



**The “Rainmaker’s Dilemma:”  
Bad Debt Loss  
Insurance in Settlement and Litigation**

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# The “Rainmaker’s Dilemma:” Bad Debt Loss Insurance in Settlement and Litigation

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## Abstract

In this paper, we analyze the impact of Bad Debt Loss Insurance on settlement outcomes. A huge success in a settlement or trial can turn into a disaster when the defendant goes bankrupt before paying the plaintiff’s claim. “Rainmakers” face the following dilemma: the greater the success, the greater the defendant’s bankruptcy risk. The starting point of our paper is a simple trial and litigation model with perfect and complete information. We add the possibility of a defendant’s bankruptcy, and of buying Bad Debt Loss Insurance for both the settlement and the trial stage. We demonstrate that trial insurance and settlement insurance have different impacts on the predicted outcome of settlement negotiations. Trial insurance tends to increase the settlement result; therefore, it generates a contract rent for the insurer and the insured. Settlement insurance, however, may have the opposite effect, as it decreases the settlement result.

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# 1 Introduction

This paper analyzes what impact Bad Debt Loss Insurance (BDLI) may have on the trial and settlement behavior of litigants. BDLI covers the creditor's loss if the debtor goes bankrupt before he pays the debt. A typical BDLI case takes place in three stages: In stage one, the creditor delivers a good and now expects the due payment to take place in stage three. However, it is possible that the debtor goes bankrupt in stage two, i.e., before acquitting his debt. If a BDLI contract has been made before stage 1, then the insurer covers (a part of) the creditor's loss.

In this paper, we replace the delivery stage (one) by trial and settlement. The principle of BDLI is not limited to delivery contracts. Claims can also arise from other types of interaction. E.g., a plaintiff who has won a legal dispute may as well lead face the risk that the defendant goes bankrupt before the payment is due. In a dispute about contractual obligations, or an accident, one party typically demands an amount of money from the other, and threatens to go to court. Before the trial takes place, the parties may negotiate a settlement.

Such a dispute may have three different outcomes. In two of them, when the plaintiff prevails in court, or when he concludes a settlement, he obtains a legally enforceable claim against the defendant. If the defendant does not pay immediately, he might declare bankruptcy before the plaintiff can collect the money. Ironically, the bankruptcy risk may increase with the compensation adjudged by the court (or the settlement result). This is what we call a "rainmaker's dilemma". A landslide victory may turn into a disaster if the defendant goes bankrupt, as this dramatically decreases the amount a successful plaintiff can collect.<sup>1</sup>

The bad surprise may even be greater under the British cost allocation rule. This rule allows the prevailing plaintiff to claim reimbursement for his litigation costs from his opponent. If, however, the latter goes bankrupt, then even a prevailing plaintiff has to bear his own costs (in addition to the full amount of court fees). Hence, the risk of defendant's bankruptcy may dra-

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<sup>1</sup>This is the subject of the novel "The Rainmaker" by John Grisham (1996): A young lawyer has achieved an enormous award in his first trial, but did not collect any money, since the defendant went bankrupt after the trial.

matically decrease the expected value of a trial award. A similar risk awaits the plaintiff if he concludes a settlement. If the plaintiff faces the risk of the defendant going bankrupt, then the expected value of the agreed upon settlement award is smaller than in a world without bankruptcy risk.

BDLI covers the outstanding money if a debtor declares bankruptcy. Hence, we apply this idea to claims out of trial awards on the one hand, and to settlement results on the other hand. We analyze the strategic impacts these two types of insurance have on the settlement outcome. We define as “*trial insurance*” a BDLI that covers the plaintiff’s claim after having prevailed in court. In the same vein, we define as “*settlement insurance*” a BDLI which covers the risk of a defendant’s bankruptcy after a settlement agreement. At first glance, the bankruptcy risks for trial and settlement appear to be similar. However, it is surprising that insurers in reality only offer trial insurance, while settlement insurance seems to be non-existent.

The model presented here allows for a separate analysis of the impact trial and settlement insurance have on the settlement result (according to the symmetric Nash bargaining solution).<sup>2</sup> We derive that settlement insurance fails to create a mutual benefit for the insurer and the plaintiff, when both sides of the BDLI contract are risk-neutral. This would explain the non-existence of settlement insurance. Contrary to this, trial insurance creates a mutual benefit for the plaintiff and the insurer, which may explain why this type of BDLI can be found in reality. In the terminology of Kirstein (2000), trial insurance is a strategic insurance as it improves the strategic situation between plaintiff and defendant to the benefit of the former, rather than a device for risk-allocation.<sup>3</sup> The driving force of strategic insurance is the modification of the plaintiff’s threat point in settlement negotiations.<sup>4</sup> The consequence of such a strategic move is an exploitation of the defendant. Hence, strategic insurance creates a cooperation rent between insurer and plaintiff even if both parties are risk-neutral.

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<sup>2</sup>See Binmore, Rubinstein and Wolinsky (1986) for the applicability of this axiomatic approach to non-cooperative games.

<sup>3</sup>See also Velthoeven and van Wijck (2001). Seog (2006) has applied a similar approach to Cournot oligopolists.

<sup>4</sup>Kirstein and Rickman (2004) present a model which also allows the plaintiff to increase his threat points by a strategic move prior to settlement negotiations.

Only a few papers have presented general analyses of BDLI. Thakor (1982) proposes that BDLI may serve as a signal to overcome lemons market problems. The insurer, as a third party between borrower and lender, produces informative signals. Borrowers can thereby signal their default probability to lenders.<sup>5</sup> The theory according to which the purchase of BDLI constitutes a valid signal to borrowers was, however, questioned by Hsueh and Li (1990). This stream of literature is, however, not concerned with the strategic effect of BDLI explained above, which is the topic of our paper.

In section 2, we present a simple litigation model with perfect and complete information that consists of a settlement and a trial stage.<sup>6</sup> Furthermore, we add the possibility of bankruptcy to both stages. In section 3, the trial stage is analyzed, with and without trial insurance. We derive the conditions under which the threat to sue is credible or not. Section 4 presents the analysis of the settlement stage. Here we demonstrate the effect of bankruptcy and settlement insurance on the symmetric Nash bargaining solution.

## 2 Outline of the model

We consider a simple model in which a plaintiff (P) and a defendant (D) negotiate a pre-trial settlement. If the parties fail to reach an agreement, the plaintiff may proceed to trial, in which case a judge decides the dispute with an exogenously given probability (denoted as  $\beta$ ) in favor of the plaintiff. Thus, the dispute may lead to one out of four possible outcomes:

1. a settlement agreement,
2. the plaintiff drops the case,
3. the plaintiff prevails in court,
4. the plaintiff loses in court.

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<sup>5</sup>This signaling effect has been empirically estimated by Kidwell, Sorensen and Wachowicz (1987).

<sup>6</sup>This helps to keep the model tractable. Moreover, we limit our view to one-stage settlement games. For multi-stage games, see Spier (1994) as well as Daughety and Reinganum (2004).

If the parties conclude a settlement, or if the plaintiff prevails in court, he obtains a legally enforceable claim against the defendant (either the settlement result, denoted  $S$ , or the amount at stake, which we denote as  $Y > 0$ ). We assume that the actual value of the defendant's assets becomes known only after this claim is established. During the game, the parties perceive the asset value as a random variable. Its realization may turn out to be smaller than the debt of the defendant (consisting of the plaintiff's claim plus the litigation cost to be borne by the defendant). In this case, the defendant has to declare bankruptcy. To keep matters simple, we model the asset value  $A$  as a binary random variable:<sup>7</sup>  $A \in \{0; 1\}$  with  $\alpha = \Pr(A = 0)$ , hence  $(1 - \alpha) = \Pr(A = 1)$ . All other parameters of the settlement and litigation game are assumed to be common knowledge, including the fact whether the plaintiff is insured. We assume the parties to be risk-neutral, i.e., they maximize their respective expected monetary income. In a bargaining game with complete and perfect information, risk-neutral parties will always agree upon a settlement if a bargaining range exists.

We apply the British litigation cost allocation rule,<sup>8</sup> according to which the losing party has to bear both sides' litigation costs, which we denote as  $C > 0$ . We limit our focus to the case  $Y + C < 1$ , which makes sure that the defendant can pay all his debts if the greater asset value ( $A = 1$ ) is realized. Allowing for the possibility of a defendant's bankruptcy adds a twist to the British rule. If a defendant goes bankrupt after having lost in court, the plaintiff not only has to pay both parties' court cost, but would also receive no reimbursement for his attorney cost.<sup>9</sup>

Figure 1 displays one of the four possible subgames of the game between P and D, depending on P's decision to buy BDLI. We distinguish two types

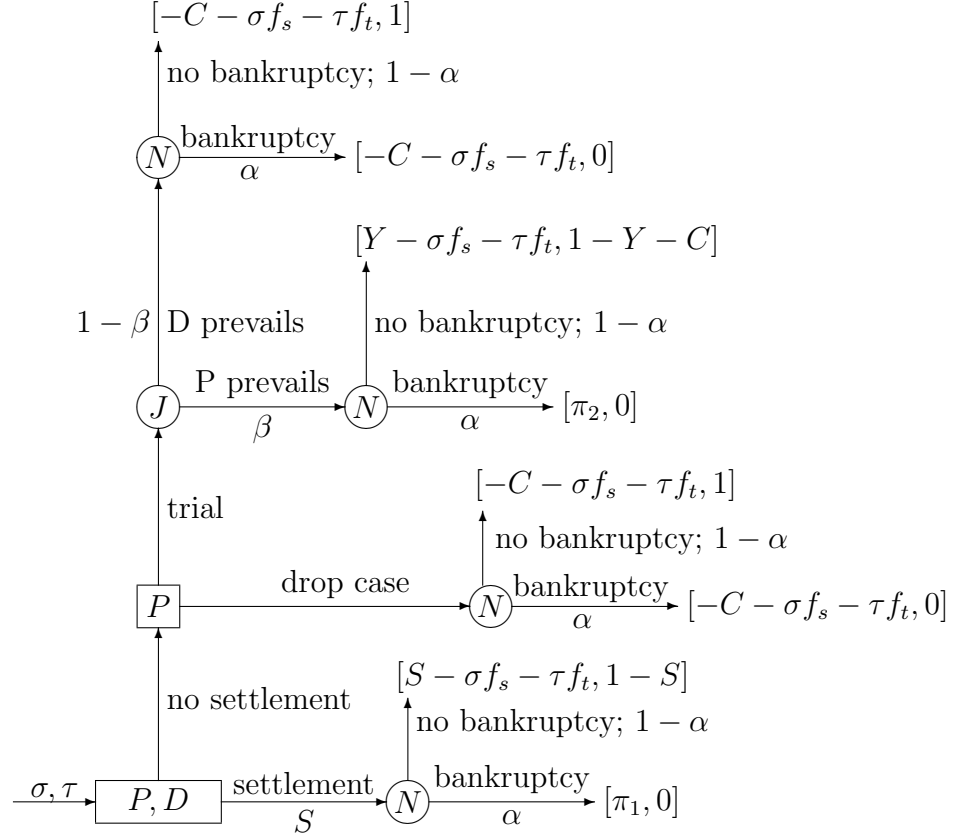
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<sup>7</sup>The asset value could as well be modeled as a continuous random variable, drawn from the interval  $[0, 1]$ . Under this approach a marginal increase of the settlement result would also marginally increase the bankruptcy risk. However, this approach drastically complicates the Nash bargaining model without providing additional insights.

<sup>8</sup>The whole analysis could just as well be carried out using the American cost allocation rule. However, in the case of the British rule, the bankruptcy risk of the defendant is higher as it also includes the defendant's litigation cost.

<sup>9</sup>In reality, should the losing defendant go bankrupt, then the prevailing plaintiff only has to pay his own attorney and court fees, but not his opponent's attorney. Subsequently, we do not distinguish between court fees and attorneys' fees; this simplification has no important impact on our results.

Figure 1: Settlement and trial subgame



of BDLI: Trial insurance covers claims out of a judicial decision, whereas settlement insurance covers claims that originate from a pre-trial settlement. We denote P's decision to buy settlement insurance as  $\sigma = 1$ , while  $\sigma = 0$  represents his decision not to buy this type of BDLI. In the same vein, we denote his decision to buy trial insurance as  $\tau = 1$ , and to abstain from it as  $\tau = 0$ . Hence, the complete game consists of four subgames. Settlement insurance costs a fee  $f_s \geq 0$ , trial insurance costs  $f_t \geq 0$ .

Each of the four subgames starts with settlement negotiations between P and D. To derive the settlement result  $S \in \mathbb{R}$ , we apply the symmetric Nash

bargaining solution. We can safely limit our view to cases where  $0 < S < 1$ , and we assume bargaining to be costless. In Figure 1, the small square labeled P denotes the plaintiff's decision node, while the large square labeled P,D denotes the Nash bargaining stage. All circles labeled N or J denote chance moves. If the parties agree upon a settlement result, nature draws the random value of D's asset. If  $A = 1$  is realized, then the asset value exceeds the settlement result, which occurs with a probability of  $1 - \alpha$ . In this case D pays the agreed-upon amount to P and the game ends. If the realization of the asset value is zero (with probability  $\alpha$ ), then it is insufficient to cover the agreed-upon payment and D's payoff is zero.

P's payoff in this case is denoted  $\pi_1$  and depends on whether or not he has bought a settlement insurance. If he is not insured ( $\sigma = 0$ ), then gains nothing out of the settlement negotiations. In this case, his payoff accrues to  $-\tau f_t$  (if he has trial insurance, he only has to pay that fee). If the plaintiff holds a settlement insurance ( $\sigma = 1$ ), then he receives the settlement result  $S$  as a reimbursement from the insurer. Hence we have  $\pi_1 = \sigma(S - f_s) - \tau f_t$  at the endnode in the lower right corner of the subgame tree.

When the parties fail to agree upon a settlement, then P has to decide whether to bring the case to court or not. If he drops the case, the game ends without any transfer payment between the parties, and without litigation costs. If P proceeds to court, and the judge (J) decides the case in favor of D, which occurs with probability  $1 - \beta$ , then the game ends. In this case, no payment from D to P is due, but now P has to bear both sides' litigation costs. If, however, the plaintiff prevails (which occurs with probability  $\beta$ ), then the asset value realizes. This may drive the defendant into bankruptcy (with probability  $\alpha$ ), or (with  $1 - \alpha$ ) the defendant survives and is able to pay court costs and the amount at stake. In this case, P receives  $Y$ .

We assume both P's probability to prevail in court and D's bankruptcy probability to be independent of P's insurance status. In case of a bankruptcy, P's payoff (denoted  $\pi_2$ ) depends on whether or not he has bought a trial insurance. If he is insured ( $\tau = 1$ ), he receives the amount at stake  $Y$ , net of the fee  $f_t$ . If not ( $\tau = 0$ ), he has to bear the litigation cost  $C$ . Hence  $\pi_2 = \tau(Y - f_t) - (1 - \tau)C - \sigma f_s$  which can be simplified to  $\pi_2 = \tau(Y + C) - C - \tau f_t - \sigma f_s$ .



The next two sections solve the game by backwards induction. We start with the trial stage and evaluate the impact of trial insurance on the decision to go to court, as well as on the expected value of a trial (section 3). This expected value creates the threat points of the bargaining parties during the settlement stage (which is analyzed in section 4).

### 3 Trial stage

In this section we evaluate the decision situation of P when he makes his choice between dropping the case and pursuing it towards trial. The probability of prevailing at court plays a crucial role for this decision. We derive the threshold values of this probability for an insured and an uninsured plaintiff. Furthermore, we derive the expected value of a trial for both types of plaintiffs as well as for the defendant. The plaintiff's expected payoff from proceeding to trial accrues to  $T^P(\sigma, \tau) = \beta(1 - \alpha)Y + \beta\alpha[\tau Y - (1 - \tau)C] - (1 - \beta)C - \sigma f_s - \tau f_t$ , which implies that a plaintiff who has bought no trial insurance ( $\tau = 0$ ) expects  $T^P(\sigma, 0) = \beta[(1 - \alpha)Y - \alpha C] - (1 - \beta)C - \sigma f_s$  from a trial. Such a plaintiff will not proceed to court if the expected trial value is smaller than the payoff he collects when dropping the case, i.e.,  $-(\sigma f_s + \tau f_t)$ . Hence, the condition that the uninsured plaintiff proceeds to court is

$$\beta[(1 - \alpha)Y - \alpha C] - (1 - \beta)C > 0 \quad (1)$$

A plaintiff with trial insurance expects  $T^P(\sigma, 1) = \beta Y - (1 - \beta)C - \sigma f_s - f_t$ . Hence, the condition that the insured plaintiff proceeds to trial is

$$\beta Y - (1 - \beta)C > 0. \quad (2)$$

Note that both these conditions are independent of P's decision to buy settlement insurance. We denote as  $\tilde{\beta}(\tau)$  the threshold value from which P is motivated to proceed to trial. This threshold value depends on P's trial insurance status. For an uninsured P, condition (1) is equivalent to

$$\beta \geq \frac{C}{(1 - \alpha)(Y + C)} = \tilde{\beta}(0). \quad (3)$$

For the insured P, condition (2) leads to

$$\beta \geq \frac{C}{Y+C} = \tilde{\beta}(1). \quad (4)$$

With  $Y, C > 0$  and  $0 < \alpha < 1$ , we have  $\tilde{\beta}(0) > \tilde{\beta}(1)$ : If P is insured, a lower probability to prevail will suffice to induce him to go to court. Without insurance, P will proceed to court only if the probability to prevail is comparatively high. If  $\beta < \tilde{\beta}(\tau)$ , P will drop the case. If, on the other hand, P proceeds to trial, then D's expected payoff amounts to  $T^D = (1 - \beta)(1 - \alpha) + \beta(1 - \alpha)(1 - Y - C) = (1 - \alpha)[1 - \beta(Y + C)]$ , which is not only positive,<sup>10</sup> but also independent of P's insurance decisions. The subgame value of the trial stage (starting with P's decision node) equals the threat point vector for the bargaining problem during the settlement stage. The threat points are relevant for the solution of the negotiation game, even if bargaining theory predicts that the parties will always settle. We have to distinguish three cases regarding this threat point, as the following Lemma demonstrates.

**Lemma 1:** Assume that the parties have failed to conclude a settlement and P has to decide whether to proceed to trial or not.

- i) If  $\beta > \tilde{\beta}(0)$ , then P will proceed to court regardless of whether he holds trial insurance or not; the subgame value then is  $[T^P(\sigma, \tau), T^D]$ .
- ii) If  $\tilde{\beta}(0) > \beta > \tilde{\beta}(1)$ : P proceeds to court if he has trial insurance; the subgame value is  $[T^P(\sigma, 1), T^D]$ . P will not proceed to court without such an insurance, which implies a subgame value  $[-\sigma f_s, 1 - \alpha]$ .
- iii)  $\beta < \tilde{\beta}(1)$ : P drops the case, regardless of being insured or not. The subgame value then is  $[-\sigma f_s - \tau f_t, 1 - \alpha]$ .

**Proof:** See derivation above.  $\square$

Subsequently, we have to distinguish the three cases listed in Lemma 1. Our first main result addresses the question whether P can increase his individual threat point by purchasing trial insurance.

<sup>10</sup>This is due to the assumption  $Y + C < 1$ . Here is a difference to classic settlement models, where the defendant's expected value of a trial is usually negative.

**Proposition 1:** Regardless of the previously chosen value of  $\sigma$ ,

- i) if  $\beta > \tilde{\beta}(0)$ , then  $T^P(\sigma, 1) > T^P(\sigma, 0)$  if, and only if,  $f_t < \beta\alpha(Y + C)$ ;
- ii) if  $\tilde{\beta}(0) > \beta > \tilde{\beta}(1)$  then  $T^P(\sigma, 1) > T^P(\sigma, 0)$ .
- iii) if  $\beta < \tilde{\beta}(1)$  then  $T^P(\sigma, 1) < T^P(\sigma, 0)$ ;

**Proof:** i)  $T^P(\sigma, 1) > T^P(\sigma, 0)$  expands to  $\beta Y - (1 - \beta)C - \sigma f_s - f_t > \beta[(1 - \alpha)Y - \alpha C] - (1 - \beta)C - \sigma f_s$  which is equivalent to  $f_t < \beta\alpha(Y + C)$ . Cases ii) and iii) are trivial.  $\square$

Note that in all three of these cases, P's decision whether to proceed to court or not is independent of his previous decision on settlement insurance.

According to Proposition 1, a plaintiff cannot increase his threat point by purchasing trial insurance if  $\beta$  is too low, see case iii), as he would drop the case even if he is insured. Moreover, if  $\beta$  is too high, then his trial decision does not depend on the insurance (he goes to court anyway), but he may increase his threat point if the insurance premium is low, as case i) demonstrates. Finally, if  $\beta$  has an intermediate value, then P can turn a case with negative expected value into a credible threat to sue by purchasing trial insurance (case ii)). In a bargaining situation with perfect and complete information, trial insurance therefore is a way to improve the bargaining outcome, and not an instrument that shifts risks from the insured to the insurer.

## 4 Settlement stage

In this section, we apply the symmetric Nash bargaining solution to the settlement stage.<sup>11</sup> We denote P's expected valuation of a settlement result  $S$  as  $\pi(\sigma, \tau, S) = \alpha\pi_1 + (1 - \alpha)(S - \sigma f_s - \tau f_t)$ . Recall that  $\pi_1 = \sigma(S - f_s) - \tau f_t$ . Hence we have  $\pi(\sigma, \tau, S) = (1 - \alpha + \alpha\sigma)S - \sigma f_s - \tau f_t$ .

<sup>11</sup>For an introduction to the derivation of settlement results, see Cooter and Rubinfeld (1989).

## 4.1 Settlement if P always drops the case

Recall that P drops the case if the probability to prevail is smaller than the lower threshold value:  $\beta < \tilde{\beta}(1)$ . In this case, the threat point for D is  $(1 - \alpha)$ . The symmetric Nash bargaining solution in this case is denoted as  $\underline{S}$  and is given as

$$\underline{S} = \arg \max [\pi(\sigma, \tau, S) - (-\sigma f_s - \tau f_t)] \cdot [(1 - \alpha)(1 - S) - (1 - \alpha)]$$

The expression in the first pair of square brackets expands to

$$[\alpha(\sigma(S - f_s) - \tau f_t) + (1 - \alpha)(S - \sigma f_s - \tau f_t) + \sigma f_s + \tau f_t]$$

which can be simplified to  $[\alpha\sigma S + (1 - \alpha)S] = [(1 - \alpha + \alpha\sigma)S]$ . Thus, if the parties expect no trial to occur after a non-agreement, then the Nash product can be simplified to  $-(1 - \alpha)(1 - \alpha + \alpha\sigma)S^2$ . The first derivative of the Nash product with respect to  $S$  then is  $-2(1 - \alpha)(1 - \alpha + \alpha\sigma)S < 0$ . Since this first derivative is always negative, the Nash bargaining solution is  $\underline{S} = 0$ .

If P does not have a credible threat to sue at hand, then his bargaining position is too weak to extract a positive offer from his opponent. Without a credible threat to sue, the bargaining stage turns into a pure distribution problem. P attaches a positive coefficient to  $S$ , D a negative one, and the parties' threat points are zero. The parties cannot generate any welfare gain by agreeing upon  $S \neq 0$ . The subgame perfect equilibrium payoffs amount to  $[0, 0]$ . Anticipating such an outcome, P would abstain from purchasing BDLI of any type.

## 4.2 Settlement if P proceeds to trial

We first analyze the case  $\tilde{\beta}(0) > \beta > \tilde{\beta}(1)$ : Should the parties fail to agree upon a settlement, then P would proceed to court only if he has previously bought trial insurance. Without trial insurance ( $\tau = 0$ ) he would rather drop the case. This implies that D is not willing to accept a positive settlement, as derived in Section 4.1. Hence, we can limit our focus to the case in which P has bought trial insurance ( $\tau = 1$ ), as this is a prerequisite for a settlement.

The symmetric Nash bargaining solution, now denoted as  $\hat{S}(\sigma, 1)$ , is given by

$$\hat{S}(\sigma, 1) = \arg \max [\pi(\sigma, 1, S) - T^P(\sigma, 1)] \cdot [(1 - \alpha)(1 - S) - T^D]$$

with  $\pi(\sigma, 1, S) = \alpha[\sigma(S - f_s) - f_t] + (1 - \alpha)(S - \sigma f_s - f_t)$ , which implies  $\partial\pi/\partial S = 1 - \alpha + \alpha\sigma$ . The first-order condition for a maximum of the Nash product thus is

$$\begin{aligned} & (\alpha\sigma + 1 - \alpha)[(1 - \alpha)(1 - S) - T^D] \\ \stackrel{!}{=} & [\alpha[\sigma(S - f_s) - f_t] + (1 - \alpha)(S - \sigma f_s - f_t) - T^P](1 - \alpha). \end{aligned} \quad (5)$$

This first-order condition allows us to state the general Nash bargaining solution of the settlement stage.

**Lemma 2:** If  $\tilde{\beta}(0) > \beta > \tilde{\beta}(1)$ , then the settlement outcome is given by

$$\hat{S}(\sigma, 1) = \frac{(1 - \alpha + \alpha\sigma)\beta(Y + C) + \beta Y - (1 - \beta)C}{2(1 - \alpha + \alpha\sigma)}. \quad (6)$$

**Proof:** Recall that  $T^D = (1 - \alpha)[1 - \beta(Y + C)]$ . Hence, both sides of the first-order condition (5) can be divided by  $(1 - \alpha) > 0$ , which yields

$$(1 - \alpha + \alpha\sigma)[\beta(Y + C) - S] \stackrel{!}{=} (1 - \alpha + \alpha\sigma)S - (\sigma f_s + f_t + T^P).$$

Using  $\sigma f_s + f_t + T^P(\sigma, 1) = \beta Y - (1 - \beta)C$ , this is equivalent to

$$(1 - \alpha + \alpha\sigma)[\beta(Y + C) - S] \stackrel{!}{=} (1 - \alpha + \alpha\sigma)S - [\beta Y - (1 - \beta)C].$$

Further simplification leads to the solution.  $\square$

This result helps us evaluate the impact that buying settlement insurance has on the settlement outcome.

**Proposition 2:** If  $\tilde{\beta}(0) > \beta > \tilde{\beta}(1) \wedge 0 < \alpha < 1$ , and if P has bought trial insurance ( $\tau = 1$ ), then buying settlement insurance decreases the settlement outcome for P:  $\hat{S}(1, 1) < \hat{S}(0, 1)$ .

**Proof:** Using equation (6),  $\hat{S}(1, 1) < \hat{S}(0, 1)$  is equivalent to

$$\frac{\beta(Y + C) + \beta Y + (1 - \beta)C}{2} < \frac{(1 - \alpha)\beta(Y + C) + \beta Y + (1 - \beta)C}{2(1 - \alpha)}$$

which can be simplified to

$$\beta Y + (1 - \beta)C < \frac{\beta Y + (1 - \beta)C}{(1 - \alpha)}.$$

This is true for  $0 < \alpha < 1$ .  $\square$

So far, this section has analyzed the case in which a plaintiff, due to the defendant's bankruptcy risk, faces a negative expected value suit. We have previously shown that the plaintiff can make his threat to sue credible by purchasing a trial insurance. As argued above, the trial insurance thus increases the settlement result (from zero to a positive value). Proposition 2 demonstrates, however, that settlement insurance has the opposite effect. Purchasing a settlement insurance does not increase the settlement result, but decreases it. The two types of insurance thus have different impacts on the settlement result because they influence the Nash product in a different manner: Trial insurance increases the plaintiff's threat point in the settlement negotiations. It is standard wisdom of the Nash bargaining theory that increasing a threat point makes the party bargain tougher. Settlement insurance increases the plaintiff's valuation of a certain settlement result. Without insurance, the plaintiff values a settlement result  $S$  at  $(1 - \alpha)S$ . With insurance, his valuation is simply  $S$ . Since  $(1 - \alpha)S < S$ , the insured plaintiff can receive a higher payoff than the uninsured even if he agrees to a lower settlement result. Purchasing settlement insurance hence makes the plaintiff bargain weaker. This is always true whenever P would proceed to trial should settlement negotiations have failed. Hence, the same analysis applies to the case  $\beta > \tilde{\beta}(0)$ , in which P would not drop the case regardless of having trial insurance or not. Whenever P's threat to sue is credible, he induces D to accept a positive settlement; the bargaining outcome is increased by trial insurance, but lowered by settlement insurance.

For a risk-neutral insurer and a risk-neutral plaintiff, only the trial insurance generates a mutual benefit, as it increases the settlement result. The

contract rent between insurer and plaintiff is generated only by exploiting a third party, the defendant. Hence, both parties can agree upon an insurance fee that compensates the insurer for taking over the plaintiff's risk and leaves a share for both sides. This strategic effect is not present in the case of a settlement insurance. As the insured plaintiff would accept a lower settlement, the insurance contract fails to exploit the defendant. The settlement insurance contract hence cannot be mutually beneficial for the insurer and the plaintiff if both are risk-neutral.

## 5 Conclusion

We have added two amendments to a simple model of settlement and trial (with complete and perfect information): the possibility of the defendant's bankruptcy, and the plaintiff's option to buy bad debt loss insurance (BDLI) that covers the bankruptcy risk after settlement or trial. The amended model allows us to show that trial insurance has two effects:

- In a case where the trial has a positive expected value for the plaintiff even without insurance, the purchase of trial insurance increases the pre-trial settlement result which the prospective litigants agree upon.
- If the case has a negative expected value without insurance, then the threat to sue is not credible, and the defendant is not induced to accept a positive settlement. Purchasing trial insurance may then induce a positive expected value and, thereby, make the trial threat credible.

Note that, in our model with perfect and complete information, the case will never appear in court. Either the case will be settled, or dropped by the defendant. Hence, the insurer will not have to make any payment at all.<sup>12</sup> This implies that, in the above cases, a cooperation rent between insurer and plaintiff exists which comes out of the pockets of the defendant. Trial insurance creates an exploitation effect, a strategic leverage during the settlement negotiations. A third case exists in which the expected trial value

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<sup>12</sup>The next step should be the integration of asymmetric information, see Bebchuk (1984), Nalebuff (1986), Daughety and Reinganum (1994).

is negative even when the plaintiff is insured. In this case, even the insured defendant would drop the case, and no cooperation rent out of the defendant's pockets is created between plaintiff and insurer. It therefore makes no sense to trade a trial insurance.

The analysis of settlement insurance leads to rather different results. The possibility of bankruptcy decreases the expected value of a settlement agreement. Thus, the uninsured plaintiff would demand a higher share of the bargaining rent than in negotiations without a bankruptcy risk. This induces the plaintiff to bargain harder. Settlement insurance reduces this toughening effect of the bankruptcy risk and thereby weakens the plaintiff's bargaining power.

We have derived the condition under which a plaintiff with settlement insurance is satisfied even with a lower bargaining result than without settlement insurance. In such a case, there is no mutual benefit for the insurer and the risk-neutral plaintiff. Settlement insurance might still generate a benefit when plaintiffs are risk averse, but it can certainly not be qualified as "strategic insurance".

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