Plaintiffs Exploiting Plaintiffs: Mass Tort Claims v. Shareholder Derivative Suits

Karl Rutkowski[†] **& Alexander Stremitzer**[††]

When many plaintiffs sue a single defendant, each plaintiff's decision to settle affects what the others can recover. The existing literature shows how defendants can exploit this interdependence; we show that plaintiffs can also be exploited by their fellow plaintiffs, depending on how settlement negotiations are structured.

We examine formal models of various settlement postures that parallel classic litigation scenarios, including when many plaintiffs sue a single defendant and when plaintiffs bring shareholder derivative suits on behalf of a company. First, we consider a model of settlement negotiations between a single defendant and N plaintiffs where the total cost of litigation is fixed on the part of the plaintiffs and shared among the members of a suing coalition. By settling and dropping out of the coalition, a plaintiff creates a negative externality on the other plaintiffs—securing compensation for his own damages without contributing to the cost of litigation—such that the failure to internalize this externality can be exploited by the defendant.

However, in a litigation posture where plaintiffs make sequential take-it-or-leave-it settlement offers, we show that they will actually be exploited by one of their fellow plaintiffs rather than by the defendant. When we relax the assumptions, allowing each party to have positive bargaining power, the result lies between the two cases, and the plaintiffs can be exploited jointly by a fellow plaintiff and the defendant. Moreover, if litigation is a public good as is the case in shareholder derivative suits, parties may fail to reach a settlement, even if they have complete information. This may explain why we observe derivative suits in the United States but not in Europe.

† Ph.D. Program in the Center for Law & Economics, ETH Zurich.

†† Professor for Law, Economics and Business, Center for Law and Economics, ETH Zurich. The authors would like to thank Andrew Daughety, Benjamin Polak, Jennifer Reinganum, Patrick Schmitz, Urs Schweizer, Louis Visscher, Jamie Tucker-Foltz, the student editors, and seminar participants at the Conference to Celebrate the Career of Alan Schwartz and the IMPRS BeSmart Thesis Workshop for helpful comments on earlier drafts of this paper.

Introduction

This article studies settlement negotiations between a single defendant and many plaintiffs who share the cost of litigation. In this setting, a plaintiff who settles imposes a cost on the others, as he gets paid his own damages and stops contributing to the cost of trial. The literature has shown that defendants can exploit this problem, settling claims one by one for far less than they are worth together. Yet it is unclear whether the defendant is the only one who can benefit from the plaintiffs' vulnerability. We show that he is not—when plaintiffs make the settlement offers, one well-positioned plaintiff can capture most of the surplus at the expense of the rest.

Che and Spier considered the foundational model of settlement negotiations between a single defendant and N plaintiffs.[1] In this model, plaintiffs collectively sue to receive a share of damages, and the plaintiffs who proceed to trial are assumed to share the fixed total cost of litigation.[2] As such, a plaintiff who settles out-of-court reaps the benefit of the collective litigation, but does not share in the cost.[3] This, Che and Spire show, "imposes a negative externality on the other plaintiffs," enabling the defendant to coerce plaintiffs into settling for much less than their claims might otherwise be worth.[4] This holds under various bargaining set-ups (e.g., when there are more plaintiffs, when the offers are sequential, and when plaintiffs make settlement offers to the defendant), leading to a redistribution in favor of the defendant and diluting defendant's incentives to take precaution.[5]

Indeed, if the defendant makes simultaneous take-it-or-leave-it offers to plaintiffs, the unique, coalition-proof Nash equilibrium involves a divide-and-conquer strategy.[6] In order to understand the intuition of the argument, consider the following example: Imagine that there are only two plaintiffs, their suit would cost $4 to take to trial, and at trial, they will jointly collect damages of $6. In the benchmark case, where both plaintiffs go to trial, they would collect $6 in damages and pay $4 in legal fees, netting a joint payoff of $2 (or $1 each). But if only one plaintiff brings suit, he would bear the entire cost of the litigation alone—so his payoff would be negative (-$1). Hence, if one of the plaintiffs settles, the other plaintiff no longer has a credible threat to sue. In this case, the defendant can then settle with both plaintiffs by making a settlement offer of (a little more

1. Yeon-Koo Che & Kathryn E. Spier, *Exploiting Plaintiffs Through Settlement: Divide and Conquer*, 164 J. INST. & THEORETICAL ECON. 4 (2008).

2. *Id.* at 4.

3. *Id.*

4. *Id.*

5. *Id.*

6. *See* Ilya Segal, *Coordination and Discrimination in Contracting with Externalities: Divide and Conquer?*, 113 J. ECON. THEORY 147 (2003) (analyzing bilateral contracting between one principal and *N* agents).

than) $1 to the first plaintiff they approach, and nothing to the other: The first plaintiff will accept the offer, because it allows them to make more than they would if they went to trial, and the second plaintiff could not profitably sue for their own damages. This equilibrium is, of course, less optimal for the plaintiffs than the benchmark scenario, because they jointly receive less payoff—just over $1, instead of the full $2.

Che and Spier show that the externalities problem is worse still where the defendant approaches the plaintiffs sequentially and makes take-it-or-leave-it settlement demands to each plaintiff.[7] Because Plaintiff A knows that if he rejects the offer, B will accept it, Plaintiff A will therefore accept a settlement offer of (a little more than) 0. Consequently, Plaintiff B will also get payoff 0 since, on his own, he has no credible threat to sue. Even where plaintiffs make *simultaneous* take-it-or-leave-it settlement offers to the defendant, a race to the bottom pushes total plaintiff recovery down to (a little more than) 0.

In Part I, we show that these results are reversed in a setting where the plaintiffs make *sequential* take-it-or-leave-it settlement offers to the defendant. In this model, total plaintiff recovery will be as in the benchmark. Yet, some plaintiffs can extract higher settlement payments than others. This is because, in a typical case with many plaintiffs, there exists a plaintiff whose role is pivotal to the settlement process. By accepting this plaintiff's offer to settle out of court, the defendant can prevent the case from going to trial, and the remaining plaintiffs are left without a credible threat to sue. This, however, does not benefit the defendant. Indeed, the pivotal plaintiff, by making a take-it-or-leave-it offer, can skim off the whole exploitation benefit for himself. As for the plaintiffs who settle before the pivotal plaintiff, we show that these "intermediate plaintiffs" are able to extract the true value of their claims. Interestingly, the plaintiff who benefits the most tend to be an intermediate plaintiff. Hence, there is no general first-mover advantage.[8]

In Part II, we consider potential extensions of the model, relaxing the assumptions on bargaining power and considering different orders in which negotiations can take place. In what we call the "populist case," we show how the defendant can exploit the heterogeneity of bargaining power among plaintiffs if he has control over the order in which negotiations occur. Conversely, in the "elite capture" case, if high-bargaining-power plaintiffs control the sequence of negotiations, they can appropriate most of the surplus.

In Part III, we consider the case where litigation is a public good. While failure to settle is typically explained by asymmetric information[9] or

7. Che & Spier, *supra* note **Error! Bookmark not defined.**, at 12-13.

8. Except in the case where m = N = 2, where the first plaintiff is pivotal.

9. *See, e.g.*, Lucian Arye Bebchuk, *Litigation and Settlement under Imperfect Information*, 17 RAND J. ECON. 404 (1986); Barry Nalebuff, *Credible Pretrial Negotiation*, 18 RAND J. ECON.

overoptimism,[10] we show that, in the public good case, perhaps counterintuitively, parties often resort to litigation. One prominent example of litigation as a public good is the case of shareholder derivative suits. These are suits brought by shareholders against a company's directors for breach of fiduciary duty. As a derivative claim is technically a claim of the company, damages are paid to the corporate coffers rather than directly to shareholders. A derivative suit is therefore a public good since every shareholder benefits according to his share in the company's capital, irrespective of whether he has sued or not.

Grechenig and Sekyra modeled such a suit where a company manager decides to secretly misappropriate funds.[11] As stealing is assumed to be costly, the damage caused to the company exceeds the private benefit managers derive from their wrongdoing. In the American model, where all shareholders are allowed to collectively sue, their combined claims would equal damages caused to the company such that the manager would find it impossible to settle with them and still keep a profit for himself. In such a situation, there exists an equilibrium in mixed strategies where the manager occasionally steals, and the shareholders only bring suit some of the time.[12] In the European model, however, some jurisdictions prevent minority shareholders from suing by requiring them to hold a minimum amount of shares (e.g., 5 or 10%). Hence, in equilibrium, the manager can misappropriate funds, settle with blockholders, and make a profit at the expense of minority shareholders. In such a scenario, no suits occur.

As we explain in Part III, our model offers an alternative explanation as to why there are no shareholder derivative suits in Europe, which holds true even if ownership percentage limits are completely abandoned. Indeed, it predicts that a defendant can avoid litigation if there exists a dominant shareholder who wields veto power such that all remaining plaintiffs together would not have a credible threat to sue because they would find it too expensive. While it is rare, even in Europe, that a single shareholder is so dominant that they can singlehandedly veto litigation, it is realistic to assume that a relatively small joint group of blockholders is often in such a

198 (1987); Kathryn E. Spier, *The Dynamics of Pretrial Negotiation*, 59 REV. ECON. STUDS. 93 (1992); Jennifer Reinganum & Louis Wilde, *Settlement, Litigation and the Allocation of Litigation Costs*, 17 RAND J. ECON. 557 (1986); Urs Schweizer, *Litigation and Settlement Under Two-Sided Incomplete Information*, 56 REV. ECON. STUD. 163 (1989).

10. *See, e.g.*, John P. Gould, *The Economics of Legal Conflicts*, 2 J. LEGAL STUD. 279 (1973); Lowenstein et al. 1993; Oren Bar-Gill, *The Evolution and Persistence of Optimism in Litigation*, 22 J. LEGAL STUD. 490 (2006).

11. Kristoffel R. Grechenig & Martin Sekyra, *No Derivative Shareholder Suits in Europe—A Model of Percentage Limits, Collusion and Residual Owners*, Working Paper No. 2, German Working Papers in L. & Econ. (2007); *see also* Roberta Romano, *The Shareholder Suit: Litigation Without Foundation?*, 7 J.L. ECON. & ORG. 55 (1991).

12. If shareholders always sued, the manager would be effectively deterred from stealing. However, this cannot be an equilibrium, as the shareholders would not expend resources to monitor the manager and to bring suit, knowing that the manager is perfectly honest. On the other hand, not suing at all cannot be an equilibrium either, because then the shareholders know that they will be expropriated by a dishonest manager.

position.[13] Since it easier for blockholders to collude than it would be for individual shareholders in the dispersed shareholder structure of the United States, the likely outcome is a higher rate of settlements out of court in Europe, and a higher rate of cases proceeding to trial in the United States. This means that even without assuming information asymmetry, we can predict failure to settle and the resulting litigation.

Interestingly, this model also implies that, although minority shareholders do worse in Europe, the cost of litigation will generally be lower but will still achieve the same level of deterrence. Increasing levels of common ownership in the United States also suggests that this model might be increasingly reflective of the ownership structure in the United States.[14] Whereas Grechenig and Sekyra's conclusion depends on the director-defendant having most of the bargaining power, our explanation of the absence of shareholder derivative suits in Europe assumes that all the bargaining power lies with plaintiffs. In this way, the two models can be complementary.

We outline a few general assumptions that apply across the entire article. First, we assume perfect information among all plaintiffs and the defendant. Second, we adopt a simple tie-breaking rule: whenever a plaintiff or the defendant is indifferent between two outcomes, we assume they choose settlement. An alternative would be to slightly reduce the respective payoffs in such cases, but this could compromise clarity. Third, we assume there is no cooperation among plaintiffs. Our aim is to analyze bargaining with externalities, in contrast to the benchmark case in which all plaintiffs go to trial and each receives a proportional share of the damages minus litigation costs. Finally, throughout the paper, we also make several additional simplifying assumptions in the context of specific models or problems.

I. Sequential Take-It-Or-Leave-It Offers By Plaintiffs

Observing differential treatment of plaintiffs does not necessarily mean that the defendant exploited them. As we will show in this section, the plaintiffs may instead have been exploited by one of their fellow plaintiffs. This is the case in a sequential, take-it-or-leave-it offer model where the plaintiffs make the offers.

We consider N plaintiffs with total claimed damages D against a single defendant. Each plaintiff's share of the damages is D/N. Furthermore, the cost of litigation is fixed for both the plaintiffs ($C_P > 0$) and the defendant ($C_D > 0$). In reality, C_P should increase with more plaintiffs going to court

13. *See, e.g.*, Rafael La Porta, Florencio Lopez-de-Silanes & Andrei Shleifer, *Corporate Ownership Around the World*, 54 J. Fin. 471 (1999).

14. *See, e.g.*, Matthew Backus, *Christopher Conlon & Michael Sinkinson, Common Ownership in America: 1980–2017*, 13 AM. ECON. J.: MICROECONOMICS 273 (2021).

and the amount in dispute going up. However, this increase is not linear, as the costs grow much slower than N and D. Hence, we make a simplifying assumption that C_P is fixed.

Likewise for simplicity, we also assume that a plaintiff going to trial is certain to win. Alternatively, we could think of D as expected damages paid by the defendant in case the probability of winning at trial is not 100%. If we further suppose that each party will pay their own litigation costs, the expected damages case is equivalent to ours. However, in reality, litigation costs can be often reimbursed, which we discuss in Part III.B. Therefore, our assumption is a simplification and is not equivalent to a lower probability setup.

In period $n \in \{1, ..., i, ...N\}$, plaintiff n makes a take-it-or-leave-it ("TIOLI") offer a_n to the defendant, which the defendant either accepts or rejects. If the defendant accepts the offer, the plaintiff receives a_n from the defendant. If the defendant rejects the offer, the plaintiff can go to trial in period $N + 1$ together with all the other rejected plaintiffs. With s rejected plaintiffs, payoffs from going to trial are

$$\Pi = D/N - C_P/s \tag{1}$$

for each member of the suing coalition and

$$-(sD/N + C_D) \tag{2}$$

for the defendant.[15]

The restriction on the order of negotiations is strong and may appear somewhat unrealistic. But this analysis fills an important gap in the literature. Che and Spier have already analyzed the case of simultaneous negotiations.[16] By assuming sequential negotiations, we explore the complementary scenario. In reality, bargaining likely falls somewhere between these two extremes. For instance, some plaintiffs may negotiate simultaneously by cooperating in groups, while the groups themselves may engage in negotiations sequentially. Our sequential framework offers valuable insight into such intermediate cases.

Let m be the minimum number of plaintiffs for which $\Pi \geq 0$, such that only a coalition of at least m plaintiffs has a credible threat to sue. Using coalition-proof Nash equilibrium,[17] we can then prove the following proposition:

15. This setting is identical to Che & Spier, *supra* note **Error! Bookmark not defined.**, except for the assumption of sequential TIOLI offers by plaintiffs.

16. *See* Che & Spier, *supra* note **Error! Bookmark not defined.**.

17. *See, e.g.*, B. Douglas Bernheim, Bezalel Peleg & Michael D. Whinston, *Coalition-Proof Nash Equilibria I: Concepts*, 42 J. ECON. THEORY 1 (1987).

Proposition 1 *If there are N plaintiffs, plaintiffs n ∈{1, ..., i, ..., N – m} settle for D/N, pivotal plaintiff N – m + 1 gets more (mD/N + C_D). The m – 1 remaining plaintiffs get nothing. Total plaintiff recovery is as in the benchmark case. The defendant's incentives to take precaution are undiluted.*

The intuition behind the proof is that, at a certain point in the negotiation process—after settling with several plaintiffs—the defendant must reach an agreement with just one more plaintiff to avoid going to trial. This plaintiff, aware of the defendant's position, can demand a higher settlement. The defendant, anticipating that any remaining plaintiff would do the same, has an incentive to accept the current offer. All remaining plaintiffs, who are unable to recover either through trial or settlement, end up with nothing.

Proof. We will first prove that if there are *N* plaintiffs making take-it-or-leave-it offers to the defendant, parties will always settle out of court. Assume to the contrary that there will be litigation in equilibrium. This implies that there must exist a plaintiff $k \geq m$ who observes that $m - 1$ offers before him were rejected and who makes an offer a_k which is rejected. Assume that $k = N$. If the offer of plaintiff N is rejected, there will be a trial in period $N + 1$. Hence, the plaintiff's payoff will be

$$D/N - C_P/m \tag{3}$$

and the defendant has to pay $mD/N + C_D$.[18] We will now check if it is worthwhile for the plaintiff to deviate by making an offer a_N which is accepted. As the plaintiff has all the bargaining power, he will make an offer such that the defendant is indifferent between accepting and rejecting:

$$a_N = mD/N + C_D \tag{4}$$

As this exceeds the plaintiff's payoff as a member of a suing coalition (3), he will deviate such that $k = N$ cannot occur in equilibrium.

Next, assume that $k = N - 1$. If the offer a_{N-1} of plaintiff $N - 1$ is rejected, and there will be a trial in period $N + 1$. Given the certainty of trial, the defendant will settle for *D/N* with plaintiff *N*. Adding the liability he faces in court and the cost of litigation, he pays:

$$(m + 1)D/N + C_D \tag{5}$$

18. Note that the plaintiff has already settled with *N-m* plaintiffs, which reduces his damage payment.

If the offer of plaintiff $N-1$ is accepted, plaintiff N will settle for $mD/N + C_D$, just as we have already shown (4). Therefore, the defendant will accept offer a_{N-1}:

$$a_{N-1} + a_N = (m+1)D/N + C_D \Leftrightarrow a_{N-1} = D/N\,. \tag{6}$$

As D/N is higher than the plaintiff's payoff as a member of a suing coalition (3), he will deviate such that $k = N-1$ cannot occur in equilibrium. Working backward and arguing inductively, one can see that all plaintiffs $k \geq m$ make a settlement offer, which is accepted. Hence, there will never be litigation.

In the next step, we will prove that $m-1$ plaintiffs will receive a zero payoff. Given that the case always settles, the number of offers rejected must be less than m. Hence, there must be at least $N-(m-1)$ plaintiffs who settle. This implies that there exists a plaintiff j who observes that $N-m$ plaintiffs before him have settled and makes an offer which is accepted. Once this offer is accepted, it is clear that there will be no trial. Therefore, any plaintiff who has not settled will receive a zero payoff. The same holds true for any subsequent plaintiff as any positive settlement offer will be rejected. This establishes that, in equilibrium, there will be $m-1$ plaintiffs who receive zero payoff.

Finally, we will see that it will always be the last $m-1$ plaintiffs who receive a zero payoff. Assume that the first $m-1$ offers are rejected. Then not a single of the subsequent offers may be rejected if a trial is to be avoided. Indeed we have already shown that in this case, all plaintiffs $n \in \{m, ..., i, ..., N-1\}$ settle for D/N , and plaintiff N settles for $mD/N + C_D$. However, it is clear that this cannot be a Nash equilibrium. If only one of the first $N-(m-1)$ plaintiffs gets a zero payoff, he can benefit by undercutting subsequent plaintiffs.

The reason plaintiff $N-m+1$ is in the position to exploit subsequent plaintiffs is his pivotal role in the settlement process. By accepting his offer, the defendant can make absolutely sure there will be no trial. Hence, all subsequent plaintiffs are deprived of a credible threat to sue. As for the plaintiffs who settled before, it is true that their decisions put the pivotal plaintiff into his strong bargaining position in the first place. Yet, at the time when the defendant negotiates with the pivotal plaintiff, the decisions of those plaintiffs who have previously settled have already been made. Therefore, no prior plaintiff can skim off part of the exploitation benefit. It is interesting to note that the plaintiff who extracts the most is an intermediate plaintiff. Hence, there is no general first-mover advantage.

II. Bargaining Power

Up to this point, we have considered cases where the plaintiffs control the settlement amount. However, this is often not the case in practice. For

instance, the defendant may have a specialized legal team and be well-prepared for negotiations, while the plaintiffs are dispersed consumers with limited coordination. Let us now consider a scenario in which control over the settlement amount is not concentrated on one side; instead, each party possesses some degree of bargaining power.

In most of the analysis, we assume bargaining power to be exogenous; in particular, independent of the order in which negotiations take place. This keeps the analysis general: whatever gives one side an advantage in negotiations, whether superior legal representation, better information, or greater patience, is summarized in a single parameter. In Part II.B we propose some extensions to consider a situation where bargaining power is entangled with the order of negotiations.

Negotiations proceed sequentially in the order n=1,…,N, exactly as in Part I. What changes is the outcome of each bilateral negotiation. We assume that if a plaintiff has bargaining power $\alpha \in [0, 1]$, and the defendant has bargaining power $(1 - \alpha)$, then the final price is of the form $a = \alpha a_P + (1 - \alpha)a_D$, where a_P is the price proposed by the plaintiff, and a_D – the price proposed by the defendant. The parties bargain over the interval $[a_D, a_P]$, with α determining where the settlement falls within it. Formally, a is the asymmetric Nash bargaining solution over the range $[a_D, a_P]$, with weights α and $(1- \alpha)$. [19]

How do we determine the values of a_P and a_D? We define a_P as the amount by which the defendant's potential payment in court decreases by settling with the respective plaintiff. Hence, it is D/N for the plaintiffs who still have a credible threat to sue, $mD/N + C_D$ for the potential pivotal plaintiff, and 0 for the plaintiffs who negotiate with the defendant after she has settled with m other plaintiffs, and hence do not have a credible threat to sue.[20] In turn, we define a_D, the price proposed by the defendant, as the plaintiff's outside option, that is, the amount the plaintiff receives if the negotiations with the defendant fail. It is either his net recovery at trial or 0, if the potential litigation costs exceed damages.

In the following sections, we will use this setup to extend the analysis from Part I.

19. *See* Ken Binmore, Ariel Rubinstein & Asher Wolinsky, *The Nash Bargaining Solution in Economic Modelling*, 17 RAND J. ECON. 176 (1986) (providing a noncooperative foundation for the asymmetric Nash bargaining solution, with the weights reflecting the parties' relative impatience or exposure to breakdown risk).

20. Note that a_P is not the outside option of the defendant, but is instead tied to the potential trial payment. Otherwise, a_P would become contingent on the bargaining powers of the other plaintiffs, the result would become intractable, and the model would not reflect the setting we are modelling. That said, modelling it as an outside option would be more natural game-theoretically.

A. Plaintiffs With Equal Bargaining Powers

First, we propose a simple extension, which puts Proposition 1 from Part I and Proposition 5 from Che and Spier in a common framework. To proceed, we restate Proposition 5 in a form that aligns with our current setup.

> **Proposition 2** *If there are N plaintiffs and the defendant approaches them to make TIOLI offers, all the plaintiffs settle for 0 in equilibrium.*

Now, let us assume there are N plaintiffs, each with bargaining power $\alpha \in [0, 1]$ (i.e. the bargaining power among the plaintiffs is homogeneous).

> **Proposition 3** *If there are N plaintiffs, all with bargaining power $\alpha \in [0, 1]$, plaintiffs $n \in \{1, ..., N - m\}$ settle for $\alpha D/N$, pivotal plaintiff $N - m + 1$ gets more $\alpha(mD/N + C_D)$ and the $m - 1$ remaining plaintiffs get nothing. If $\alpha \in (0, 1)$, the total plaintiff recovery is lower than in case without externalities; both the defendant and the pivotal plaintiff exploit the other plaintiffs.*[21]

We see that for $\alpha = 1$ the statement is the same as for Proposition 1, and for $\alpha = 0$ it is equivalent to Proposition 2.

B. Heterogeneity in Bargaining Power Among Plaintiffs

What if bargaining power among plaintiffs is heterogeneous? We model this as follows: Let us assume that each plaintiff $i \in \{1, ..., N\}$ has bargaining power $\alpha_i \in [0, 1]$. For simplicity, assume all a_i are pairwise different. Then, the set $\{\alpha_1, ..., \alpha_N\}$ can be ordered with the standard $\leq$ relation and we can find one minimal element.

Now that we can distinguish between plaintiffs based on an important characteristic—their bargaining power—the order in which they negotiate with the defendant becomes significant. We can imagine two extreme cases.

First, when the plaintiffs have complete control over the order of negotiations, intuition suggests that active, well-informed plaintiffs or plaintiffs with access to better legal representation should secure better places in the negotiation process. We can imagine that such high-bargaining-power plaintiffs could coordinate to extract most of the surplus from the defendant and form a coalition, allowing them to exploit the remaining plaintiffs. We refer to this case as the "elite capture" case.

21. The proof for Proposition 3 appears in the Appendix.

When, thanks to better information or by exploiting the plaintiffs' lack of coordination, the defendant is able to take control over the order of negotiations, the situation changes dramatically. The defendant will approach the weakest plaintiffs first (i.e., the ones with the lowest bargaining power) to ensure that they do not have to deal with the stronger plaintiffs. We refer to this scenario as the "populist" case, as it reflects a dynamic similar to when political leaders find cooperation with elites too costly and instead seek support from individuals with lower bargaining power. We formalise this idea in the following proposition:

> **Proposition 4** *There are N plaintiffs, such that each plaintiff* $i \in \{1, ..., N\}$ *has bargaining power* $\alpha_i \in [0, 1]$. *Let* α_L *be the minimal element of* $\{\alpha_1, ..., \alpha_N\}$. *If the defendant can choose the order in which he negotiates with the plaintiffs, he approaches* $N - m + 1$ *plaintiffs with lowest bargaining powers first, picking the plaintiff L to be pivotal. Each i out of these* $N - m + 1$ *plaintiffs gets* $\alpha_i D/N$ *with the exception of L, who gets* $\alpha_L(mD/N + C_D)$. *The remaining* $m - 1$ *plaintiffs with higher bargaining power get nothing.*

The proof is analogous to the proof of Proposition 3. The only difference is that now the defendant can decide on the order of negotiations. Assuming the defendant wants to maximize their payoff (i.e. minimize their payment), they will approach the plaintiffs with the lowest bargaining power first, choosing the one with the lowest bargaining power as the pivotal plaintiff.

The order of negotiations may be set by the defendant, or could also be a result of exogenous factors such as regulation. When we consider the rules regarding bankruptcy proceedings, for example, we see that some types of claims are given priority over others, effectively forcing some claimants to wait until other claimants have negotiated with the defendant. The same effect was observed in court rulings resulting from the Wirecard scandal.[22] In November 2022, the Munich District Court ruled in a first-instance decision that shareholder damages claims rank lower than claims of unsecured creditors, which should be satisfied first.[23] Consequently, potential plaintiffs were divided into two groups, with the creditors positioned to negotiate settlements before the shareholders. Naturally, and in line with our analysis, such a ruling should lead to lower payments for the shareholders. Assuming there is some limited amount which can be easily retrieved from the company, claimants with higher priority who satisfy their claims lower the possibility that future, second-in-line claimants will receive substantial payments. This creates a negative externality on the

22. *See, e.g.*, Dan McCrum, *Wirecard: The Timeline*, FIN. TIMES (June 25, 2020), https://www.ft.com/content/284fb1ad-ddc0-45df-a075-0709b36868db (last visited Nov. 20, 2024).

23. LG München I, Judgment of 22 Nov. 2022 – 29 O 7754/21.

subsequent claimants who are not only left with less money to be retrieved, but also in smaller number, lessening their ability to put pressure on the company or take additional legal action. This is similar to the mechanism presented in previous sections.[24]

It is worth pointing out that bankruptcy proceedings provide a natural context for analyzing contracting externalities. For instance, Bernardo, Schwartz, and Welch offer this issue as a justification for the use of a mandatory menu in insolvency cases (i.e., involving liquidation or reorganization).[25]

III. Derivative Suits—The "Public Good" Case

In this section, we leave our analysis concerning bargaining power and focus on a different factor: we will assume that sometimes plaintiffs cannot dispose of a claim, but only of their right to sue on it.

We refer to this setup as the "public good" case. Imagine a house with many tenants. One of them plays violin every night, making it impossible for the others to sleep. By taking action and asking the violinist to stop, or, in case he does not want to stop, calling the police, one (or a small number) of the neighbors acts in common good. Even if some of the tenants are indifferent, or even get some small favors from the violinist for pretending they do not hear the noise, it suffices that only one tenant reacts. The effect—silence in the night—is not decreased in quantity or value by the fact that only one person took an action. Instead, quiet at night is a public good.

As with the violinist, we assume that where litigation is a public good, the damages won in court cannot be changed by a single plaintiff. We model the public good setup to fit the case of a derivative suit, where some shareholders sue a corporation's management on behalf of the whole company, and any damages won in court go to the company's coffers.

The suing plaintiff does bear some of the cost of delivering the public good. While in some countries, like the United States, a plaintiff in a shareholder derivative suit may have their attorney's fees reimbursed by the company for actions in the company's interest, there are other costs to the suing plaintiff associated with such an action that effectively makes it a public good. First, even if the plaintiff is reimbursed for attorney's fees, there are costs—such as time and effort—that cannot be reimbursed. Second, while we assume for simplicity that plaintiffs always win, in reality, there is always some risk of losing the case and failing to establish eligibility for reimbursement. Even if this risk is small, it implies expected costs. Finally, reimbursement may not cover the cost of securing the

24. In a decision from September 2024, the second-instance court, the Higher Regional Court of Munich, overturned the previous ruling giving both types of claims the same priority. OLG München, Judgment of 17 Sept. 2024 – 5 U 7318/22 e.

25. Antonio E. Bernardo, Alan Schwartz & Ivo Welch, *Contracting Externalities and Mandatory Menus in the U.S. Corporate Bankruptcy Code*, 32 J.L. ECON. & ORG. 395 (2016).

reimbursement itself (i.e., attorney's fees and expenses incurred to prove that fees charged to the plaintiff during the litigation were "reasonable"),[26] which further contributes to unrecoverable expenses. These considerations lend support for modeling shareholder derivative actions as litigation undertaken in the public good.

In this section, we consider a defendant negotiating with a group of plaintiffs over an indivisible good. This setup resembles that of Haghpanah,[27] though our assumptions differ in key way: we impose specific restrictions on the negotiation process, we treat the valuation of the good as common knowledge, and we do not differentiate between plaintiffs based on their valuations. This model offers an interesting perspective on an otherwise well-studied case.

A. Derivative Suits Model With Heterogeneous Plaintiffs

We consider N shareholder-plaintiffs who can sue on behalf of the company for a total amount of D against a single defendant-director. Cost of litigation is fixed on both the plaintiffs' ($C_P > 0$) and the defendant's side ($C_D > 0$). It is reasonable to assume C_P is positive, as we can imagine there are some costs which cannot be reimbursed, or a risk the costs will not be reimbursed at all. We allow for plaintiffs to hold different shares in the capital of the company. This requires some adaptations compared to the model in Part I: in period $n \in J = \{1, ..., i, ...N\}$, plaintiff n, holding a share of χ_n, makes a take-it-or-leave-it offer a_n to the defendant, which the latter can either accept or reject. If he accepts, the plaintiff receives a_n from the defendant. If he rejects, the plaintiff can go to trial in period $N + 1$ together with other rejected plaintiffs. With suing plaintiffs representing a share of σ in the company's capital and assuming that plaintiffs share litigation costs according to their relative holdings, the payoff from going to trial for plaintiff n is:

$$\Pi_n = \chi_n D - \frac{\chi_n}{\sigma} C_P \tag{7}$$

if he participates in the suit.

If he does not participate, either because he has settled or has decided to freeride, his payoff will be $\widehat{\Pi}_n = \chi_n D$. The defendant's payoff in the event of trial is $-(D + C_D)$. Note that unlike the above, the defendant-director's liability is not reduced by any of the prior settlement agreements. We define μ as the minimum share of the capital that a suing coalition must collectively represent in order to have a credible threat to sue:

26. *See, e.g.*, N.Y. BUS. CORP. LAW § 626(e).

27. Nima Haghpanah, Anay Kuvalekar & Elliot Lipnowski, *Buying from a Group*, 114 AM. ECON. REV. 2596 (2024).

$$\mu \equiv inf(\sigma|\Pi_n > 0) \tag{8}$$

and derive the following proposition:

> **Proposition 5** *If plaintiffs cannot dispose of a claim but only of their right to sue for it, cases will go to trial if no single plaintiff can veto litigation ($\chi_n < 1 - \mu$ for all $n \in J$). As litigation is costly, total plaintiff recovery will be less than in the benchmark, but the defendant's incentives remain undiluted. However, if there exists at least one plaintiff who can wield veto power ($\chi_n > 1 - \mu$), the defendant settles for $D + C_D$ with the first such plaintiff, while all other plaintiffs receive a zero payoff. Total plaintiff recovery is as in the benchmark.*

The intuition behind the proof is that no plaintiff wants to build the bridge for any subsequent plaintiff to be pivotal. Hence, there will never be enough plaintiffs who settle in order for the defendant to avoid litigation. The logic of the argument fails, however, if there exists a veto wielding plaintiff. He is the one who can guarantee that there will be no trial all by himself, regardless of whether prior plaintiffs settled or not.

Proof. We first show that there will always be litigation if $\chi_n < 1 - \mu$ for all $n \in J$. Suppose the opposite is true. In order to avoid litigation, the defendant must settle with plaintiffs representing more than $1-\mu$ of shares. This implies that there must exist a pivotal plaintiff k who (i) can, by settling, raise the share above $1 - \mu$; and (ii) makes an offer which is accepted by the defendant. Therefore, the difference between the settlement amount which is required in order to avoid litigation and the prior settlement amount which plaintiff k observes when making his offer, must be less than the share of plaintiff k:

$$1 - \mu - \sum_{n=1}^{k-1} \chi_n \lambda_n \leq \chi_k \tag{9}$$

where λ_n indicates whether plaintiff n settled ($\lambda_n = 1$) or not ($\lambda_n = 0$). As in the previous assumption, it holds that $\chi_k < 1 - \mu$, there must also exist a plaintiff $j < k$ who knows that by settling he will make plaintiff k pivotal:

$$1 - \mu - \sum_{n=1}^{j} \chi_n \lambda_n \leq \chi_k < 1 - \mu - \sum_{n=1}^{j-1} \chi_n \lambda_n \tag{10}$$

Suppose $k = N$ is the pivotal plaintiff and let a_N be his settlement offer to the defendant. The defendant knows that if he rejects the offer, the

coalition will go to trial, and he has to pay $D + C_D$ to the company.[28] Hence, plaintiff N makes an offer of

$$a_N = D + C_D \tag{11}$$

which is accepted by the defendant. Note, that any equilibrium strategy by the defendant involving the acceptance of settlement offers must necessarily be better than rejecting all settlement offers and going to trial:

$$\sum_{n=1}^{N} a_n \lambda_n \leq D + C_D. \tag{12}$$

Inserting (11) into (12) we get:

$$\sum_{n=1}^{N-1} a_n \lambda_n + D + C_D \leq D + C_D \Longrightarrow \sum_{n=1}^{N-1} a_n \lambda_n = 0 \tag{13}$$

which means that none of the accepted prior settlement offers may have been positive. This cannot occur in equilibrium. Indeed, we will see that plaintiff j who makes plaintiff N pivotal will always have an incentive to deviate by making an offer $a_j > 0$. Suppose that j is the plaintiff who directly precedes the pivotal plaintiff, $j = N - 1$. He can either make an offer of $a_{N-1} = 0$ which is accepted or an offer of $a_{N-1} > 0$, which is rejected.

If he is rejected, the potential coalition of suing plaintiffs will represent a share of:

$$\sigma = 1 - \sum_{n=1}^{N-2} \chi_n \lambda_n - \chi_N \lambda_N. \tag{14}$$

Inserting $j = N - 1$ into (10) we get:

$$1 - \mu - \sum_{n=1}^{N-1} \chi_n \lambda_n \leq \chi_N < 1 - \mu - \sum_{n=1}^{N-2} \chi_n \lambda_n. \tag{15}$$

Making use of the second inequality in (15) we can see that

$$\sigma > \mu + (1 - \lambda_N)\chi_n \geq \mu. \tag{16}$$

Therefore, the coalition will go to trial and plaintiff N–1 gets a payoff of $\chi_{N-1}\,(D - C_P/\sigma) > \chi_{N-1}\,(D - C_P/\mu)$ which is positive by the definition of μ. Hence, plaintiff j deviates. It follows that $j \neq N - 1$ which implies that:

$$\chi_n < 1 - \mu - \sum_{n=1}^{N-1} \chi_n \lambda_n. \tag{17}$$

28. Although there may be some freeriding, it will not prevent litigation. Given the strategy of all other plaintiffs, the marginal plaintiff who ensures that the suing coalition represents at least a share of μ will do worse by defecting from the coalition. Hence, defecting will not be part of a Nash equilibrium. This is a common feature of settings where the provision of the public good constitutes a binary decision.

Next suppose that $j = N - 2$. Once again, he can either make an offer of $a_{N-2} = 0$, which is accepted, or an offer of $a_{N-2} > 0$, which is rejected. If he is rejected ($\lambda_{N-2} = 0$), the potential coalition of suing plaintiffs in period $N + 1$ will represent a share of:

$$\sigma = 1 - \sum_{n=1}^{N-3} \chi_n \lambda_n - \chi_{N-1}\lambda_{N-1} - \chi_N \lambda_N \geq 1 - \sum_{n=1}^{N-1} \chi_n \lambda_n - \chi_N. \qquad (18)$$

Making use of (17) we see that $\sigma > \mu$. Therefore, the coalition will go to trial and plaintiff $N - 2$ gets a payoff of $\chi_{N-2}\,(D - C_P/\sigma) > \chi_{N-2}\,(D - C_P/\mu)$ which is positive by definition of μ. Hence, plaintiff j deviates. It follows that $j \neq N - 2$. Working backwards we can make the argument that each plaintiff $n < N$ either is not in the position to make plaintiff N pivotal or makes a positive settlement offer which is then rejected. Therefore plaintiff N cannot be pivotal.

Next suppose that plaintiff $k = N - 1$ is pivotal. If he settles, there will be no trial. Hence, his offer of $a_{N-1} = D + C_D$ is accepted, while the offers of all subsequent plaintiffs $n \in \{k, ..., i, ..., N\}$ will be rejected. But then there must exist a plaintiff $j < N - 1$ who makes plaintiff $N - 1$ pivotal. Using the same argument as before, we see that only offer $a_j = 0$ will be accepted. Yet, as plaintiff j will derive a positive payoff from the trial, he will ask for $a_j > 0$ such that $k \neq N - 1$. Working backwards we will eventually come to the hypothesis that $k = \bar{k}$ is the pivotal plaintiff, where

$$\bar{k} = sup\left\{k \left| \sum_{n=1}^{k} \chi_n < 1 - \mu \right.\right\}. \qquad (19)$$

Yet, he cannot be pivotal as, even if he settles, there will not be enough settlements in order to avoid the trial.

The logic of the argument fails, however, if there exists at least one veto wielding plaintiff $\chi_k > 1 - \mu$. This can be seen from expression (9). The first such plaintiff will be pivotal regardless of what the other plaintiffs do. He will settle for $D + C_D$ exploiting all other plaintiffs. ■

B. Explaining the Differences in Litigation in the United States and Europe

The model might explain the empirical phenomenon that derivative suits are rather widespread in the United States while absent in Europe.[29] Indeed, it predicts that trial can be avoided if there exists a dominant shareholder who wields veto power in the sense that all remaining plaintiffs together would not exhibit a credible threat to sue because they should find it too expensive. This plaintiff will extract the whole damage payment and the director-defendant's cost of litigation, leaving nothing to minority shareholders. While it will not often be the case, even in Europe, that the

29. *See, e.g.*, Romano, *supra* note 11, at 55; Grechenig & Sekyra, *supra* note 11, at 5.

dominance of a single shareholder is such that he can veto litigation alone, it is realistic for a relatively small group of blockholders jointly to be in such a position.[30] As collusion among them is much easier to organize than in the dispersed shareholder structure of the United States, the likely outcome is that there will be settlements out of court in Europe, while claims will proceed to court in the United States.

Interestingly, the model also implies that although minority shareholders do worse in Europe, the cost of litigation will generally be lower while still achieving the same level of deterrence. Whereas Grechenig and Sekyra's results depend on the director-defendant holding most of the bargaining power, our explanation of the absence of shareholder derivative suits in Europe assumes that all the bargaining power lies with the plaintiffs. The two models, therefore, are complementary.[31]

Gelter discusses potential reasons for the low number of derivative suits in non-U.S. legal systems.[32] Among other factors, Gelter highlights the European litigation cost allocation regime and disparities in plaintiffs' access to relevant information. Note that both of these factors align well with the framework of our model.

If we relax the assumption on the outcome of litigation and assume some level of uncertainty, we should take the expected payoff as a reference in negotiations. When we take into account that the uncertainty about the result can be quite big due to lack of information, the expected sum a plaintiff can win in court further decreases. Moreover, under the European cost allocation regime (the "loser pays" system), the expected litigation costs increases.[33] In the context of our model, both of these effects shift the outcome toward settlement rather than litigation. Finally, the fact that any damages awarded in court go to the coffers of the company, rather than directly to the plaintiffs, should provide an additional incentive for large shareholders to prefer out-of-court settlements.

This does not imply that derivative suits should be entirely absent in Europe. Naturally, if the stakes are high enough and shareholders are able to coordinate, such cases are likely to arise. Another compelling reason for their emergence is strategic litigation: law firms or entities representing shareholders may have their own strategic incentives to initiate lawsuits

30. *See, e.g.*, La Porta, Lopez-de-Silanes & Shleifer, *supra* note 13, at 471.

31. Grechenig & Sekyra, *supra* note 11, argue that the plaintiff is at a disadvantage in settlement negotiations as he will eventually have to decide whether to accept the defendant's offer or to bring suit. Therefore, the defendant has the power to make a take-it-or-leave-it offer. We find this argument unconvincing as it ignores the possibility of reaching a settlement after a suit is brought. Indeed, bringing suit has little immediate consequences and parties may well reach a settlement later as litigation cost start to pile up.

32. Martin Gelter, *Why Do Shareholder Derivative Suits Remain Rare in Continental Europe?*, 37 BROOK. J. INT'L L. 843 (2012); Martin Gelter, *Preliminary Procedures in Shareholder Derivative Litigation: A Beneficial Legal Transplant?*, EUR. CO. & FIN. L. REV. (2022).

33. Note that in the United States plaintiffs can claim reimbursement for their expenses from their company when a derivative suit proves successful.

against management. From the perspective of our model, this significantly reduces the effective costs on the plaintiffs' side, as the representing entities are not primarily focused on maximizing fees collected from the plaintiffs. As a result, the likelihood that some shareholders veto litigation decreases.

Potential environmental, social, and governance (ESG) litigation is a relevant consideration in this context. We can take as an example the recent English case where ClientEarth filed a derivative lawsuit against Shell's board of directors, alleging failure to meet the company's environmental goals.[34] Here, however, we should ask whether derivative suits are the most effective tool for achieving the strategic objectives of litigants in such cases.

Conclusion

In this Article we have considered a situation where the decision of plaintiffs to settle creates a negative externality on other plaintiffs. Che and Spier have shown that failure to internalize this externality can often be exploited by the defendant. Yet, observing differential treatment of plaintiffs does not necessarily mean that they are exploited by the defendant. This Article shows that, if plaintiffs make sequential take-it-or-leave-it offers, there exists a pivotal plaintiff who can expropriate some of his fellow plaintiffs.

When each party is given positive bargaining power, the outcome lies between the one described by Che and Spier and the result from Part I: some plaintiffs are exploited, partly by the defendant and partly by fellow plaintiffs. If plaintiffs differ in their bargaining power, the order of negotiations becomes crucial. When the defendant controls this order, he can strategically exploit the weaker plaintiffs, further reducing his total payment.

Moreover, if litigation is a public good, like in the case of derivative suits, parties may fail to settle even under complete information. Finally, this Article offers a theoretical explanation for why we observe derivative suits in the United States but not in Europe.

34. *See, e.g.*, Hans De Wulf, *The Failed Derivative Action by ClientEarth Against Shell's Directors: Minority Shareholders Should Not Try to Determine a Corporation's Climate Strategy Through the Courts*, EUR. CO. CASE L. 189 (2023).

Appendix

The following proof is based on the proofs of Proposition 1 from Part I and Proposition 5 from Che and Spier.

Proof of Proposition 3. First, we want to show there is no litigation. The reasoning is quite similar to the proof of Proposition 1. Suppose there is litigation in equilibrium. That means there is litigation if $k \geq m$ plaintiffs do not settle. If we assume $k > m$, it means that in the negotiations between the defendant and the last of the litigating plaintiffs in the sequence, the defendant can propose to pay $D/N - C_P/k$, which is the outside option of this plaintiff. The plaintiff proposes D/N (the amount by which the potential payment in court is reduced), the final payment is $D/N - (1 - \alpha)C_P/k$ and both parties are better off. Hence, k cannot be larger than m.

Now, assume $k = m$ and the last plaintiff not to settle is plaintiff N. When he negotiates with the defendant, his outside option is $D/N - C_P/m$, the amount he can get in court. Defendant's is ready to accept $mD/N + C_D$, since the Nth plaintiff is the last one who can stop litigation, and the final payment is $\alpha(mD/N + C_D) + (1 - \alpha)(D/N - C_P/m)$, which both parties are willing to accept. Hence, N cannot be the last plaintiff who does not settle. But this reasoning applies to any other plaintiff—given that $m - 1$ plaintiffs have not settled, each subsequent plaintiff is the last who can prevent litigation, so in each of these negotiations the plaintiff asks $mD/N + C_D$, in accordance with our convention, and the defendant is willing to accept the respective final price, as it will not decrease with the subsequent plaintiffs. Hence, we cannot have $k = m$ and, consequently, there cannot be litigation in equilibrium.

Now, what do plaintiffs get in settlement? Consider first a_D. Suppose the defendant reaches plaintiff k in the sequence and, up to that point, j offers have been rejected. Plaintiff k's outside option is then $\max\{0, D/N - C_P/(j + 1)\}$. On the equilibrium path, no offers are rejected before the pivotal plaintiff, so $j = 0$ and the outside option equals $\max\{0, D/N - C_P\} = 0$, since $D/N < C_P$ whenever $m > 1$. Hence $a_D = 0$ for each of the first $N - m$ plaintiffs, and each is willing to accept any nonnegative offer.

The amount a_P is determined due to our convention: for each of the first $N - m$ plaintiffs, $a_P = D/N$, the amount by which settling reduces the defendant's payment at trial. As $a_D = 0$, each of these plaintiffs receives $\alpha D/N$. The $(N - m + 1)$th plaintiff commands more, $a_P = mD/N + C_D$, because settling with him allows the defendant to avoid trial altogether. His outside option is nevertheless zero because, were his negotiation to fail, the defendant would settle with the next plaintiff, who would become pivotal in his place, so $a_D = 0$ and his settlement is $\alpha(mD/N + C_D)$. Finally, once the pivotal plaintiff has settled, the remaining $m - 1$ plaintiffs have no credible threat to sue, so $a_P = a_D = 0$ and they receive nothing. As we see, we use the same intuitions as in the aforementioned proofs of Proposition 1 from Part I and Proposition 5 from Che and Spier.