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Christina L. Boyd
University of Georgia

David A. Hoffman
University of Pennsylvania Carey Law School

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Litigating Toward Settlement[†]

Christina L. Boyd, J.D., Ph.D.

Assistant Professor

Department of Political Science

University at Buffalo, SUNY

cLboyd@buffalo.edu

David A. Hoffman

Professor of Law

Beasley School of Law

Temple University

david.hoffman@temple.edu

Abstract

Civil litigation typically ends when the parties compromise. While existing theories of settlement primarily focus on information exchange, we instead examine how motion practice, especially non-discovery motions, can substantially shape parties' knowledge about their cases and thereby influence the timing of settlement. Using docket-level federal district court data, we find a number of strong effects regarding how motions can influence this process, including that the filing of a motion significantly speeds case settlement, that granted motions are more immediately critical to settlement timing than motions denied, and that plaintiff victories have a stronger effect than defendant victories. These results provide a uniquely detailed look at the mechanism of compromise via information exchange and motion practice in litigation while simultaneously yielding evidence that this effect goes well beyond the traditionally studied discovery process.

A generation of interdisciplinary legal scholars has worked to understand settlement's propriety, timing, incidence, and causes. This attention is not surprising given that most filed civil cases settle (Galanter, 2004; Eisenberg and Lanvers, 2009). Indeed, settlement within formal litigation is but a part of an attenuated dispute resolution process which may entail several rounds of pre-complaint negotiation and continue well after the "case" has formally terminated (Clermont and Eisenberg, 2002). Galanter (1985) minced no words when describing the landscape of disputes: "[T]he negotiated settlement of civil cases is not a marginal phenomenon; it is not an innovation; it is not some unusual alternative to litigation. It is only a slight exaggeration to say that it *is* litigation" (1).

Lawsuits begin with many known unknowns. A single filed complaint may advance multiple, often competing, theories and causes of action. The plaintiff needs to have only a reasonable belief that her version of the facts is accurate, and along the way she will likely rely on discovery to know whether that faith is defensible. Though individual defendants might be expected to know what they've done, entities will have to devote time to investigation before knowing what – if anything – actually happened. The court's perspective on the relevant doctrine may at times be predictable, but its view of the facts will likely be shaped by factors both remote from the merits and exceedingly difficult to observe. Even if the parties were not already adversely positioned, such informational gaps and barriers present formidable hurdles to the agreement of the parties and the settlement of their cases (Priest and Klein, 1984).

What then can explain how cases progress toward settlement? The empirical evidence has frustrated those hoping to find a conclusive answer to this question. The settlement "rate" – the overall chance that a case in a given dataset will settle – varies by jurisdiction, case type, time, lawyering, judicial demographics and party characteristics (Eisenberg and Lanvers, 2009). But this heterogeneity may obscure the role that information exchange through motion practice plays in

motivating settlement in individual disputes. Indeed, one of just a handful of factors that distinguish formal litigation from dispute resolution outside of courts is that it provides the parties with a powerful tool – litigant-controlled motions – that enables them to force the exchange of information. In short, motion practice makes litigation dynamic and reflexive, permitting parties¹ to learn about their cases (Kritzer, 1986).

In the case of discovery, that learning process is direct. It is therefore not surprising that much of the scholarship examining litigant learning and settlement, theoretical and empirical alike, has focused on the possible effect of discovery on case settlement (e.g., Shavell, 1989; Farber and White, 1991; Huang, 2007). While discovery practice is the most salient way that this intra-litigation information exchange and learning takes place, the filing and resolution of other motions produces two additional sources of information: how the filing party understands the facts and law – their strategy for the case – and how committed they are to the case – the kind of resources they are willing to expend. When the court is induced to rule, even when that ruling does not end the case, the parties gain a fourth source of information – what the court thinks about the legal merits and facts. Because most accounts of settlement begin by assuming that it is uncertainty and/or asymmetric information about cases that prevents compromise (Bebchuk, 1984; Priest and Klein, 1984), the process of litigation can be a way in which education toward compromise happens.

In this study, we seek to further examine this progression of cases toward settlement by testing the effect of the filing and disposition of motions on the timing of settlement. We begin in section 1 by developing a theory and five hypotheses for how information exchange through motions practice is likely to motivate case settlement in certain trial court cases. In particular, we expect that motion filing, content, and outcome, and movant identity may affect settlement timing in a case. In section 2, we detail our data and methodology for carrying out our empirical tests. As we describe there, this study utilizes an original dataset of 585 cases filed in federal district courts in

which plaintiffs sought to pierce the corporate veil, thereby holding a defendant business entity's individual owners liable beyond the company itself. To empirically analyze time to settlement in these cases (while accounting for both other, non-settlement termination methods and ongoing cases), we estimate a series of competing risks duration models (one for each motion-specific hypothesis) in section 3. After doing so, we find, among other things, that the mere filing of a motion in a case hastens settlement. In short, the time to settlement can be influenced by the dynamic characteristics of the litigation preceding it. In sections 4 and 5, we discuss the significance of these results, including how they provide a controlled and uniquely detailed look at the mechanism of compromise via information exchange and litigation in the federal courts while also yielding evidence that this effect goes well beyond the traditionally studied discovery process.

1. Theory & Hypotheses

Early modeling of settlement, consisting largely of economics-based theoretical accounts, focused on how the interaction of the parties' subjective probabilities of victory, divergent expectations, error-prone calculations of their likelihood of success, and asymmetrical information, along with the cases' stakes and costs of litigation affect settlement rates (Posner, 1973; Priest and Klein, 1984; Bebchuk, 1984). This research generally predicted that the farther apart the opposing litigants were in terms of these metrics, the less likely they should be to settle.

Over time, research has ventured to test these theoretical models quantitatively. This work has found that factors such as, for example, the parties' experience and status (Waldfogel, 1998), case importance or severity (Landes, 1971; Elder, 1989), and repeat attorney interaction (Johnston and Waldfogel, 2002) can all play a systematic role in predicting the likelihood of case settlement. One notable line of this empirical research focuses on the specific effect of discovery in reducing informational uncertainties and asymmetries and thereby promoting case settlement. As Farber and

White (1991) put it, “[t]he two-way exchange of information during the discovery process encourages resolution of cases without trial by making the information available to both sides more alike and by increasing the likelihood that both parties have the same expectation about the trial outcome” (201). Quantitative work, including studies of medical malpractice cases in U.S. litigation (Farber and White, 1991) and general Taiwanese civil lawsuits (Huang, 2007), provides strong support for this discovery-settlement effect.

Scholars have also considered, though to a much lesser degree, the duration of litigation and timing of case settlement. They find, for example, that institutionalized legal rules, such as those involving fee-shifting and fee structures (Fournier and Zuehlke, 1996; Helland and Tabarrok, 2003), comparative negligence rules (Kessler, 1996), and liability standards (Chang and Sigman, 2000) can influence the time to case termination and settlement.

Due largely to data limitations, only a small handful of settlement-timing empirical pieces have begun to make a connection between information exchange and the timing of case settlement. Spurr (1997) finds, for example, that cases settle more quickly when they have been referred to a settlement specialist during the litigation. Johnston and Waldfogel (2002) discover an effect on settlement timing due to the repeat interaction of attorneys and their corresponding ability to reach swifter litigation compromises. Similarly, Fenn and Rickman (1999) find strong effects on settlement timing based on parties’ costs and liability calculations, as well as on the presence of legal aid. Kotkin (2007) finds that settlement amount increases after the filing of a motion. These articles certainly advance our understanding of this process but are also, understandably, limited by litigation-specific variables that are measured at one point in time (usually case filing or settlement).

Following in the footsteps of this work on settlement timing, we seek now to gain a better theoretical understanding of the micro-level dynamics of litigation and how this affects when in the

life of a dispute settlement is likely to happen. Settlement, as we have discussed, can occur at any moment after injury and takes different forms. It need not entail a transfer of wealth from the offending party to the disputant, and, famously, is almost always privately concluded without judicial intervention or sanction.² Indeed, most disputes are resolved via formal or informal compromise prior to the filing of a complaint, as the injured party either bears its losses or the injurer makes a pre-filing payment (Aubert, 1967; Miller and Sarat, 1980-81; Trubek et al., 1983).

When the parties fail to settle during the early stages of dispute resolution, injured parties can initiate formal proceedings.³ There are, we suggest, two general kinds of cases that meet this threshold. The first are ones in which the parties, through shared experiences or pre-filing communication, share an understanding of the facts and the putative plaintiff's damages. However, they have disagreed as to whether the plaintiff has the resources, or motivation, to escalate the dispute and pursue litigation. To borrow a poker parlance, the defendant believes that the plaintiff is bluffing in his threat to involve the courts. The complaint is a response, turning up the Aces in the plaintiff's hand (Clermont et al., 2010). Such cases are likely to end quite early in the life of a lawsuit, ordinarily without resorting to the formal litigation process (Rosenberg and Shavell, 1985; Nielsen et al., 2010).

In other cases, there has been relatively little interaction between the parties, or at least they have not had the number and quality of discussions necessary to close the informational gaps between them. Because of this, the parties remain divided at case filing by their views of the facts or the legal merits. As has been classically described, such cases are marked by asymmetrically held information (Farber and White, 1991). For compromise or settlement to become a reality, information exchange is crucial. While remaining mindful of the existence of the former group of filed cases (the “early settler, no litigation activity” lawsuits), we focus here primarily on this latter

group of cases, an emphasis that allows us to more closely examine the relationship between information exchange and the timing of settlement once formal litigation commences.

To do this, we turn first to behavioral psychology, which provides an explanation for why cases in this latter group do not and should not settle at an even rate over time. Korobkin and Guthrie (1994), Rachlinski (1996), Guthrie (2000), and Korobkin (2002) have argued that individuals' settlement decisions are influenced by their reference points. The simple version of the theory is that plaintiffs view the choice between settlement and non-settlement as between two gains, one certain and one contingent. Defendants, who can only lose money in litigation, see two losses, with settlement being certain and trial merely possible. Given that choice, says prospect theory, plaintiffs should be risk averse and prefer settlement (the sure over the uncertain gain) while defendants should be risk seeking and prefer trial, even if the parties agree on what the relevant probabilities are (Rachlinski, 1996).

As later work has explored, this reference setting can be complicated: if the plaintiff sees the litigation through the lens of how it looked before any injury, "gains" in settlement may actually feel like losses, and thus these uncompensated plaintiffs will prefer rolling the dice (Korobkin and Guthrie, 1994). What is clear is that these reference points may change during the life of a lawsuit. Plaintiffs may adapt to the losses they have suffered (Bronsteen et al., 2008). Or the defendant, who we have assumed views the lawsuit as all loss, may see a preliminary ruling from a judge validating its position in part as a psychological victory: settlement preserves the gain (or at least avoids the loss). Thus, as the litigation develops, the parties' basic orientation – "I'm currently ahead, the future is a choice between types of losses" or "I'm currently behind, the future can only be better" – can shift, and the shifts may be dramatic. These reference point changes will influence the settlement rate.⁴

Also relevant here is a distinct theory that relies on rational litigants but also incorporates insights from the valuation of options. Real options theory posits that the parties update their expectations about the variance of outcomes that might result from litigation, based on information coming from the court and from the other parties (Grundfest and Huang, 2006). As variance increases, the “option” to remain in the lawsuit becomes significantly more valuable; as it decreases, so does the value of the option and therefore the amount that the party would demand in settlement.

Notably, both psychological and real options theory depend on the parties updating their views of the case as it develops. This learning process relies crucially on the actions of the parties in filing motions. Consider the parties’ settlement posture before the filing of a motion to dismiss. They have asymmetric information about the facts, but are symmetrically unclear on how the court will respond to the uncertain legal theories, particularly if they have not litigated the issue before their assigned judge or magistrate in previous litigation. If the defendant does not make a motion, the playing field for settlement will be unchanged (or very close to unchanged) after the filing of the complaint.⁵ Factors present at filing will dominate settlement’s incidence and timing.

If the parties do engage in motion practice, the informational content of the case changes – even before the other party has a chance to respond and the court to rule. As we have suggested, motion practice provides at least four distinct kinds of information to the parties.⁶

The first – and most intuitive and commonly studied – is *factual*. A motion to compel, if granted, forces the disgorgement of documents or testimony from one party, updating the other party and reducing information asymmetries. Similarly, the documents appended to motions, even if previously disclosed, can highlight for a party the facts which search costs might have otherwise obscured (Huang, 2007). Of course, almost all factual discovery occurs without motion practice, as

the parties exchange documents, take depositions, and answer interrogatories without any court intervention. Indeed, motions to compel probably indicate that the ordinary mechanisms of information exchange have broken down. *Factual discovery*, with or without court intervention, is the form of information exchange that most empirical scholars to date have focused on, and it is a very important driver of settlement.

But discovery is not the only way that formal litigation can inspire compromise. A second kind of information is *strategic*. The filing of a motion to dismiss, for instance, tells the plaintiff about the defendant's perspective on the case, including, for example, the cases that he will rely on throughout the litigation and his theory of non-liability. The responsive brief similarly informs the defendant about the plaintiff's view of the law. Because various theories have distinct probabilities of relief – and require the parties to expend different amounts of resources – this opportunity for strategic learning is precious.

The third source of information is the kind of *resources* the parties wish to spend on the case. Learning about resource allocation is indirect and turns in part on the degree of polish on the papers. Did the party spend money to be sure that the brief was carefully cite- and fact-checked, the tabs pointing to the appropriate exhibits, the writing especially clear, and the arguments freshly generated? Lawyers probably know, looking at a brief, whether the other side is going all out to win the particular motion, or has made a filing in the usual course. This resourcing decision, in turn, can update the parties' views of how much the case is worth, the likelihood of protracted litigation, and the other side's reservation value in bargaining. Indeed, the mere filing of a motion may force a party to expend resources in response that it would rather have conserved. Motion practice thus may signal a party's commitment to the litigation.

Fourth, motion practice may produce *information about the judge*. When the court rules, assuming that it passes on dismissing the action entirely, the parties learn a tremendous amount about how the court sees the case. Does the court see a nuisance suit, scorned and humbled, but sent through to discovery? Will the judge be closely involved with the merits, pruning claims away? Which issues are set up for resolution at summary judgment, and what standards does the court provide about the scope of discovery? (Kritzer, 1986)

These four kinds of informational exchange imply that different kinds of motions, made by various parties, resolved or left pending by the judge, at distinct times, will have different kinds of influence on the amount of total information available. This leads us to our hypotheses.

Hypothesis 1: The filing of a motion will increase settlement speed

As we have explained, the mere filing of a motion should bring the parties to the bargaining table, by motivating learning and the updating of the parties' subjective beliefs.⁷ Filing a motion implicates each of the first three sources of information exchange – *strategy, resources, and facts*. Thus, regardless of the disposition of the motion (granted or denied, in whole or part, or pending), we expect to see an uptick in the rate of settlement following its filing.

Hypothesis 2: Granted motions will increase the settlement speed rate more than denied motions

Substantive motions that do not end the case – e.g., a plaintiff's motion to certify a class or a defendant's motion for partial dismissal or partial summary judgment – can be granted or denied. When granted, we would expect that the court will provide more information to the parties than if the court denied the motion, if only because the decision to say “no” may mean “not yet.” There is also evidence that denied motions to dismiss are almost never explained in written opinions (Hoffman et al., 2007). Thus, the amount of information conveyed by a judge in a granted motion will often exceed the amount of information conveyed by a judge in a denied motion.

Hypothesis 3: Plaintiff interstitial victories will prompt faster settlement than defendant victories

At judgment, defendants generally win more cases than plaintiffs do – a function of multiple factors, including selection, disparities in resources, the burden of proof, and anti-plaintiff bias (Siegelman and Donohue, 1995). For example, Parker (2006) found that racially based employment discrimination cases settled after plaintiff motion-level victories more often than after defendant motion-level victories, while Kaplan et al. (2008) found that plaintiffs recovered more in settlement than they did at trial and that workers whose claims were exaggerated tended to settle less often. This suggests that when plaintiffs do win at the interstitial stage (i.e., a victory that does not end the case) such wins will be more informative - in the sense of revealing the real strength of the plaintiff's case - than when the defendants win such intermediate motions. In our dataset, consisting of veil piercing cases, we have an additional reason to expect this result: plaintiff interstitial victories will make it more likely that individual defendants' personal assets will be exposed to a liability judgment. Given that defendants' prior expectations in such cases is that their personal assets will be protected by the entity's veil, any plaintiff success will be likely to provide an important and highly salient new piece of information about the case's settlement value.

Hypothesis 4: Motions that turn on the application of law to fact will be more likely to influence settlement than those that are resolved on the pleadings

The informational content of dispositions is likely to increase over time, as the factual picture develops and the judge pays more attention to the case.⁸ In part, this is a function of incentives: judges have a limited amount of time to spend on a given case and rationally will choose to do so in the factual position best developed for review and which is most likely to face an appellate challenge. Therefore, as compared to motions resolved on the pleadings (such as motions to dismiss, arbitrate, remand, or strike), motions that turn on application of law to fact (e.g.,

summary judgment, class certification, evidentiary rulings, and patent construction) will likely contain more information because the court has devoted more resources to their production. Being more informative, such resolutions will decisively influence the settlement process (Rave, 2006).

Hypothesis 5: Motions seeking clarification of particularly uncertain law will be more likely to influence settlement timing than motions seeking clarification of certain law

Since our theory depends on the positive influence of learning, we expect that motions targeting legal issues that are generally thought to be difficult or obscure will have a greater influence on settlement than motions targeting doctrines the parties know better. Our dataset examines veil piercing cases, an area of law famously decried as “rare, severe, and unprincipled” (Easterbrook and Fischel, 1985) and an “unprincipled hodgepodge of seemingly ad hoc and unpredictable results” (Millon, 2007). In our data, we can distinguish between motions that ask judges to resolve an issue related to piercing the veil – such as veil piercing specific discovery, or a motion to dismiss targeted at the veil piercing allegation – from motions that are not so specifically focused. We expect that veil specific motions, because they potentially resolve a particularly uncertain doctrine, will have a more significant influence on the settlement rate than ordinary litigation practice.

We contend that these five motion-related hypotheses are causal in nature, since they meet the standard articulated by Holland (1986): “[t]he key notion . . . is the *potential* (regardless of whether it can be achieved in practice or not) for exposing each unit to the action of a cause” (946).

Although concerns regarding correlation and reverse causation are inescapable in observational data studies like ours (Winship and Morgan, 1999), we are inclined to discount that objection for our central hypotheses.⁹ With Hypotheses 1, for example, we expect that the filing of a substantive motion in a case, and the resulting information that it puts into circulation among the case actors, can *cause* the moment of settlement in the case to move up. The reverse of this, that imminent

settlement causes motion practice and information exchange, is untenable since, as our cases without any motions or litigation activity reveal (discussed in further detail below), engaging in post-filing motion practice is not the most efficient way to settle cases when the parties have already approached a fully informed compromise position.¹⁰

We are less certain about the causal story for one particular kind of motion – those concerning discovery. Discovery motions can either seek to prevent disclosure (a motion for a protective order) or, more commonly, prompt it (a motion to compel). Thus, some granted discovery motions will enable crucial information exchange – for example, an order that denies a privilege claim and requires the disclosure of a particularly damaging document. But, more typically, discovery motions signal that the parties are *failing* to exchange information as they would in the ordinary case. This raises a problem not of causation but of selection.¹¹ Thus, it is very hard to know what inferences to draw from the filing or the grant of a discovery motion.¹² It is for this reason that we separately control for these motions.

2. Data & Methods

To test our hypotheses, we examined federal trial court litigation, from case filing through settlement. We collected cases in which plaintiffs sought to pierce the corporate veil: the database contains 697 separate district court cases filed from 2000 to 2005, a 78% random sample of all eligible and available federal veil piercing cases within this period. To meet our criteria of “eligible and available” and be included in our sampling population, a case’s complaint had to be present in Westlaw’s Trial Pleadings Database,¹³ filed in a federal district court,¹⁴ and include at least one veil piercing claim.¹⁵ We exclude from this sample 112 cases that terminate via default judgment, bankruptcy, remand, and transfer or that contain lengthy, non-terminal stays.¹⁶ Of the remaining 585 cases, we focus primarily on the 452 that terminate via settlement.¹⁷

For coding events, parties, and activity in each case, we utilized the pleadings, the docket, and any other relevant case documents electronically attached to the docket.¹⁸ After gathering the primary pleading from Westlaw, we turned to PACER (“Public Access to Court Electronic Resources”) to retrieve the case docket and other case documents.

This dataset of veil piercing lawsuits consists largely of commercial disputes between at least three represented parties. In most such suits, the plaintiff advances a contract or commercial tort claim against a defendant corporation and its owners, seeking to impose liability both against the company (which may or may not be judgment proof) and the individuals. The veil piercing claim thus operates as a derivative and remedial measure, much like a punitive damages allegation, rather than as a substantively significant cause of action.

While our data were identified based on the inclusion of a veil piercing claim, two different metrics indicate that our underlying cases represent a broad array of lawsuits. First, and not surprisingly, the complaints serving as the origin for our data contain a wide variety of causes of action, including tort, contract, RICO, ERISA, and common law fraud claims. In addition, the cases in our data span a number of Nature of Suit (NOS) codes. At the time of filing, the filing party identifies a single NOS code for the case, which serves as a snapshot of what the filer believes best summarizes the case. Within empirical legal research, scholars frequently use these codes to identify case issue areas (e.g., Siegelman and Waldfogel, 1999; Johnston and Waldfogel, 2002; Galanter, 2004). Figure 1 depicts the NOS code distribution for all cases filed in federal district courts (black bars; measured in 2007) and the distribution of codes within our dataset (gray bars). While our data are certainly not representative of all filed cases (as measured by NOS code distribution), we can see that nearly all major NOS categories are present, with the one real notable exception being prisoner petition lawsuits. Not surprisingly, the overall NOS distribution of our data is highly suggestive of a set of commercial litigation cases. Despite this variability in NOS codes and causes of action,

however, we remain cognizant of the fact that our data are limited in their scope and generalizability, a topic that we return to further in the discussion section below.

To operationalize our hypotheses, we required information on the timing of cases as well as on the motions, the parties, the judges, and other case characteristics. Our dependent variable of interest throughout this study, *time to settlement*, is measured as the number of months that a case is pending (“survives”) from its date of filing through the date of settlement. Summary statistics on case survival time as well as on our other variables are reported in Table 1. As the table indicates, cases in our data survive between 1 and 58 months, with a mean survival time of nearly 17 months.

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To empirically analyze time to settlement, we use a series of duration models. Our model of choice, the competing risks regression model (Fine and Gray, 1999), allows us to estimate the effect that individual case variables have on the time to case settlement. The model accounts for alternative (competing) termination modalities besides settlement, like trials and dispositive motions. Because the effect of case characteristics on settlement may depend on the existence of these other possible methods of case termination, failure to account for these non-settlement terminations may bias our results (Box-Steffensmeier and Jones, 2004). Competing risk models resolve this concern and, for this reason, have been used in other litigation-related duration work as well (Eisenberg and Farber, 1997).¹⁹

A competing risks model also allows us to account for censored data. Due to inherent limitations from studying relatively recent filings, some cases in our dataset had not terminated by the time we finished collecting data. The competing risks model is well designed to treat these type of censored data and avoid the bias inherent in dropping these cases altogether from the study.

Within our data, the 29 cases not terminated by August 18, 2008 are included but, because they have not yet “failed” (but still hold the potential to do so going forward), are censored.

Our key independent variables revolve around the motion activity in our cases. Our measurement of each motion is discrete and time varying in nature. We capture these motions through two mutually exclusive and collectively exhaustive dichotomous variables: (1) one for the first month after the motion is filed (or resolved, depending on the motion) and (2) one for the set of all months thereafter (i.e., the second through the *n*th month) until the case ultimately terminates. This measurement strategy allows us to more precisely capture the potential propelling effect (often referred to as the hazard ratio) that motions may (or may not) have on cases as they move toward settlement.

Because of this research design and the time-varying nature of these variables, our dataset is constructed in an expanded format, where each month of each case has its own observation. As a result, while we have 585 cases, our dataset contains 9,931 case-month observations.²⁰

Motion made measures the presence of substantive (non-discovery) motions in a case, regardless of how and whether those motions are resolved. *Motion granted* and *motion denied* measure the type of outcome for resolved, substantive motions in a case. *Plaintiff motion granted* and *defendant motion granted* quantify the presence of granted substantive motions where either a plaintiff or a defendant was the moving party. *Application of law to fact motion denied* and *pleading-based motion denied* measure the existence of denied motions in these two categories, where motions of the former type include summary judgment, class certification, discovery, evidentiary rulings and patent construction and motions in the latter group include motions to dismiss, arbitrate, remand, or strike.²¹ Finally, *veil piercing motion made* and *non-veil piercing motion made* capture the presence of substantive motions that either do or do not center primarily on the veil piercing claim(s) in the case. As we note above, we

also separately control for *discovery motion made*. Each of these variables is coded as 1 when the motion and/or outcome of interest is present and 0 otherwise. Any time more than one such type of motion and/or outcome happens in a case, we record the first occurring instance.

In addition to our motion-level variables, we also control for a number of other variables concerning case actors, type, and strength that may affect the timing of case settlement or other termination.

Galanter (1974) sparked a large body of theoretical and empirical research examining the effects that litigant status and differences in resources due to that status have on the litigation process. The common argument (and empirical support) goes that imbalances in the resources and power of opposing litigants will leave the weak in a position of disadvantage and will lead to disproportionate outcomes for the stronger party (e.g., Kritzer and Silbey, 2003; Collins, 2004; Schwab and Heise, 2011; Black and Boyd, 2012). To measure this, we look for cases where the plaintiff is an individual and the defendant is an entity, contrasting such uneven matchups to cases where both plaintiff and defendant are entities.²² Therefore, *entity v. entity* measures cases where both the plaintiff(s) and the defendant(s) in the lawsuit are entities. Any time an individual party is involved on either side of this dispute (as evidenced through the case docket and pleadings), this variable is coded as 0.

To control for the possibility that Eisenberg and Lanvers (2009) observation that “strong cases tend to settle; weak ones do not” is also connected to the momentum of settlement, we include a variable for case strength in our models. *Case strength* is coded from a case’s complaint and takes on a value of 1 when plaintiffs argue that undercapitalization is a primary ground for piercing the corporate veil in the case. Previous work found this factor to be a strong indicator of overall case strength (Boyd and Hoffman, 2010).

We also account for the effect that repeat play among attorneys (or the lack thereof) might have on the pace of a case. Attorneys familiar with one another will be more likely to seek to maximize shared gains and less likely to posture and exaggerate their positions, meaning that such repeat players will make settlement more likely (Johnston and Waldfogel, 2002). The same effect may be present for the *timing* of settlement. We operationalize the repeat play effect by asking if the case includes local counsel. Local counsel appear in cases where the controlling lawyers are not admitted to the bar in the filing jurisdiction, and their role, including performing tasks like certifying papers, is rather ministerial in nature. Local counsel in the case is thus a proxy for the main attorneys being strangers to one another and, where present, may well delay case settlement. *Local counsel participation* is measured based on the presence of a local counsel listed among the case's attorneys or through the presence of a *pro hac vice* motion, as recorded on the case docket and/or pleadings.

Many scholars have argued that females communicate and behave differently from males (Gilligan, 1982), and that this translates to more empathetic and problem solving based judicial behavior (Brudney et al., 1999; Martin et al., 2002). If female judges do indeed behave consistently with the gendered theories, when it comes to litigation and case management they may actively encourage cases to settle, both more frequently and more quickly than their male peers. To control for this possibility, we include *female judge* in our models, a variable that is coded as 1 when the district judge of record is a female.

On the theory that chief district court judges are aware of administrative constraints and are more likely than their district colleagues to worry about case load reduction pressures (Hettinger et al., 2006), cases assigned to district court judges with experience as a chief judge (*chief judge*) may settle more quickly than other cases. Any time a case has more than one assigned district judge over

its life, we code this based on the judge at the time of case filing. We retrieved the information on these judges from the Federal Judicial Center's *Biographical Directory of Federal Judges*.

We also control for a variety of case characteristics. These include whether the case was removed from state court (*removal*), what type of nature of suit category the case was classified into (see Figure 1 for categories), the type of jurisdiction asserted in the complaint (*diversity jurisdiction* or *federal question jurisdiction*), whether there was a *jury demand* by any party, and whether the case had any signs of *litigation activity* (a dichotomous, non-time varying variable indicating the presence of any substantive or discovery motion in a case).²³

3. Results

Figure 2 provides descriptive details on the distribution of settlement times in our data. The top panel's dotted line depicts settlement times in our data from case filing to case settlement for cases without any recorded litigation activity – such as substantive and discovery motions. For these cases, the data are positively skewed, with settlement commonly occurring in the very early stages of the case. This is analogous to the recent findings in Nielsen et al. (2010) regarding early settlement in some cases. It is also consistent with our expectations regarding early settling, motion-free cases where the filing of a lawsuit serves as the final bargaining tactic for a plaintiff in already well-developed pre-filing negotiations between the two parties.

The solid black line in the top panel of Figure 2 displays just the opposite, showing the distribution of settlement timing for cases with litigation activity. In these cases, settlement timing varies greatly, with a relatively even distribution over time. It is in these cases that we expect motion practice to help foster information exchange and thereby motivate faster settlement. The bottom panel of Figure 2 depicts, again descriptively, the time to settlement from the filing of the first substantive *motion* to the settlement. This figure's pattern closely resembles non-litigation settlement

timing. In other words, the graphical display in the bottom of Figure 2 provides preliminary, descriptive evidence that in cases with litigation activity, the filing of motions propels cases toward settlement in a way does not otherwise happen prior to motion filing.

<COMP: Place Figure 2 about here>>

To provide a more concrete statistical test of this settlement timing effect and how it plays out for our hypotheses, we estimate a series of competing risks regression models. The model, implemented in STATA 11, yields subhazard ratios. It takes the following form for each observation (case month) in our data

$$h_j(t | X) = \bar{h}_{j,0}(t) \exp(X\beta) \quad (1)$$

where j represents competing termination methods in our data (0=censored, 1=settled, 2=other), X indicates the covariates in each of our models (time-varying and fixed), and β represents the effects of these covariates. Because of the nature of our time-varying data, our estimates include robust standard errors (Huber, 1967; White, 1980) and are clustered at the case level to correct for a lack of independence among these observations.²⁴ Model (1) includes the motions-related variable necessary for testing Hypothesis 1 (*motion made*). Model (2) tests Hypothesis 2 with *motion granted* and *motion denied*. Models (3) and (4) test Hypotheses 3 and 4 with *plaintiff motion granted* and *defendant motion granted* and *pleading-based motion denied* and *application of law to fact motion denied*, respectively. Finally, *veil piercing motion made* and *non-veil piercing motion made* in Model (5) allow us to test Hypothesis 5. For each of our five models, the chi-squared statistic reaches statistical significance at the $p < 0.05$ level and indicates that we can reject the null hypothesis that our covariates, together, have no effect.

For ease of substantive interpretation, we report the results in these models in Tables 2 and 3 as subhazard ratios, a statistic that is simply the exponential of the estimated coefficient. These subhazard ratios allow us to quantify the underlying increase (or decrease) in the likelihood of a case

terminating by settlement in a fixed time after filing due to the added presence of these different types of motions. In terms of interpretation, a subhazard ratio over 1 indicates that a covariate has a positive effect on the risk of case settlement while a ratio below 1 indicates a negative effect.

<COMP: Place Table 2 about here>>

<COMP: Place Table 3 about here>>

The statistical significance and signs for the key results reported in the tables for these five models provide us initial evidence for each of our five hypotheses. As we can see, many of our motion variables have substantial statistical and substantive effects when it comes to the timing of case settlement. For example, as indicated in Table 2, Model (1), being in the 2nd+ month following the filing of a substantive motion increases the odds of settlement by 375% compared to the chance in that same case *prior* to the motion being filed. Interestingly, while the odds of a similar increase in settlement speed are also positive in the first month immediately following the motion filing, they do not reach statistical significance at the $p < 0.10$ level.

To better describe the substantive effect of motions being filed (2nd+ month), we plot the Cumulative Incidence Function (CIF) curve of our Model (1) competing risks regression in Figure 3. The CIF provides the probability of the failure of interest while accounting for the presence of other competing failures (Coviello and Boggess, 2004; Kim, 2007). Because of the time-varying nature of our key independent variable in Model (1) (motion filing), we are able to estimate the CIF *before* and *after* a motion is filed (while holding constant all other model variables). We plot the resulting CIF curves from these two estimates in Figure 3. As we can see there, prior to a motion being filed (black line), the probability of settlement (our “failure” of interest) remains below 0.10 even as a case enters its second year. However, once a motion is filed (gray line), we see an immediate uptick in the slope of the curve and the likelihood of case settlement. This, consistent with Hypothesis 1, is

evidence of the *propelling* effect that we expect the filing of motions to have on case settlement timing.

<COMP: Place Figure 3 about here>>

Now, turning to tests of Hypotheses 2 through 5, we examine this motion effect in a more fine-grained way. Recall that in Hypothesis 2 we expect that motions granted will have a stronger effect on settlement timing than those that are denied. As Model (2) in Table 2 reveals, granted motions have an immediate effect (in the first 30 days after motion disposition), leading to an increase in the speed of settlement of 270%. A similar immediate effect is not present for denied motions. However, both granted and denied motions do have substantively important effects on settlement timing after that first month. Denied motions have a slightly larger effect compared to granted motions in this context (a 68% increase in settlement odds compared to 54%), but a Wald test reveals that this difference is not significant.²⁵

For Hypothesis 3, we can see in Model (3), Table 2 that, as expected, the plaintiff's granted motions have a stronger effect on settlement timing than those from the defendant. Indeed, in the first month after a plaintiff's substantive motion is granted, settlement speed is increased by over 450% (subhazard ratio of 5.538); after the first month of that successful plaintiff motion, the risk of case settlement increases by a more modest (but still significant) 54%. While positive, neither of the variables for defendant granted motions reach statistically significant levels.

In the context of Hypothesis 4's results (found in Table 3's Model (4)), neither motions applying law to fact nor pleading-based motions have a statistically significant effect on settlement timing in the first month after they are denied. After that first month, each type of motion has a positive effect on settlement timing (subhazard ratios of 1.5 and 1.25, respectively), effects that are not, statistically speaking, different from one another.²⁶

Finally, for Hypothesis 5, neither veil piecing motions nor non-veil piecing motions have, statistically speaking, an immediate effect on case settlement (Table 3, Model (5)). After the first 30 days, however, both types of motions increase the subhazard rate of settlement, with non-veil piecing motions (a 126% increase in the rate) surprisingly doing so with more heft than those of a veil piecing nature (a 42% increase).²⁷

Overall, then, we have strong support for two of our five motions-related hypotheses (1 and 3), modest support for Hypothesis 2, and no support for Hypotheses 4 or 5.

Turning briefly to our control variables, we find that some, but not all, have a statistically significant effect on the time to case settlement. As we observe in Models (1)-(5), discovery motions rarely have a statistically significant effect on the rate of case settlement and, when they do, that effect is quite modest compared to the effect of substantive motions (e.g., a 29% increase in settlement rate in Model (1)). This result, when paired with our theory and findings on substantive motions, provides an important caveat for previous research linking settlement timing to discovery practice (e.g., Farber and White, 1991; Huang, 2007).

We also find evidence that the sex of a case's judge has a positive and statistically significant effect on settlement timing. In our five models, a female judge's presence leads to anywhere between a 40% and 49% increase in settlement rate. While this sizable, consistent, and positive result is not likely to be surprising to those across fields of study that argue that women leaders and managers are more effective at fostering an environment of compromise and negotiation than men (Eagly and Johnson, 1990; Rosenthal, 1998), it does stand in sharp and impressive contrast to the notable published empirical work in the settlement arena that finds no difference in settlement rates among cases assigned to male and female judges (Ashenfelter, Eisenberg, and Schwab, 1995). We hope that future work will explore this effect, and the theory behind it, in much greater detail.

We also find, as expected and confirmed in our descriptive results above, that cases without any *litigation activity* settle much more quickly than those with it (in each of our five models).²⁸ We graphically depict this effect in Figure 4 by once again plotting the estimated CIF curve for cases without any substantive or discovery motions. For sake of simplicity, we estimate this solely for *litigation activity* in Model (1). The resulting sharp, rapid uptick in the probability of settlement depicted in Figure 4 is quite impressive. And, more importantly, when the litigation activity figure is viewed alongside Figure 3 above, it goes a long way toward confirming our expectation that cases with and without litigation activity are qualitatively different from one another, particularly when it comes to information exchange and settlement timing.²⁹ While not filing any motions may be the fastest route to case settlement, most cases, in our sample and in trial courts more generally, lack the necessary litigation information to be positioned for this.

<COMP: Place Figure 4 about here>>

We also find that a jury demand is associated with as much as an 18% decrease in the rate of settlement in a given month in three of our five models, something that may reflect litigation uncertainty upon filing. Finally, negative, but statistically insignificant, results characterize our local counsel, case strength, litigant status (*entity v. entity*), and chief judge control variables. These (non) results may well indicate that these control variables are not settlement and/or termination-timing specific. They are not our main focus here, of course, but their performance certainly should prove intriguing for future work tackling the intricacies of the litigation process and its relation to settlement.

4. General Discussion and Limitations

4.1. Discussion

This study has allowed us to unpack the relationship between post-filing settlements, the dominant termination method for cases in trial courts today, and the litigation process. Our results confirm that a key mechanism of formalized litigation – motion practice – can and does influence settlement and the timing of when it occurs. Our federal district court data enable us to get a unique picture of the details of litigation and to systematically study the dynamic nature of the whole process, something that had previously been focused almost exclusively on discovery. Similarly, our methodology, including competing risks regression models of duration and time-varying motion-level covariates, allows us to capture the propelling effect that motions made and ruled on can have on the timing of case settlement.

In summary, our empirical modeling reveals that, as predicted, the filing of a substantive, non-discovery motion speeds case settlement. In addition, we also find support for our expectations that motions that are granted are more immediately important to the settlement rate than motions denied and that plaintiff victories have a more substantial effect than defendant victories. These findings are substantial in both the direction of their effects and in their size.

Our work further illustrates the importance of continued study of the settlement process. Theoretical and empirical work on settlement is quite extensive, covering both domestic and foreign tribunals. Canvassing the literature, we find that researchers' interest in the subject is largely driven by two goals. *First*, scholars seek to learn what factors motivate settlement, which is assumed (generally) to be a social good that ought to be subsidized. Investigations in this mode have generally assumed that the parties are passive and that changes in fixed case attributes are the levers which might be pulled in a more efficient manner. Our work demonstrates that motion practice can influence the *timing* of settlement, through unlocking information that the parties and the court otherwise would not share with one another. While our study provides an important insight on this subject, we expect that future projects will employ larger, more globally representative, datasets that

more closely mirror the NOS distributions depicted in black bars in Figure 1 and that deal with a more diverse set of issues. These future studies could further illustrate the interaction of motion type, timing, and settlement. As time passes and electronic case resources become more comprehensive and cheaper to study, this kind of work will be increasingly easy to perform.

Second, scholars seek to learn about settlement because they really wish to know about the effect of various changes in the legal regime on case outcomes – who is winning and who is losing. Here, our work on the timing of settlement fits in a recent tradition that notes that early settlements may result in important distributional consequences for the parties (e.g., Nielsen et al., 2010). Data on the timing of settlement has the advantage of being relatively easy to collect, unlike information on how the parties have divided the pie. Our finding that parties can motivate settlement through their own efforts might help to focus research on new ways of looking at “victory.” For instance, a settlement that results from party A making and winning a motion might be more likely to be felt (by A and B) to be A’s “victory” than a settlement that happens absent motion practice.

The analysis of settlement’s timing could also be used to examine the influence of lawyering: sophisticated lawyers might be extracting more value from litigation (in terms of efficient compromise) than less sophisticated lawyers, through tactically-timed motion practice. Scholars of settlement to date have largely discounted these active roles for lawyers and lawyering, preferring to see both clients and lawyers as passive obstacles to settlement. Employing this framing of the “problem” of settlement, policymakers have focused on changing the law, or helping judges to learn techniques, to encourage compromise. But our research suggests that the parties have an important role to play, and that the structure of the procedural rules in particular might influence the timing of settlement in unexpected ways.

4.2. Limitations

While we believe this work makes substantial strides in providing systematic evidence into how the dynamics of litigation like motion practice can affect settlement, we would be remiss to not mention a few of its limitations. Most importantly, apart from the causation concerns discussed above, the dataset is limited to veil piercing cases, and as such is not representative of all federal cases, let alone all litigation. We see in our dataset proportionately fewer torts, civil rights, and constitutional claims than the typical federal filing, and proportionately more contract, labor and intellectual property suits. It is possible that litigation of these commercial disputes is not generalizable to other kinds of cases, which, in state court in particular, ordinarily resolve a personal injury claim. Settlement in personal injury cases may be even more strongly driven by attorney agency costs, as large "settlement mills" control many filings (Engstrom, 2009). This would tend to result in stronger effects for attorney characteristics, including some that are unobservable on the face of the docket. Similarly, our dataset is limited in time and scope, with cases filed from 2000 through 2005 and which had their initial complaints available on Westlaw's PLEADINGS database. While we have no reason to expect that the latter limitation creates bias, it might be that the introduction of electronic docketing – when coupled with other products of the digital revolution—has worked a fundamental change on settlement practice. Certainly, e-discovery has increased the costs of civil litigation, making settlement an ever-more-attractive alternative to continued litigation. Thus, as compared to cases filed before digital docketing, our sample might overemphasize the importance of motion practice in settlement, as settlement is more common today than it used to be (Clermont and Schwab, 2004; Galanter, 2004).³⁰

At the same time, we observe neither the amount of settlements, nor the demands of the parties. Previous work found these two factors very important in determining the likelihood and nature of any eventual compromise (Kaplan et al., 2008; Schwab and Heise, 2011).

We do not discount these limitations. However, even after considering them, we believe that our approach advances this area of research by empirically examining the effect of litigation motion practice, including substantive, non-discovery motions, on the intra-case timing of settlement. Only through the recent advent of new technologies and an increase in systematic electronic record-keeping across the federal trial courts have the data utilized for this kind of dynamic study of litigation become available. As additional technologies, measurements, and methods continue to emerge, we suspect that future work will be well positioned to continue to refine this approach and address some of the concerns about our work that we state above.

5. Conclusion

Cases settle because the parties choose to compromise rather than contest. Until recently, the content of these settlements was a black box that impeded our understanding of the civil justice system. It has become clear that “future scholarship on the American civil justice system will inevitably have to include rigorous work on settlement and settlement behaviors” (Schwab and Heise, 2011, 934). Through the use of a unique hand-collected dataset of federal trial court cases, this project helps to illuminate the mechanism of settlement by focusing on the parties’ use of the litigation process, and particularly motions, to obtain information from one another and the court. Our most substantial and important finding is that motion practice can spur settlement even in the absence of a judicial ruling. This in turn suggests that the parties may use the processes of litigation to exchange information with one another, meaning that procedural rules which discourage motion practice may also slow settlement. The findings thus reveal a more nuanced, dynamic and reflexive view of litigation and compromise than that previously reported.

Footnotes

[†] We thank Jane Baron, Ryan Black, Kevin Clermont, Craig Green, Michael Heise, Greg Mandel, Andrew Martin, Harvey Palmer, Rafael Pardo, James Spriggs, and the editors and anonymous reviewers of *Journal of Law, Economics, & Organization* for valuable comments and advice. We are grateful to Temple Law School's Clifford Scott Green Research Fund and the Baldy Center for Law & Social Policy at the University at Buffalo for supporting our research. A previous version of this paper was presented at the 2010 Annual Conference on Empirical Legal Studies and at Houston Law School. Law students Ajay Nair, Andrew Seaberg, Joshua Bugay, Casey Coyle, Courtney Morgan, Dana Becker, Devin Hager, Terrence Grugan, Isaac Pineo, Jason Ballenger, Jedidiah Vandermark, Lucy Moore, Laurice Smith, Pong Chulirashaneekorn, Michael Sirkin, Stephen Rudman, Matthew Canan, Robert Blumberg, and Merilee Arevalo and graduate student Jacqueline Sievert provided research and coding assistance. As with all our projects, the authors contributed equally to this work and name order is alphabetical.

¹ In this paper, we generally use the word "parties" to mean the global unit comprised by the client and lawyer. We do insert attorney-specific controls in our models. But, generally, we do not explore how the motion-based learning process we propose is influenced by the peculiarities of the attorney-client relationship. This area is ripe for further empirical research.

² A notable exception (outside of the class context) is a consent decree, a settlement document negotiated by the parties but entered and (potentially) enforced by a judge (Kim et al., 2009).

³ We ignore for the purposes of simplicity those cases that are begun in arbitration or another form of "alternative" dispute resolution forum.

⁴ Some suggest that lawyers may reduce the magnitude of irrational party decisions that prevent settlement (Gilson and Mnookin, 1994; Nielsen et al., 2010). Selection makes this a difficult and complex topic to study systematically (Huang, 2008).

⁵ The example is stylized because in many cases, automatic disclosures under Rule 26 can result in discovery before the filing of any motions.

⁶ The role of motion practice in the emotional landscape of settlement is complex. A lawyer may file a motion so that a client feels that their story has been told – aggressively – and thereby permit settlement where otherwise the client would have wished to continue to fight. But the filing of such aggressive motions might at the same time spark negative emotions in their targets, and thereby depress the likelihood of compromise. Regardless of the particular emotional valence of a motion, the control enabled by motion practice generally increases litigant happiness with dispute resolution (Lind and Tyler, 1988).

⁷ Suggestively, a recent large scale study of federal civil litigation found that “40% of cases with [mooted motions to dismiss] settle[d] or were voluntary dismissed” (Institute, 2009, 49).

⁸ Bronsteen (2007) argues that parties routinely delay settlement until after summary judgment, with defendants in particular hoping for “an opportunity to win without the risk of losing.” Bronsteen’s argument rests on a number of assumptions, and crucially models only three moments to resolve cases: early (before motion practice), after summary judgment, and at trial. As a reviewer alternatively suggests, there is a possible drag on the timing effect. In some cases, the progression of time (and related case activity) will have excavated most of the important information, so that when the case proceeds to dispositive motions post-discovery, settlement timing will not receive nearly as much of a boost from the motion practice. In such cases, earlier motions will be more surprising – and thus more informative. To the extent that this information-saturation hypothesis is correct, it would tend to dampen observed effects.

⁹ Certain judge demographic characteristics are unlikely to raise these concerns, as judge assignment at the district court level occurs after filing and approximates randomness. However, attributes, like judge sex and race, cannot be manipulated (Holland, 1986; Boyd, Epstein, and Martin, 2010).

¹⁰ We must also consider the possibility of omitted variable bias – i.e., the presence of a third variable that is causing both the filing of a motion and, shortly thereafter, a settlement (Clarke, 2005). Within our analyses, we are unable to imagine such a systematically omitted and biasing variable. A far-fetched possibility would be for the defendant's insurance carrier to make paying off a settlement contingent on a particular litigation strategy – for example, the filing of a motion to dismiss. Obviously, this is not common practice.

¹¹ We thank an anonymous reviewer for noting this important difference.

¹² Why is it that the same selection story isn't confounding for nondiscovery motions? In one sense, it is: cases in which motions are filed are qualitatively different from cases without litigation activity – the parties did not cooperate sufficiently prior to filing to make a fast, motion-free settlement possible. But for cases in which motions are present, if substantive motions were to be associated with cases that are more difficult to settle, we'd expect and observe *negative*, not *positive* effects for motion activity.

¹³ Westlaw's Trial Pleadings Database has coverage beginning in 2000 and includes “selected pleadings, complaints, and answers filed in state and federal courts.” Westlaw, Pleadings database content,

http://web2.westlaw.com/scope/default.aspx?db=PLEADING&RP=/scope/default.wl&RS=WLW10.03&VR=2.0&SV=Split&FN=_top&MT=Westlaw&MST= (last visited October 5, 2010).

While we readily admit that our reliance on Westlaw's Trial Pleadings Database to identify a sampling population limits our ability to speak to or sample from the true underlying population of veil piercing related complaints filed in federal courts, we do have reason to believe that the Westlaw-drawn data do allow us to get as close as is practical given lingering complaint-level data availability constraints. As we have previously described,

[C]onversations with Westlaw research representatives indicate that for veil piercing cases, this database covers or nearly covers the universe of federal claims. In particular, although not for specific attribution, a Westlaw representative with supervisory responsibilities over the PLEADINGS database said that it was designed to collect all federal complaints since 2000 that lawyers litigating commercial cases would have a plausible interest in learning about. Thus, PLEADINGS may exclude civil rights cases, or habeas petitions, or family disputes, but attempts to collect every tort, contract, or federal statutory claim brought against corporate defendants. With respect to State complaints, which may or may not be electronically filed, West currently collects material from larger urban centers, and consequently does not have comprehensive records from smaller jurisdictions (Boyd and Hoffman, 2010).

¹⁴ There are 18 federal district courts with no cases represented in our final data, including: Central District of Illinois, District of Alaska, District of Guam, District of Idaho, District of Hawaii, District of Montana, District of New Mexico, District of North Dakota, District of Northern Mariana Islands, District of Puerto Rico, District of Rhode Island, District of the Virgin Islands, Eastern District of Oklahoma, Middle District of Tennessee, Western District of Arkansas, Western District of Kentucky, Western District of Tennessee, and Western District of Texas.

¹⁵ In the Westlaw pleadings database, we ran the following search: (“alter ego liability” or pier! /s corpor! /s veil or “unity of interest” or (corpor! /s (facade or shell or sham or undercapitalized conduit)) and da(aft 01/01/2000) and da(bef 01/01/2006)) to identify these veil piercing related cases.

Our search yielded just under 900 unique and usable federal district court veil-piercing cases. Prior to commencing our collection of data for these cases, we randomly ordered them, after which we conducted our data collection for cases in that assigned order. This randomization allowed us to

cease coding and turn to analysis when our research resources and time necessitated it, something that for us came after fully coding 697 cases – i.e., 78% of the Westlaw Pleadings Database’s population.

¹⁶ We exclude cases that result in a default judgment for three reasons. First, in such cases typically the defendant has not shown up at all, and there is no possibility for information exchange or settlement in the formal litigation process. Second, such cases typically proceed without any non-default judgment-related motions. Finally, from talking with practitioners, we also learned that many of the veil piercing default judgments in our dataset were filed by labor unions against small painting contractors, whose personal bank accounts were to be attached after the default (for failing to contribute to pension plans) issued. We concluded that including these cases made little sense in a general study of litigation.

We exclude cases terminated via bankruptcy, remand, and transfer, since, while they did “terminate” in a district court, they did not do so with any finality, making their inclusion in our competing risks modeling as either “ongoing and censored” or “terminated but not settled” as troubling. Finally, for those cases with lengthy, non-terminal stays (10+ months), our timing-focused modeling is unable to account for the stoppage in case activity, which in our cases was nearly always occurring so that bankruptcy proceedings could commence elsewhere. While we believe that the exclusion of all of these cases is empirically and theoretically justified, their inclusion would not alter the primary conclusions yielded from our regression analyses.

¹⁷ As we note below, while we are concerned with settled cases in this study, our modeling strategy accounts for settled and non-settled cases to prevent any bias that might occur from focusing solely on the former.

¹⁸ Our data collection from these documents focuses on case and party information that is critical to understanding the evolution of piercing and non-piercing claims *and* the outcome of those claims in a case.

¹⁹ An alternative modeling technique would be to focus exclusively on the settled cases in our data. Setting aside the dependency and selection bias concerns noted above, this is a technique used by others in the field studying the “pace of litigation” and how it applies specifically to settlement timing (Spurr, 1997; Fenn and Rickman, 1999). While we believe that the competing risks approach better accounts for the overall methodological concerns of our data, modeling our data in this traditional way (settled cases only) using a Cox Regression Model changes very little regarding the significance of our key covariates. Full results of these alternative models are available upon request.

²⁰ Our modeling strategy accounts for the dependencies that are present in our expanded data by clustering the robust standard errors on individual cases.

²¹ We compare two "denied" motions here (as compared to Hypothesis 2, which contrasts granted and denied motions). We do so because granted motions may terminate the case entirely, leaving no possibility for settlement. In Hypothesis 3, we are interested in comparing the propelling effect *toward settlement* of different kinds of motions.

²² Unlike Hadfield (2005), who found that individuals suing organizational defendants are less likely to settle than organizations suing organizations, we focus only the timing to settlement in cases. Given the nature of our dataset, there are almost no cases in which an individual is the sole defendant.

²³ As we describe in further detail below, our models also include an interaction of *litigation activity* with the log of our dependent variable, an inclusion designed to correct for nonproportionality in *litigation activity*.

²⁴ In supplemental models not reported in the text but available upon request, we also estimated shared frailty models to account for possible within-circuit correlations in settlement environments. Equivalent to random effects in the non-survival analysis setting, this modeling technique effectively groups the data by circuit and results in estimated hazards that are conditional on this frailty (Box-Steffensmeier and Jones, 2004). These models do not reveal any statistically significant within-circuit correlations. While it might also be fruitful to model the frailty at the district level, because of the size of our dataset and since some of our districts contain so few cases, attempted shared frailty models at the district level fail to converge.

²⁵ Chi-squared 0.18, $p=0.67$

²⁶ Chi-squared 0.58, $p=0.45$

²⁷ A Wald test of these differences reveals that we can reject the null hypothesis that the effect of later-term non-veil piercing motions on settlement timing is equal to the effect of later-term veil piercing motions. Chi-squared 7.79, $p<0.05$.

²⁸ A key assumption of the competing risks model is that of proportional subhazards or, in other words, that the effect of modeled covariates, within individual observations, are consistent across time (Box-Steffensmeier and Jones, 2004). We find evidence that our litigation activity variable is nonproportional. To correct for this, we follow the advice of Box-Steffensmeier and Zorn (2001) and Box-Steffensmeier and Jones (2004) and the example of Meinke (2005) and Brooks (2005) and include an additional term in our models (the interaction of litigation activity with the log of our time variable) that then allows us to proceed and assess the direct effects in our modeling. The appropriate interpretation of our large, positive, and statistically significant interactive term is that the negative effect of *litigation activity* sharply grows over time in a case. In other words, this indicates that for cases *with* litigation activity in them, the hazard rate of settlement over time is

much lower (and increasingly so) than it is for cases *without* any litigation activity at all. This can be informally visually observed by contrasting Figure 3's CIF curves with the CIF curve in Figure 4. We also note that alternative modeling excluding this interaction (not reported in the text) yields essentially the same results that we have presented in the manuscript (but does not afford us the confidence of having corrected for nonproportionality).

²⁹ In supplementary analyses not reported here, we estimated our five models after excluding cases without litigation activity altogether. While the size of the effects for our hypotheses' variables change slightly, none of the overall results are altered. The results from these analyses are available from the authors upon request.

³⁰ That said, it is not obvious why this bias would have any effect on the relationship of motions and the *timing* of settlement.

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Data Summary Statistics

Variable	Distribution In Cases
Motion made	59%
Motion granted	13%
Motion denied	34%
Plaintiff motion granted	6%
Defendant motion granted	8%
Application of law to fact motion denied	14%
Pleading-based motion denied	20%
Veil piercing motion made	33%
Non-veil piercing motion made	33%
Discovery motion	18%
Entity v. entity	10%
Case strength (undercapitalization)	24%
Local counsel participation	29%
Female judge	23%
Chief judge	24%
Jury demand	62%
Litigation activity present	63%
Removed from state court	11%
Diversity jurisdiction	45%
Issue areas	See Figure 1
Settled	77%
Involuntarily dismissed	8%
Summary judgment or judgment as a matter of law	7%
Trial verdict	3%
Censored (ongoing on August 18, 2008)	5%
Months of survival (mean)	17 months
Survival time range	1-58 months

Table 1: Summary statistics of key variables in database. Percentages listed are computed from the 585 cases in our database used in our analysis (see footnote 16 for details on excluded cases).

	<u>Model (1)</u>		<u>Model (2)</u>		<u>Model (3)</u>	
	Subhazard Ratio	Robust SE	Subhazard Ratio	Robust SE	Subhazard Ratio	Robust SE
Motion made (1st month)	1.973	(1.06)				
Motion made (2nd+ mth)	4.748**	(1.11)				
Motion granted (1st month)			3.704**	(1.42)		
Motion granted (2nd+ mth)			1.540**	(0.27)		
Motion denied (1st month)			0.778	(0.35)		
Motion denied (2nd+ mth)			1.682**	(0.23)		
Plaintiff mot. granted (1st month)					5.538**	(2.77)
Plaintiff mot. granted (2nd+ mth)					1.542*	(0.35)
Defendant mot. granted (1st month)					1.286	(0.91)
Defendant mot. granted (2nd+ month)					1.216	(0.24)
Discovery motion (1st month)	0.456	(0.45)	0.353	(0.35)	0.356	(0.35)
Discovery motion (2nd+ mth)	1.294*	(0.19)	1.175	(0.17)	1.158	(0.17)
Entity v. Entity	0.847	(0.13)	0.844	(0.14)	0.849	(0.13)
Case Strength	0.949	(0.11)	0.954	(0.11)	0.966	(0.11)
Local Counsel Participation	0.909	(0.09)	0.877	(0.09)	0.89	(0.09)
Female Judge	1.395**	(0.15)	1.427**	(0.16)	1.440**	(0.15)
Chief District Judge	0.961	(0.10)	0.926	(0.10)	0.944	(0.10)
Jury Demand	0.842*	(0.08)	0.838*	(0.09)	0.849	(0.09)
Litigation Activity	0.007**	(0.00)	0.018**	(0.01)	0.015**	(0.01)
ln(time) x Litigation Activity	3.106**	(0.61)	3.244**	(0.61)	3.761**	(0.70)
Issue Area Controls	Included		Included		Included	
Jurisdiction & Removal Controls	Included		Included		Included	
Log Likelihood	-2483.11		-2500.173		-2506.625	
Chi-Squared	243.59**		217.46**		203.93**	
Observations	9931		9931		9931	
Cases	585		585		585	
Failures via Settlement	452		452		452	
Competing Failures	104		104		104	
Censored	29		29		29	

Table 2: Competing Risks Regression Results for Models (1)-(3). ** $p < 0.05$, * $p < 0.10$. Baseline variables are contract cases, those where an individual is involved in the litigation as either a defendant or a plaintiff, and federal question jurisdiction. Standard errors are robust and are clustered on individual cases.

	Model (4)		Model (5)	
	Subhazard Ratio	Robust SE	Subhazard Ratio	Robust SE
Applic. of law to fact motion denied (1st month)	0.734	(0.45)		
Applic. of law to fact motion denied (2nd+ month)	1.506**	(0.31)		
Pleading-based mot. denied (1st month)	0.734	(0.52)		
Pleading-based mot. denied (2nd+ month)	1.249*	(0.16)		
Veil piercing motion (1st month)			0.878	(0.51)
Veil piercing motion (2nd+ month)			1.420**	(0.19)
Non-veil piercing mot. (1st month)			0.487	(0.49)
Non-veil piercing mot. (2nd+ month)			2.255**	(0.31)
Discovery motion (1st month)	0.339	(0.34)	0.42	(0.42)
Discovery motion (2nd+ month)	1.144	(0.17)	1.321*	(0.20)
Entity v. Entity	0.836	(0.13)	0.817	(0.13)
Case Strength	0.968	(0.11)	0.983	(0.11)
Local Counsel Participation	0.888	(0.09)	0.906	(0.09)
Female Judge	1.398**	(0.15)	1.487**	(0.16)
Chief District Judge	0.921	(0.10)	0.949	(0.10)
Jury Demand	0.858	(0.09)	0.821**	(0.08)
Litigation Activity	0.018**	(0.01)	0.013**	(0.01)
ln(time) x Litigation Activity	3.511**	(0.66)	3.314**	(0.65)
Issue Area Controls	Included		Included	
Jurisdiction & Removal Controls	Included		Included	
Log Likelihood	-2510.156		-2495.99	
Chi-Squared	178.81**		223.02**	
Observations	9931		9931	
Cases	585		585	
Failures via Settlement	452		452	
Competing Failures	104		104	
Censored	29		29	

Table 3: Competing Risks Regression Results for Models (4)-(5). ** $p < 0.05$, * $p < 0.10$. Baseline variables are contract cases, those where an individual is involved in the litigation as either a defendant or a plaintiff, and federal question jurisdiction. Standard errors are robust and are clustered on individual cases.

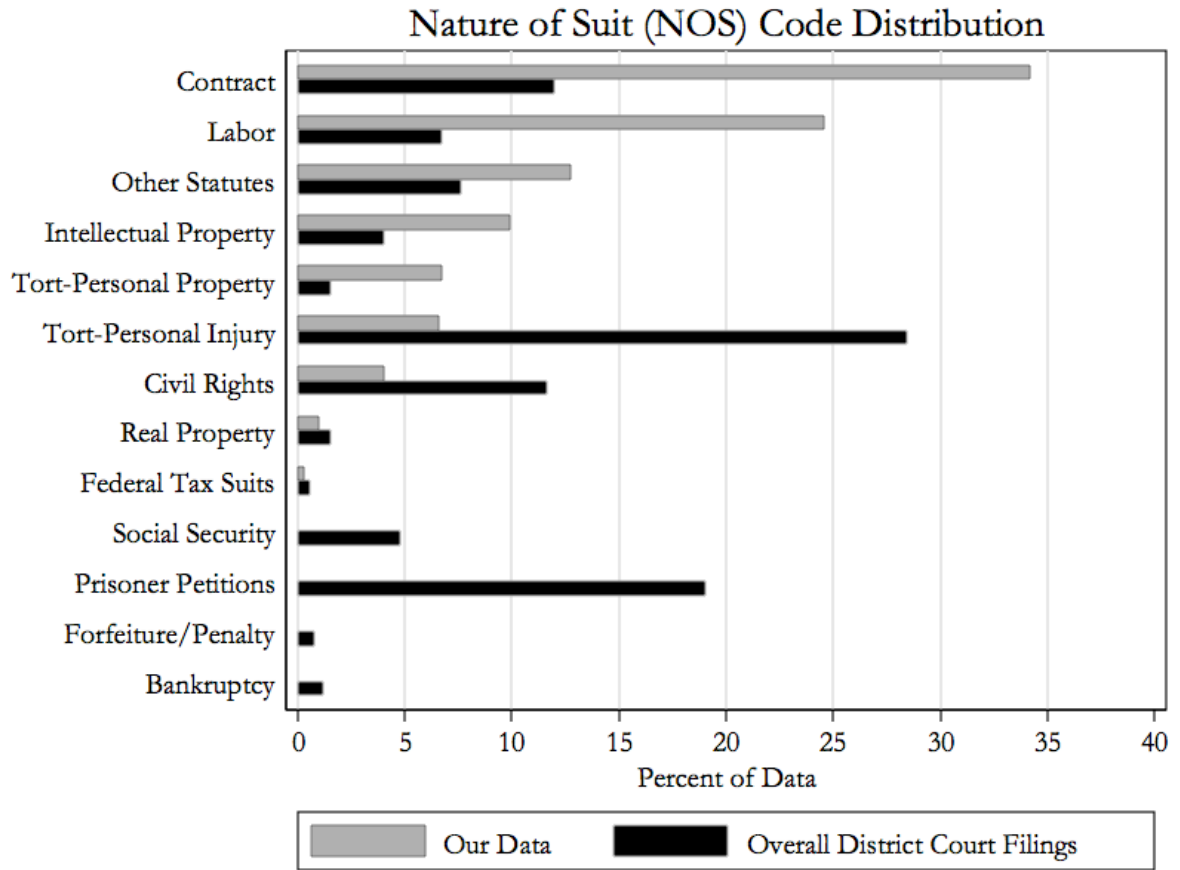


Figure 1: The distribution of Nature of Suit (NOS) codes, by broad category, in our data and for all cases filed in federal district courts in 2007. Data on 2007 filing distributions accumulated from Administrative Office of the United States Courts, Federal Judicial Caseload Statistics, March 31, 2007. Data on NOS categorization derived from Administrative Office of the United States Courts, Public Access to Court Electronic Records (PACER).

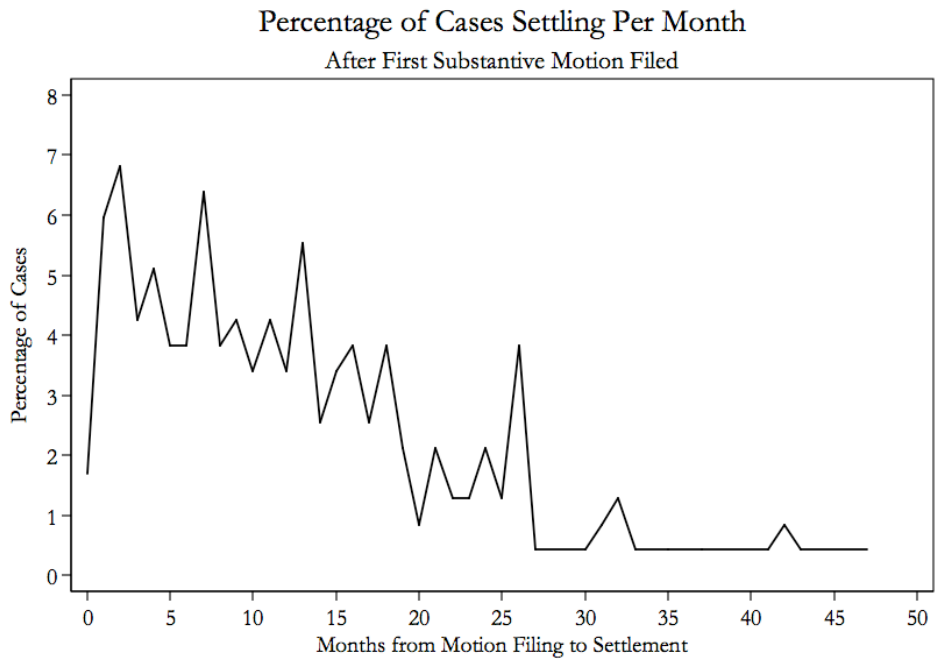
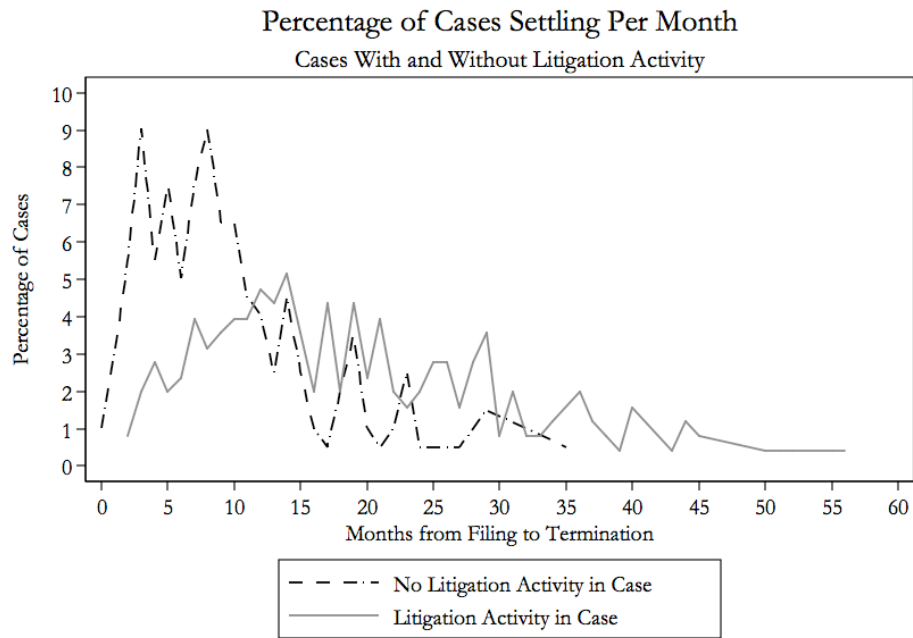


Figure 2: Proportion of all settling cases in our data that terminate in a given month of a case. The top panel depicts these times from case filing while the bottom panel does so from the filing of a case's first substantive motion.

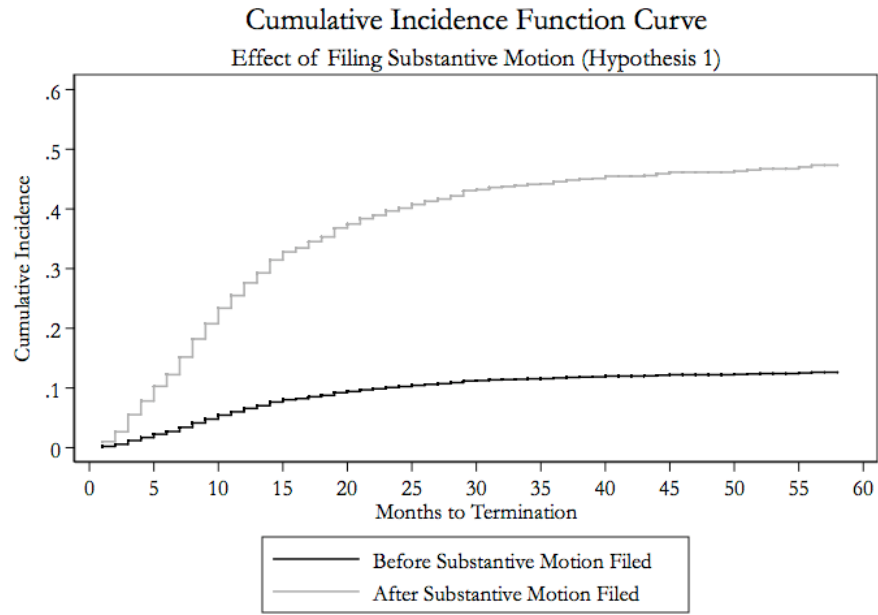


Figure 3: Cumulative Incidence Function curves for the changing values of the *motion filed* (2+ month) variable in Model (1). Other variables in the model are held at their mean and modal values.

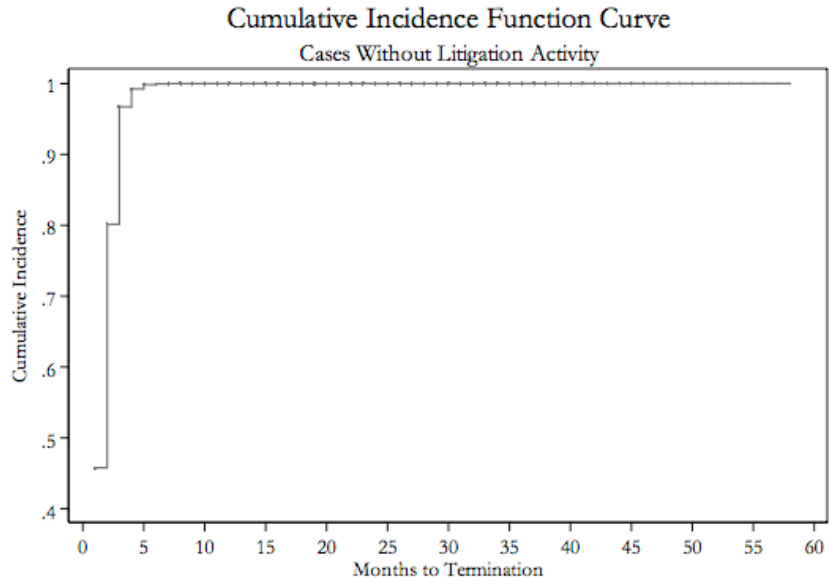


Figure 4: Cumulative Incidence Function curve for Model (1) when *litigation activity* is set to 0. Other variables in the model are held at their mean and modal values.