments to address substantive and procedural issues in the case; and developing the plaintiff’s affirmative case can all be done in advance of litigation and, to varying degrees, documented in the complaint. Crucially, all or most of the costs that cannot be sunk are costs that the plaintiff need not (and often cannot) incur until after the defendant has expended its costs that correspond to plaintiff’s costs that can be sunk. For example, the plaintiff cannot review the defendant’s document production until the defendant has preserved, collected, reviewed, and produced documents; the plaintiff cannot depose defendant’s employees until the defendant has identified them and prepared them for depositions; and plaintiff need not prepare for trial until after the defendant has expended costs on all pre-trial litigation steps.

Thus, in essential respects the basic model’s logic continues to hold: by sinking the costs that can be sunk, the plaintiff generates a credible threat to proceed to a stage of litigation that will require the defendant to expend a large share of its litigation costs. (While I do not present it here, it is straightforward to extend the formal model to divide litigation costs between those that can and cannot be sunk pre-litigation.) If some share of costs cannot be frontloaded, this shrinks the set of parameters for which a nuisance settlement is feasible, but does not change the central results above.

**Costly Front Loading of Costs.** There is also the fact that the costs of gathering a given set of facts may be much higher in the pre-litigation setting than in the discovery setting, given that fewer procedural devices are available to the plaintiff in this situation. Note, however, that for frivolous claims there is, by construction, no new information and no merit to discover.

In this regard, one may wonder how a plaintiff with a meritless claim can expend costs on detailed pleading. It is worth noting that the model in Section 4 does not require that the details of the complaint, if true, tend to prove plaintiff’s case. Instead, the model only requires that the details in the complaint reflect the expenditure of effort that otherwise would have to occur after the complaint was filed. In this respect, documenting a failed investigation works as well as documenting a successful one! If this sounds far-fetched, it may be. But consider the possibility that, at least to the eyes of
seven Supreme Court justices, this is exactly what the complaint in *Twombly* did.\(^{26}\)

Of course, for claims that are brought because of their merit (including some NEV claims), plaintiffs may need to conduct more development of the facts and evidence (even in a symmetric-information environment) to take the case to judgment, and these efforts could be more expensive in the pre-litigation stage.\(^{27}\) Also, to the extent that the parties discount future payoffs, front loaded litigation costs are undiscounted, unlike costs incurred during litigation. Thus, discounting of future payoffs will reduce the benefits of front loading.

It is straightforward to extend the formal model to allow for litigation activity to be more costly pre-filing than post-filing, such that an expenditure \(F\) in preparing the complaint reduces \(C_P\) by only \(\beta F\), where \(\beta \in [0, 1]\). This shrinks the set of parameters for which a nuisance settlement is feasible, but does not change the central results above.

*Risk Aversion, Unequal Discount Rates, and Non-Monetary Costs.* The model can accommodate risk aversion and non-monetary litigation costs with no changes to the substance of the model. The value of non-monetary litigation costs, such as reputational harms or bad publicity during litigation or anxiety over appearing in court, can be incorporated into \(C_P\) and \(C_D\). Conversely, benefits from the process of litigation itself, such as the utility a plaintiff receives from having his day in court, can be incorporated as negative costs.

Risk aversion is simply a species of litigation cost, given that litigation is risky and settlement eliminates the risk. Formally, the difference between the expected judgment and the certainty equivalent of a future judgment for each party can be incorporated into each party’s litigation costs and thus is part of the surplus from settlement. To the extent that the parties differ in their risk aversion, this is equivalent to a difference in their litigation costs.

As noted above, incorporating discounting of future payoffs affects the set of claims for which a strategy of front loading litigation costs is optimal. Discount rates may also affect outcomes insofar as they are unequal between the parties. In this respect, though, the difference in the parties’ discount rates can be easily (if somewhat roughly) conceptualized as a determinant of \(\alpha\), the measure of bargaining power. Whichever party discounts the future more will capture a smaller share of the surplus from settlement.

\(^{26}\)See Consolidated Amended Class Action Complaint, *Twombly v. Bell Atlantic Corp.*, No. 02 CIV 10220 (S.D.N.Y. filed April 14, 2003) (This complaint was 29 pages long, with 94 of 96 numbered paragraphs “based upon . . . the investigation of counsel.”)

\(^{27}\)In the asymmetric information setting, of course, it is natural to assume that development of certain facts in litigation may be less expensive than development of those facts pre-litigation.
B  Appendix: Additional Proofs

B.1  Proof of Proposition 4

From Proposition 1, we have \( F^* = C_p - \pi J, A^* = 0 \), and \( S^*(R) = \alpha(\pi J + C_D - R) \). Note that \( A^* \) and \( S^*(R) \) are unaffected by the addition of default, because they occur later in the game, and the game is solved by backwards induction. Further, \( F^* \) is unaffected. Were plaintiff to file suit with any \( F < F^* \), the defendant answers at cost \( A^* = 0 \) and then plaintiff drops the suit at payoff \(-F\), which is (weakly) worse than doing nothing at all; the option for default thus does not affect \( F^* \). And as shown below, plaintiff files suit in equilibrium only if \( R^* = 0 \). Proposition 4(b) QED.

Conditional on plaintiff filing suit, defendant’s payoff from default is \(-J - R\), while its payoff from settling is \(-S^*(R) - R\). Thus, defendant prefers default when \( J < S^*(R) \). As shown below, plaintiff files suit in equilibrium only if \( R^* = 0 \). Thus, defendant will default when \( J < \alpha(\pi J + C_D) \). Rearranging yields \((1 - \alpha \pi)J < \alpha C_D\). Proposition 4(a) QED.

In this extension, the Credibility Constraint depends on whether the defendant will default or settle. Defendant’s payoff from default is \(-J - R\), while its payoff from settling is \(-S^*(R) - R\). Thus, defendant chooses default if \( J < S^*(R) = \alpha(\pi J + C_D - R) \). If this condition is met, then defendant will default, and plaintiff’s payoff will be \( J - F^* = J - C_p + \pi J \). Otherwise, plaintiff’s payoff will be \( \alpha(C_d - R) + (1 + \alpha)\pi J - C_p \). Plaintiff’s claim is credible so long as his payoff exceeds zero. Proposition 4(c) QED.

Next, the defendant’s choice of retainer will be, as in Proposition 3 above, either \( R^* = 0 \) or \( R^* = \left(\frac{1+\alpha}{\alpha}\right)\pi J - \frac{C_p}{\alpha} + C_D \). The net payoff to defendant if defendant chooses \( R \) such that plaintiff still sues is either \(-J - R\) or \(-\alpha(\pi J + C_D) - (1 - \alpha)R\), both of which are decreasing (more negative) in \( R \). Thus, unless defendant can deter filing all together, defendant will choose \( R^* = 0 \).

Now note that plaintiff’s Credibility Condition when defendant will default does not depend on \( R \). Thus, the choice of retainer cannot deter plaintiff if defendant will default in equilibrium. Next, note that \( S^*(R) \) is decreasing in \( R \). Thus, the choice of \( R > 0 \) can never make default preferable to settlement when settlement is preferable to default for \( R = 0 \). Thus, retainer can operate in only two ways: First, when plaintiff would file and defendant would settle if \( R = 0 \), and \( R > 0 \) reduces the value of settlement to the point that plaintiff will not file suit. Second, when plaintiff would file and defendant would default if \( R = 0 \), but \( R > 0 \) reduces the value of settlement to the point that defendant will choose to settle rather than default, and plaintiff will consequently not file suit.

In both these scenarios, the retainer must be sufficient to reduce plaintiff’s payoff from filing and settlement to zero; this retainer amount is given
by Proposition 3. Likewise, the Feasibility Constraint from Proposition 3 is unaffected.

Turning to the Optimality Constraint, for \( J \geq \alpha (\pi J + C_D) \), default is irrelevant and the Credibility Constraint from Proposition 2 holds. If, however, \( J < \alpha (\pi J + C_D) \), then the payoff from \( R^* = 0 \) is \(-J\). With \( R^* > 0 \), plaintiff is deterred from filing, so the payoff is \(-R^*\). In this case, it is optimal for defendant to pay a positive retainer when \( J \geq R^* \) or:

\[
J \geq \left( \frac{1 + \alpha}{\alpha} \right) \pi J - \frac{C_P}{\alpha} + C_D
\]

(10)

Proposition 4(d) QED.

**B.2 Proof of Proposition 5**

Without loss of generality two plaintiffs, indexed 1 and 2, such that \( \pi_1 > \pi_2 \), \( \pi_1 J_1 = \pi_2 J_2 \), and

\[
\pi J > C_P - \frac{\alpha (1 - \alpha) C_D}{1 + \alpha - \alpha^2}
\]

(11)

Note that this implies that \( J_1 < J_2 \), that Plaintiff 1 is the higher-merit plaintiff, and that it is never optimal for the defendant to pay a retainer. There are five cases to consider.

Case 1: Both plaintiffs obtain default judgments. In this case, the payoff to plaintiff \( i \) is \( J_i - C_P + \pi_i J_i \). Because \( J_2 > J_1 \) and \( \pi_1 J_1 = \pi_2 J_2 \), the lower-merit plaintiff is strictly better off.

Case 2: Both plaintiffs obtain settlements. In this case, the payoff to plaintiff \( i \) is \( \alpha C_D + (1 + \alpha) \pi_i J_i - C_P \). Because \( \pi_1 J_1 = \pi_2 J_2 \), the two plaintiffs receive equal payoffs.

Case 3: Plaintiff 1 obtains a default judgment and Plaintiff 2 obtains a settlement. In this case, the payoff to Plaintiff 1 is \( V_1 = J_1 - C_P + \pi_1 J_1 \). The payoff to Plaintiff 2 is \( V_2 = \alpha C_D + (1 + \alpha) \pi_2 J_2 - C_P \). Because \( \pi_1 J_1 = \pi_2 J_2 \), the difference in payoffs is \( V_2 - V_1 = \alpha (C_D + \pi_1 J_1) - J_1 \). Because Plaintiff 1 obtains a default judgment, we know from Proposition 4a that \( J_1 < \alpha (C_D + \pi_1 J_1) \). Thus, \( V_2 - V_1 > 0 \); the lower-merit plaintiff is strictly better off. Note that the converse of Case 3 never occurs—it cannot be the case that the lower-merit plaintiff obtains a default judgment if the higher-merit plaintiff obtains a settlement. This follows from Proposition 4(a).

Case 4: Plaintiff 1 has no credible threat to sue and Plaintiff 2 has a credible threat to sue. It follows immediately that that the lower-merit plaintiff is strictly better off. Note that the converse of Case 4 never occurs—it cannot be the case that the lower-merit plaintiff has no credible threat if the higher-merit plaintiff has a credible threat. This follows from Propositions 2 and
Case 5: Neither plaintiff has a credible threat to sue. It immediately follows that the two plaintiffs receive equal payoffs. QED.

B.3 Proof of Proposition 8

For parameter values such that \( \bar{F} \leq C_P - \pi J \), \( \bar{F} \) is not binding and thus has no effect. For parameter values such that \( \bar{F} > C_P - \pi J \), first solve the model (as shown in Section 4) with the additional constraint that \( F^* = \max\{\bar{F}, C_P - \pi J\} \). This yields the following constraints:

Credibility Constraint: \( \pi J + \alpha(C_D - R) - (1 - \alpha)C_P - \alpha \bar{F} > 0 \).

Feasibility Constraint: \( \pi J - (1 - \alpha)C_P - \alpha \bar{F} \leq 0 \).

Optimality Constraint: \( \alpha(1 - \alpha)C_D + (2\alpha - \alpha^2)(C_P - \bar{F}) - \alpha \pi J \leq C_P - \pi J \).

For \( \bar{F} \) to change plaintiff’s decision to file suit or the defendant’s decision to pay a retainer, it must be the case that either the claim satisfies the credibility constraint without \( \bar{F} \) but cannot meet the constraint with \( \bar{F} \), or a retainer payment is not made without \( \bar{F} \), but is both feasible and optimal with \( \bar{F} \).

First, consider the credibility constraint. The plaintiff satisfies it without \( \bar{F} \) if \( (1 + \alpha)\pi J + \alpha C_D - C_P > 0 \), and the plaintiff fails the condition with \( \bar{F} \) if \( \pi J + \alpha C_D - (1 - \alpha)C_P - \alpha \bar{F} \leq 0 \) and \( \bar{F} > C_P - \pi J \). Define \( \bar{F}^{Cred} \) to be the largest value of \( \bar{F} \) for which \( \bar{F} \) does not affect credibility for any value of \( C_D \) or \( \pi J \).

This yields \( \bar{F}^{Cred} = \frac{\alpha}{1 + \alpha} C_P \). Note that the solution to \( \bar{F}^{Cred} \) involves setting \( C_D = 0 \).

Second, consider the feasibility constraint. Define \( \bar{F}^{Feas} \) to be the largest value of \( \bar{F} \) for which \( \bar{F} \) does not affect feasibility for any value of \( C_D \) or \( \pi J \). Given that the solution to \( \bar{F}^{Cred} \) implies \( C_D = 0 \), the solution for feasibility reduces to the solution for credibility: \( \bar{F}^{Feas} = \bar{F}^{Cred} \).

Third, consider the optimality constraint. The plaintiff satisfies it without \( \bar{F} \) if \( \alpha(1 - \alpha)(\pi J + C_D) > C_P - \pi J \), and the plaintiff fails the condition with \( \bar{F} \) if \( \alpha(1 - \alpha)C_D + (2\alpha - \alpha^2)(C_P - \bar{F}) - \alpha \pi J \leq C_P - \pi J \) and \( \bar{F} > C_P - \pi J \). Define \( \bar{F}^{Opti} \) to be the largest value of \( \bar{F} \) for which \( \bar{F} \) does not affect optimality for

---

28Note that by allowing \( \bar{F} \), \( C_D \), and \( \pi J \) to vary, I treat \( C_P \) as the numeraire value; I express the minimum cost of pleading detail \( \bar{F} \) in units of \( C_P \).

29Technically, the inequalities above define an open set comprising all values of \( \bar{F} \) such that \( \bar{F} > C_P - \pi J \) affects credibility. The infimum of this set is thus the largest value of \( \bar{F} \) such that \( \bar{F} \) does not affect credibility. This is the value for which Equation (12) solves.
any value of \( C_D \) or \( \pi J \). This value is solved by:

\[
F^{Opti} = \min_{\{\pi J, C_D\}} \max\left\{ \frac{1 - \alpha}{2 - \alpha} C_D - \frac{1 - 2\alpha + \alpha^2}{2\alpha - \alpha^2} C_P + \frac{1 - \alpha}{2\alpha - \alpha^2} \pi J, C_P - \pi J \right\}
\]  
(13)

This yields \( F^{Opti} = \frac{\alpha - \alpha^2}{1 + \alpha - \alpha^2} C_P < F^{Cred} \). Thus, the largest value of \( F \) for which it has no effect on which claims settle is \( F^{Opti} = \frac{\alpha - \alpha^2}{1 + \alpha - \alpha^2} C_P \). Proposition 8(a) QED.

For \( \pi = 0 \), even without \( \bar{\pi} > 0 \), the plaintiff will not bring the claim if either the credibility constraint is not met, or if the optimality and feasibility constraints are met. In the basic model, from Propositions 2 and 3, it follows that for \( \pi = 0 \), there will be no suit and settlement so long as \( C_D \leq \frac{C_P}{\alpha(1 - \alpha)} \). In the extended model with default, from Proposition 4, it follows that for \( \pi = 0 \), there will be no suit and settlement so long as \( C_D \leq \frac{1 + \alpha}{\alpha} C_P \). 30 Proposition 8(b) QED.

References


30 This prediction of little or no effect is only reinforced to the extent that Rule 11 deters low-merit claims independently of any pleading standard.


Figures

Figure 1: Game Tree for the Basic Model

\[
\begin{align*}
\text{Retainer R} & \quad \text{File} \quad \text{Do Not File} \\
D & \quad P & \quad (0, -R) \\
\quad & \quad Filing Cost F & \\
& \quad Answer Cost A & \\
& \quad P/D & \\
& \quad \text{Settle for S} & \quad (S - F, -S - A - R) \\
& \quad Litigate & \quad (\pi J - c_p, -\pi J - c_D) \\
& \quad Judgment & \\
& \quad Drop Case & \quad (-F, -A - R)
\end{align*}
\]
Figure 2: Basic Model Outcomes Depending on $C_D$ and $\pi J$ relative to $C_P = 1$, given $\alpha = 0.5$
Figure 3: Strategic Default Model Outcomes Depending on $\pi$ and $J$ given $C_P = 1$, $C_D = 1.5$, and $\alpha = 0.5$. 
Figure 4: Welfare Effects of Option for Default Depending on $\pi$ and $J$ given $C_P = 1$, $C_D = 1.5$, and $\alpha = 0.5$
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<td>The Laws of War and Public Opinion: An Experimental Study</td>
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