UNIVERSIDAD DEL CEMA
Buenos Aires
Argentina

Serie
DOCUMENTOS DE TRABAJO

Área: Economía y Derecho

DAMAGES FOR BREACH OF CONTRACT, IMPOSSIBILITY OF PERFORMANCE AND LEGAL ENFORCEABILITY

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Octubre 2007
Nro. 357

www.cema.edu.ar/publicaciones/doc_trabajo.html
UCEMA: Av. Córdoba 374, C1054AAP Buenos Aires, Argentina
ISSN 1668-4575 (impreso), ISSN 1668-4583 (en línea)
Editor: Jorge M. Streb; asistente editorial: Valeria Dowding <jae@cema.edu.ar>

Damages for Breach of Contract, Impossibility of Performance and Legal Enforceability

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Abstract

This paper develops a game-theoretic model of a contract between a creditor and a debtor where equilibrium depends on the damage rule chosen for breach-of-contract situations, the use of impossibility-of-performance excuses and the level of legal contract enforceability. We find that, under perfect legal enforceability, the different alternative damage rules (based on expectation or reliance damages, with or without performance excuses) are able to induce an efficient performance by the contracting parties. But we also find that, if legal enforceability is imperfect, then a rule based on expectation damages with an excuse for impossibility of performance is able to work more efficiently than the other alternative damage rules.

Resumen en castellano

Este trabajo desarrolla un modelo de teoría de los juegos de un contrato entre un acreedor y un deudor en el cual el equilibrio depende de la regla de indemnización elegida para situaciones de incumplimiento contractual, del uso de causales basadas en el concepto de "caso fortuito", y del nivel de seguridad jurídica existente. Se encuentra que, en situaciones de total seguridad jurídica, las distintas alternativas de indemnización (que aplican los criterios de daño emergente y lucro cesante, con y sin excepciones por caso fortuito) son capaces de inducir un comportamiento eficiente de las partes del contrato. Pero también se encuentra que, si existe cierta inseguridad jurídica, entonces una regla basada en indemnizaciones completas (que incluyan el daño emergente y el lucro cesante) pero contemple una excepción por caso fortuito es capaz de funcionar de manera más eficiente que las otras reglas de indemnización alternativas.

JEL Classification: K12 (contract law).

Keywords: breach of contact, impossibility of performance, legal enforceability.

1. Introduction

In this paper, we develop a game-theoretic model of a contract between a creditor and a debtor in which both parties have the option of entering or not entering the contract, and the debtor has the option of performing or not performing. However, if both parties enter the contract and the debtor chooses to perform, there is a probability that the contract is resolved due to impossibility of performance (or "fortuitous case", or

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"inadvertent breach of contract"). Different damage rules are analyzed, under which performance is excused or not in impossibility situations, and under which damages are set using expectation or reliance rules.

The model developed is also used to analyze the issue of legal enforceability, which is measured as the probability that damages are actually paid to the creditor in the cases where the law specifies the obligation of such payment. In all cases, the different issues (damage rules, performance excuses and legal enforceability) are analyzed to determine the conditions for the emergence of a perfect Nash equilibrium for the game.

After a brief review of the relevant literature on the topic (section 2), in section 3 we develop our model under the assumption of perfect legal enforceability (that is, when damages are always paid in the cases where the law specifies the obligation of such payment). In section 4, conversely, we introduce the possibility of imperfect legal enforceability, while section 5 considers the issue of the equilibrium income distribution between the creditor and the debtor. Finally, the conclusions of the whole analysis are summarized in section 6.

2. Review of the literature

The use of game-theoretic models to represent contract situations began with the seminal paper by Barton (1972), but the first important formal analysis that compares the behavior of the parties under alternative damage systems is Shavell (1980).

Most of the economic literature that uses the game-theoretic approach to contract law assumes that the implicit concept of liability used by that law is a strict liability standard, and disregards the possibility of using negligence standards to determine the damage levels in cases of breach of contract. However, some legal doctrines, such as the ones that rely on the concept of "fortuitous case" or "impossibility of performance", implicitly assume that there are cases in which the debtor of a certain duty cannot perform because of exogenous factors, and elaborate excuses under which damages are not due in those circumstances.

Although the first treatments of impossibility and fortuitous case in the law-and-economics literature date back at least to the work of Trimarchi (1959), the first formal analysis of performance excuses in the context of a game-theoretic breach-of-contract model is probably the one by White (1988). This author argues that the impossibility defense can be a tool that helps to achieve efficiency in cases where the issue of risksharing is important. Using a similar approach, Sykes (1990) later found that the impossibility doctrine can also be seen as a way to introduce a negligence rule in the determination of damages for breach of contract, assimilating a situation of impossibility to a case in which the cost of performing exceeds a certain threshold. Following the same line of reasoning, and making use of the “model of precaution” originally proposed by Cooter (1985), Coloma and Pernice (2000) have shown that, under suitable conditions, a damage rule that combines expectation and reliance damages and an excuse for impossibility of performance can lead to efficient levels of reliance and breach of contract.

Another contribution which is related to this literature is the one by Bebchuk and Png (1999), who analyze situations where breach is inadvertent rather than deliberate. They find that, in those cases, ex-ante precaution and reliance are typically inefficient under both expectation and reliance damages, although they also find that in general the expectation measure is Pareto-superior to the reliance measure.

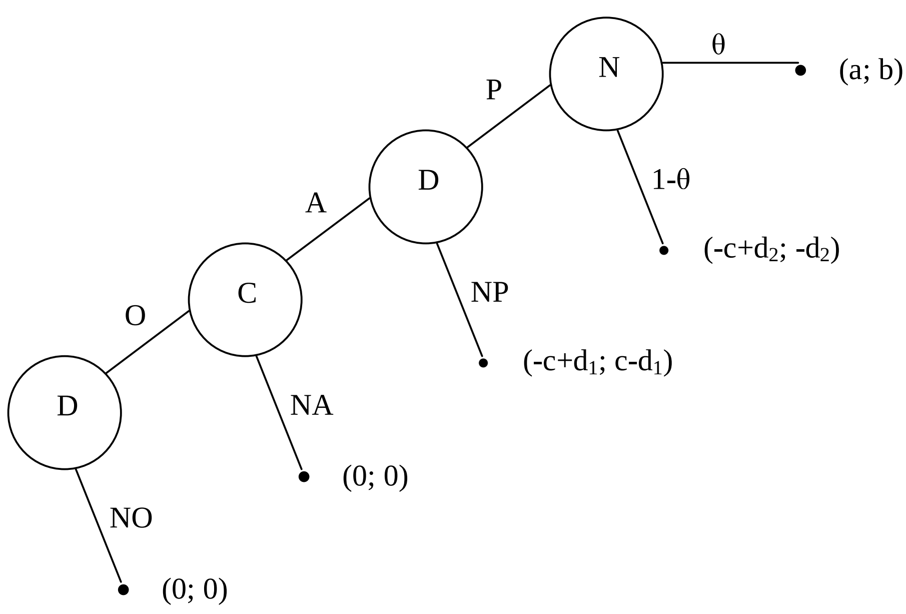
The issue of the legal enforceability of contract law is something that appeared in this literature from the very beginning. One of the most important results in both Barton’s and Shavell’s analyses is that, in general, the absence of legal enforceability leads to a situation of excessive breach of contract, and this result is typically independent of the damage rule. It is not however common to find analysis in which legal enforceability is a relative concept (that is, a concept that can be measured through a probability that ranges between zero and one), or papers that analyze which is the minimum level of legal enforceability that induces an efficient performance by the contract parties. This is in sharp contrast with a whole branch of empirical literature on the economic effects of law, which stresses the idea that legal enforceability is an important determinant of economic growth. Examples of that literature can be found in papers such as Clague (1993) and Keefer and Knack (1997).

The model that we develop in this paper tries to capture at the same time the basic insights that appear in all the abovementioned literature. On one hand, it incorporates the issue of damage rules as a way to induce efficient contract performance, and the possibility that the impossibility doctrine is used to excuse performance when negligence is absent. On the other hand, it analyzes whether the different damage rules (alternatively based on expectation and reliance damages, with or without performance excuses) have different effects under imperfect legal enforceability (i.e., under situations in which the probability of actually paying damages lies between zero and one).

3. Damage rules and impossibility of performance under perfect enforceability

Consider a sequential game where a possible debtor (D) first chooses whether to make an offer (O) or not (NO) to a creditor (C) about a certain contractual relationship. After that offer, the creditor chooses whether to accept (A) or not (NA). If the creditor accepts, this implies that he gives a certain amount of resources (c) to the debtor. If that occurs, then the debtor has the option to perform (P) or to breach the contract (NP). If he decides to breach, then he captures the amount of resources paid by the creditor, but he may also have the obligation to pay damages (d_1) back. If he performs, then there is a certain probability (θ) that the contract ends as originally signed, in which case the creditor gets a positive profit (a) and the debtor also obtains a positive profit (b). However, there is also a probability (equal to "1-θ") that the contract has to be resolved due to impossibility of performance, in which case the creditor loses the amount of resources that he originally paid, and the debtor earns nothing. It is also possible that, in such situation, the debtor has to pay damages to the creditor (d_2), which may or may not be the same damages that he has to pay if he chooses to breach the contract.

Figure 1



The game described in the previous paragraph is graphically represented in figure 1, where the probabilities "θ" and "1-θ" are supposed to be drawn by Nature (N). In each possible final node of this diagram, we first specify the profit received by the creditor and then the profit received by the debtor.

Note that this game depicts a situation in which signing and performing a contract may or may not be ex-ante efficient. For the contract to be efficient, it has to hold that its aggregate expected profit (which is equal to "a+b" times the probability "θ") is larger than its aggregate expected loss (which is equal to "c" times the probability "1-θ"). This implies that:

$$\theta \cdot (a+b) > (1-\theta) \cdot c \quad \rightarrow \quad \theta > \frac{c}{a+b+c} \qquad (1);$$

which is a situation that occurs when the impossibility of performance is relatively unlikely and/or when the amount of resources immobilized is relatively small in relationship to the aggregate profit obtained under actual performance.

Let us now assume that contracting is efficient (that is, that "$\theta > c/(a+b+c)$") and analyze if that efficient allocation (that is, a situation where the debtor chooses to offer the contract, the creditor chooses to accept the offer, and the debtor chooses to perform) can be implemented as a sub-game perfect Nash equilibrium. In order to do that, it is important to define the possible damage rules, which basically depend on the damages awarded under deliberate breach of contract (d_1) and under impossibility of performance (d_2).

Let us first turn to a general case where d_1 and d_2 can adopt any non-negative value. If we want that damage remedies induce an efficient behavior on the part of the contracting parties, then we need that:

a) the debtor chooses to perform if the creditor accepts his offer,

b) given that, the creditor chooses to accept the offer made by the debtor, and

c) given the two previous conditions, the debtor chooses to make the corresponding offer to the creditor.

All this implies the following three inequality conditions:

$$\theta \cdot b + (1-\theta) \cdot (-d_2) > c - d_1 \quad \rightarrow \quad \theta > \frac{c + d_2 - d_1}{b + d_2} \qquad (2);$$

$$\theta \cdot a + (1-\theta) \cdot (-c+d_2) > 0 \quad \rightarrow \quad \theta > \frac{c - d_2}{a + c - d_2} \qquad (3);$$

$$\theta \cdot b + (1-\theta) \cdot (-d_2) > 0 \quad \rightarrow \quad \theta > \frac{d_2}{b + d_2} \qquad (4).$$

If we consider damage rules that do not allow for performance excuses, then "d_1

$= d_2$". The basic alternatives here are expectation damages and reliance damages. Under expectation damages, the creditor has to receive an amount of money so that he is equally well-off than under actual performance, which implies that "$d_1 = d_2 = c+a$". Under reliance damages, he has to receive an amount of money so that he is equally well-off than under a situation with no contract, which implies that "$d_1 = d_2 = c$".

If we introduce an excuse for the case of impossibility of performance, then a rule based on expectation damages implies that "$d_1 = c+a$" and "$d_2 = 0$". Conversely, a rule based on reliance damages with an excuse for the case of impossibility implies that "$d_1 = c$" and "$d_2 = 0$". A fifth possible (hybrid) rule would be to allow for expectation damages in the case of deliberate breach of contract and for reliance damages in the case of impossibility of performance. That would imply that "$d_1 = c+a$" and "$d_2 = c$".

Let us therefore turn to the first possible damage rule mentioned in the previous paragraphs (i.e., expectation damages with no performance excuses). In that case, the general inequality conditions become the following:

$$\theta \cdot b + (1-\theta) \cdot (-c-a) > -a \quad \rightarrow \quad \theta > \frac{c}{a+b+c} \qquad (5);$$

$$\theta \cdot a + (1-\theta) \cdot a > 0 \quad \rightarrow \quad a > 0 \qquad (6);$$

$$\theta \cdot b + (1-\theta) \cdot (-c-a) > 0 \quad \rightarrow \quad \theta > \frac{a+c}{a+b+c} \qquad (7).$$

Note that equation 6 is satisfied by assumption, and that equation 5 is satisfied whenever contract performance is efficient (since it is identical to equation 1). The binding condition that has to hold for this damage rule to be efficient is that the debtor chooses to make the offer to the creditor (equation 7). But this will always be possible if the debtor chooses a relatively convenient division of the aggregate profit between the creditor and himself (that is, a relatively large "b" and a relatively small "a"), since the creditor will always be willing to accept his offer for any "$a > 0$".

If, instead of expectation damages, compensations are based on reliance damages with no performance excuses, then the set of conditions for performance to occur becomes the following:

$$\theta \cdot b + (1-\theta) \cdot (-c) > 0 \quad \rightarrow \quad \theta > \frac{c}{b+c} \qquad (8);$$

$$\theta \cdot a + (1-\theta) \cdot 0 > 0 \quad \rightarrow \quad a > 0 \qquad (9);$$

$$\theta \cdot b + (1-\theta) \cdot (-c) > 0 \quad \rightarrow \quad \theta > \frac{c}{b+c} \qquad (10).$$

As we see, equation 9 (i.e., the condition for the creditor to accept the debtor's offer) is once again satisfied by assumption, and in this case the condition for the debtor to perform is the same than the condition for the debtor to make his offer (since equations 8 and 10 are identical). Considered together, the three conditions are possible to be fulfilled when the contract is efficient, since, in his offer, the debtor can always choose a suitable division of the aggregate profit with a relatively large "b" and a relatively small "a".

If we now turn to damage rules that allow for excuses in cases of impossibility of performance, the first possible alterative is a rule where "$d_1 = c+a$" (expectation damages) and "$d_2 = 0$". Under that rule, the set of conditions for performance to occur is:

$$\theta \cdot b + (1-\theta) \cdot 0 > -a \quad \rightarrow \quad \theta > \frac{-a}{b} \qquad (11) ;$$

$$\theta \cdot a + (1-\theta) \cdot (-c) > 0 \quad \rightarrow \quad \theta > \frac{c}{a+c} \qquad (12) ;$$

$$\theta \cdot b + (1-\theta) \cdot 0 > 0 \quad \rightarrow \quad b > 0 \qquad (13) .$$

By assumption, equations 11 and 13 are satisfied here, since both "θ" and "b" are positive numbers. The binding condition, instead, is the one stated by equation 12, but this can also be satisfied whenever the contract is efficient. For this to occur, the debtor has to offer the creditor a sufficiently large profit "a".

Similar results occur when the damage rule allows for "$d_1 = c$" and "$d_2 = 0$" (reliance damages with an excuse for impossibility of performance). In this case, the set of conditions for performance to be a sub-game perfect Nash equilibrium becomes:

$$\theta \cdot b + (1-\theta) \cdot 0 > 0 \quad \rightarrow \quad b > 0 \qquad (14) ;$$

$$\theta \cdot a + (1-\theta) \cdot (-c) > 0 \quad \rightarrow \quad \theta > \frac{c}{a+c} \qquad (15) ;$$

$$\theta \cdot b + (1-\theta) \cdot 0 > 0 \quad \rightarrow \quad b > 0 \qquad (16) ;$$

and once again the binding condition is the acceptance of the contract on the part of the creditor (which is this case is equation 15). This, however, can always occur whenever the contract is efficient, for the same reasons stated in the previous paragraph.

A last possible scheme is the one that allows for expectation damages in situations of deliberate breach of contract ($d_1 = c+a$) and reliance damages in situations of impossibility of performance ($d_2 = c$). In this case the conditions to hold are the following:

$$\theta \cdot b + (1-\theta) \cdot (-c) > -a \quad \rightarrow \quad \theta > \frac{c-a}{b+c} \qquad (17) ;$$

$$\theta \cdot a + (1-\theta) \cdot 0 > 0 \quad \rightarrow \quad a > 0 \qquad (18) ;$$

$$\theta \cdot b + (1-\theta) \cdot (-c) > 0 \quad \rightarrow \quad \theta > \frac{c}{b+c} \qquad (19) .$$

By looking at these conditions, we see that equation 18 is satisfied by assumption, and that equation 17 is satisfied whenever equation 19 is. The critical condition is therefore equation 19, which is the same condition that is binding in the case of reliance damages with no performance excuses. As it happens in that case, this is possible to fulfill if the contract is efficient, since the debtor can always choose a suitable division of the aggregate profit with a relatively large "b" and a relatively small "a".

4. Damage rules and impossibility under imperfect legal enforceability

Let us now assume that the legal system under which contracts are enforced is imperfect, so that the actual payment of damages in cases of breach of contract (and, eventually, in cases of impossibility of performance) is subject to a certain degree of uncertainty. Let us define a probability (π) that damages are actually paid when they are due, so that the expected levels of the variables d_1 and d_2 under the different damage rules will be the products of that probability times the amounts specified to cover for expectation and reliance damages. This implies that expected expectation damages will be equal to "$\pi \cdot (c+a)$", while expected reliance damages will be equal to "$\pi \cdot c$", where π is, by definition, a number between zero and one.

When we introduce imperfect legal enforceability in our model, the critical element that arises is its impact on the debtor's decision to perform his duties. This impact is different under the different damage rules, and implies a different re-statement of equation 2 under the alternative systems. If we assume, for example, the existence of a rule based on expectation damages with no performance excuses (i.e., "$d_1 = d_2 = \pi \cdot (c+a)$"), we need that:

$$\theta \cdot b + (1-\theta) \cdot (-\pi) \cdot (c+a) > c - \pi \cdot (c+a) \quad \rightarrow \quad \pi > \frac{c - \theta \cdot b}{\theta \cdot (c+a)} \qquad (20) ;$$

while, under a rule based on reliance damages with no performance excuses (i.e., "$d_1 = d_2 = \pi \cdot c$"), the corresponding condition becomes:

$$\theta \cdot b + (1-\theta) \cdot (-\pi) \cdot c > c - \pi \cdot c \quad \rightarrow \quad \pi > \frac{c - \theta \cdot b}{\theta \cdot c} \qquad (21) .$$

If, conversely, we use expectation damages but allow for an excuse for the case of impossibility of performance (i.e., "$d_1 = \pi \cdot (c+a)$", "$d_2 = 0$"), the debtor will choose to perform if it holds that:

$$\theta \cdot b > c - \pi \cdot (c+a) \quad \rightarrow \quad \pi > \frac{c - \theta \cdot b}{c + a} \qquad (22) ;$$

while a rule that allows for reliance damages with an excuse for impossibility of performance (i.e., "$d_1 = \pi \cdot c$", "$d_2 = 0$") implies that the corresponding condition is:

$$\theta \cdot b > c - \pi \cdot c \quad \rightarrow \quad \pi > \frac{c - \theta \cdot b}{c} \qquad (23) .$$

Finally, in a case where expectation damages are due when there is a breach of contract but reliance damages are due when there is impossibility of performance (i.e., "$d_1 = \pi \cdot (c+a)$", "$d_2 = \pi \cdot c$"), then the decision between performing and breaching the debtor's obligations implies that performance is preferred if it holds that:

$$\theta \cdot b + (1-\theta) \cdot (-\pi) \cdot c > c - \pi \cdot (c+a) \quad \rightarrow \quad \pi > \frac{c - \theta \cdot b}{\theta \cdot c + a} \qquad (24) .$$

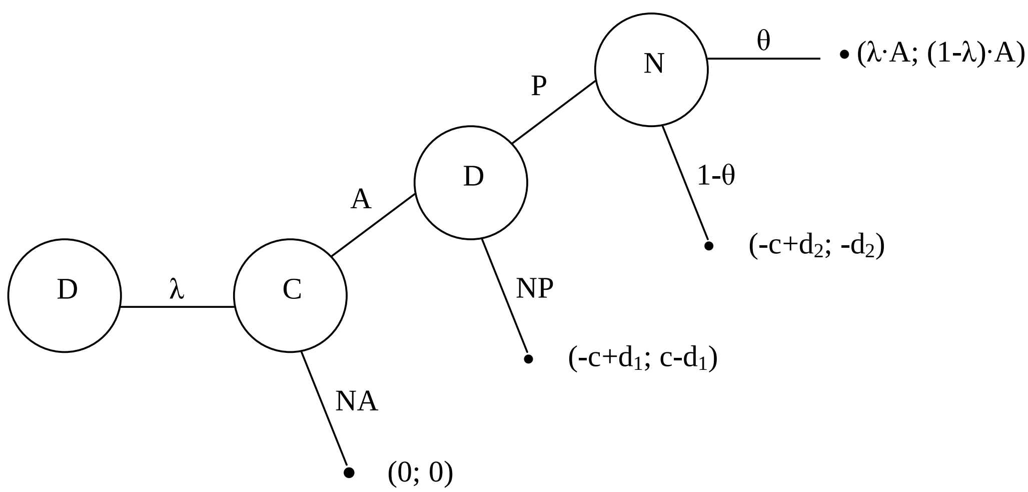
If we now compare the conditions implied by equations 20 to 24, we can observe that all of them define a certain minimum level of probability that damages are actually paid when they are due (that is, a certain minimum "π"). If it holds that "$c > \theta \cdot b$", then that minimum probability is a positive number, and it is therefore impossible to induce performance in a situation of completely null legal enforceability. Nevertheless, performance can be induced if there is a situation of imperfect legal enforceability, as long as the actual probability is larger than the minimum required probability. This will be easier or more difficult, depending on the damage rule used and the existence or inexistence of an excuse for cases of impossibility of performance.

As the formulae derived for the minimum probabilities implied by equations 20 to 24 have all the same numerator (equal to "$c - \theta \cdot b$"), then the relative magnitudes of those minimum probabilities are entirely determined by their denominators. As the parameters "a" and "c" are positive numbers, and "θ" is a number between zero and one, it is easy to observe that the largest denominator corresponds to the case of expectation damages with an excuse for impossibility of performance (equal to "c+a"), and the smallest corresponds to the case of reliance damages with no performance excuses (equal to "θ·c"). This implies that the first of those damage rules is the one that requires the lowest level of legal enforceability (that is, the smallest minimum "π") to induce performance, while the last rule is the one that requires the highest level of legal enforceability (that is, the largest minimum "π").

5. Income distribution implications

Let us now explore the implications that the different damage rules, performance excuses and levels of legal enforceability can have on the distribution generated by a contract like the one analyzed in this paper. In order to do that, we will assume that the division of the expected profit (i.e., "a+b") is not a parameter of the game but rather a result of the actions of the players. Let us therefore assume that the true parameter is the aggregate expected profit (A), and that the player that moves first (in this case, the debtor) has to offer a certain division of that profit, using shares λ (for the creditor) and 1-λ (for himself). The game analyzed therefore becomes the one represented in figure 2.

Figure 2



Let us now assume that the damage rule under analysis implies expectation damages with no performance excuses. If both θ and π are sufficiently large so that entering the contract is efficient and performance is preferred to breach, then the binding condition to determine the equilibrium level of λ is equation 3 (that is, the condition that states that the creditor must prefer to accept the debtor's offer). If that condition is satisfied as an equality, we have that:

$$\theta\cdot\lambda\cdot A + (1\text{-}\theta)\cdot[\text{-}c+\pi\cdot(c+\lambda\cdot A)] = 0 \qquad \rightarrow \qquad \lambda = \frac{(1-\theta)\cdot(1-\pi)\cdot c}{[\pi+\theta\cdot(1-\pi)]\cdot A} \qquad (25)\ .$$

If we now consider a situation where the damage rule assigns reliance damages and does not accept performance excuses, then the binding condition becomes:

$$\theta\cdot\lambda\cdot A + (1\text{-}\theta)\cdot[\text{-}(1\text{-}\pi)\cdot c] = 0 \qquad \rightarrow \qquad \lambda = \frac{(1-\theta)\cdot(1-\pi)\cdot c}{\theta\cdot A} \qquad (26)\ ;$$

while in the cases where there is an excuse for impossibility of performance (and damages for breach of contract are either expectation of reliance damages), it turns out to be equal to:

$$\theta\cdot\lambda\cdot A + (1\text{-}\theta)\cdot 0 = 0 \qquad \rightarrow \qquad \lambda = 0 \qquad (27)\ .$$

Finally, if expectation damages are awarded when there is a deliberate breach of contract and reliance damages are due in cases of impossibility of performance, then the condition for the creditor to accept the debtor's offer is identical to the one seen for the case of reliance damages with no performance excuses (equation 26).

6. Concluding remarks

The different versions of the model analyzed in this paper generate three basic conclusions:

a) Under perfect legal enforceability, the five different damage rules under consideration (i.e., expectation damages and reliance damages with and without an excuse for impossibility of performance, and the hybrid rule that uses expectation damages for situations of deliberate breach of contract and reliance damages for impossibility situations) can all induce an efficient behavior of the contracting parties when it is ex-ante efficient to enter the contract.

b) However, under imperfect legal enforceability, the debtor is induced to honor his promise only if the probability that damages are actually paid remains above a certain threshold. That threshold is highest if the damage rule implies reliance damages with no performance excuses, and lowest if it implies expectation damages with an excuse for impossibility of performance.

c) Different damage rules and levels of legal enforceability can also have income distribution implications. If, as our model implicitly assumes, the division of the expected profit is decided by the debtor and has to be accepted by the creditor, the existence of performance excuses induces a smallest profit share for the latter and a largest profit share for the former, while a system based on reliance damages with no performance excuses induces a largest profit share for the creditor and a smallest profit share for the debtor.

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