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ECONOMIC ANALYSIS OF THE DURESS DOCTRINE
IN CONTRACT LAW

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Oren Bar-Gill and Omri Ben-Shahar*

Abstract
This paper argues that enforcement of an agreement, reached under a threat to refrain from dealing, should be conditioned solely on the credibility of the threat. When a credible threat exists, enforcement of the agreement promotes both social welfare and the interests of the threatened party. If agreements backed by credible threats were not enforceable, the threatening party would not bother to demand a concession, and would simply refrain from dealing – to the detriment of the threatened party. The doctrine of duress, which predominantly controls such agreements, only hurts the “coerced” party. By denying enforcement in cases where a credible threat exists, duress doctrine precludes the threatened party from making the commitment that is necessary to reach agreement. Paradoxically, it is in those circumstances where a threatened party has no alternative options or adequate remedies that, under duress doctrine, she cannot secure an agreement. The analysis in this paper suggests that, in dealing with agreements reached under threats to breach, courts should replace the duress methodology with a credibility inquiry. It discusses factors that would be relevant under such inquiry. Finally, it demonstrates some of the applications of this approach in the context of leading contract modification cases.

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I. INTRODUCTION

The negotiation of a transaction often involves threats by one party to refrain from dealing unless a particular provision, favorable to the threatening party, is accepted. For centuries, contract law has been searching for a unifying principle that will determine when such threats should be considered “improper”, rendering the resulting agreement unenforceable on the grounds of duress. Thus far, such a general criterion has failed to emerge.¹

One area in which duress jurisprudence has been particularly active involves the modification of previously agreed-upon contracts. When circumstances surrounding performance change relative to the parties’ contemplation, such that the original agreed-upon deal becomes less attractive for one of the parties, a demand for modification of terms, backed up by a threat to breach the original deal, is often made. Subsequently, the acquiescing party might challenge the validity of the modification, refusing to perform the renegotiated terms. The contract law doctrine of modification determines whether these renegotiated terms are enforceable.

The common law traditionally viewed modifications as promises lacking consideration and thus wholly unenforceable.² This view eroded over the past century, a policy best illustrated by §2-209 of the Uniform Commercial Code, according to which a modification of a contract is generally enforceable, unless—as with any other agreement—it was extorted by coercive means.³

To determine when a particular threat to breach (or to refrain from transacting) is improper and coercive, one prominent branch of case law has focused on the perspective of the threatened party. Whenever this party is deemed to have had “no reasonable

² See, e.g., Lingenfelder v. Wainwright Brewery, 15 S.W. 844, 848 (1891) (“a promise to pay a man for doing that which he is already under a contract to do is without consideration”).
³ 7 CORBIN ON CONTRACTS §28.6; FARNSWORTH, CONTRACTS 282 (3rd Ed. 1999) (“In fashioning a solution to the problem of the enforceability of modifications, the drafters of the Code discarded the trappings of the doctrine of consideration to bare the real abuse of the bargaining process—coercion. The result is remarkably consistent with the liberalized rules on duress.”)
alternatives” but to surrender, her consent is viewed as coerced by the threat and the resulting deal is rendered unenforceable. Thus, in the context of modification, if the threatened party acquiesces to a modification demand because her legal remedies for breach would be insufficient, or because no alternative partners can be found on short notice, her concession is unenforceable.

Against this prominent line of cases, courts have occasionally followed a different principle, focusing on the perspective of the threatening party. Under this view, a demand that arises from an unanticipated change of circumstances, such as a cost increase, constitutes a legitimate reason for a modification, irrespective of whether the other party had reasonable alternatives.

What constitutes an improper threat and a coerced transaction has been the subject, not only of conflicting case decisions, but also of a significant body of scholarly work. Various criteria have been offered to evaluate whether a threat to breach (or to refrain from dealing) is coercive. Under one view, a proposal is a coercive threat if it reduces the possibilities open to its recipient; otherwise, if it expands the possibilities, it is a non-coercive “offer”. Under another view, it matters if the resulting exchange is one-sided, namely, if it deviates from exchange values as established by the market. Lastly, economic-oriented scholars have suggested that rent-seeking threats, which do nothing but shift value between the parties and increase transactions costs should be deemed improper.

This paper explores a different general principle for enforceability of deals reached under threats. If successful, this principle can contribute to the distinction between “threats” and

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4 Restatement (Second) of Contracts §175 (1) (“If a party’s manifestation of assent is induced by an improper threat by the other party that leaves the victim no reasonable alternative, the contract is voidable by the victim.”)

5 See, e.g., Angel v. Murray, 322 A.2d 630 (R.I. 1974) (“The modern trend appears to recognize the necessity that courts should enforce agreements modifying contracts when unexpected or unanticipated difficulties arise”).


“offers”, and can provide a guideline for determining whether the acquiesced deal ought to be enforced or struck down on the grounds of duress. Since most of the duress cases concern modifications, rather than original negotiation of contracts, the analysis will focus on the threats to breach and the enforceability of the resulting modification agreement.

To understand the proposed principle, consider first the interests of the threatened party. When the other party threatens breach unless a modification is conceded, a standard intuition suggests that it would be in the interest of the threatened party if the modification were not enforced. After all, she is pressured to make a costly concession, and it would seemingly be in her interest if she can invalidate this incremental concession. Indeed, case law is replete with instances in which a threatened party who acquiesced to a modification demand challenges its validity in subsequent proceedings, reinforcing the intuition that a non-enforcement outcome is best for her.

In contrast to this common understanding, the analysis in this paper argues that it could be in the interest of the threatened party if modifications to which she surrendered would be enforced. Although ex-post (after performance is rendered and the threat to breach is no longer pending) this party may seek to invalidate the conceded modification, ex ante (at the time when the threat is still pending) she might be better off committing to a modification. Such a commitment may be necessary, from the threatened party’s point of view, to induce the other party to perform rather than breach the original promise. Performance, even under the modified terms, may be preferable over damages for breach.

Whether the threatened party is indeed better off acquiescing to the threat depends on what would happen if she were to ignore the threat. This is where the focus shifts to the perspective of the threatening party. If unable to extract a modification, would the threatening party breach or perform the original contract? The threatening party is said to have a credible threat if it would be in his interest to breach the contract unless modified.

If the threat was credible and breach would have resulted from its rejection, accompanied by insufficient remedies, it would indeed

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9 Williston on Contracts §7.36, at 573 (4th ed., 1992) (justifying the “pre-existing duty” doctrine in common law on the grounds that a modification provides no benefit to the promisor).
be in the interest of the threatened party to acquiesce and prevent breach. If, instead, the threat to breach were not credible, such that breach would not have resulted from its rejection, the threatened party would be better off if the acquiesced modification were not enforced.

Accordingly, the analysis in this paper demonstrates that a determination whether a proposal/threat renders the resulting deal unenforceable should depend solely on its credibility. Thus, for example, when a seller credibly threatens to withhold delivery unless a higher price is conceded, the buyer—if she cannot secure reasonable alternatives or full damages—would want to commit to a higher price. Such a commitment is her only way to avoid the consequence of breach. If, instead, the seller’s threat is not credible, the buyer has nothing to lose from the non-enforceability of the modification.

The analysis in this paper further suggests that the criterion developed under the duress jurisprudence, focusing on the availability of “reasonable alternatives” and on the adequacy of remedies, is misguided. It is misguided, if only because it is redundant: if the threatened party had adequate alternatives or fully compensatory remedies, she would not have surrendered to the threat. The fact that she did surrender indicates that she must have considered her other alternatives less desirable. Moreover, the no-reasonable-alternatives condition is misguided in a different, more troubling, sense. This condition is indifferent to the question of the credibility of the threat. It is thus ill equipped to promote the interests of threatened parties who have no adequate remedies and want to commit to modifications and avoid breach. It is also sub-optimal from a social perspective, leading to excessive incidence of inefficient breach.

This theoretical analysis yields at least two doctrinal implications that have not been fully explored before. First, it suggests that the coercion test underlying much of the duress and modification jurisprudence is undesirable. Second, it suggests that any factor bearing on the credibility of the threat to breach should be taken into account in deciding whether to enforce the modification agreement.

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10 The idea that enforcement of modifications can be in the interest of the threatened party has been recognized before. It has been argued that the ability to commit to a higher price in the presence of a credible threat to breach may be necessary to guarantee enforcement and to avoid the risk of default. See, e.g., Richard Posner, *Gratuitous Promises in Economics and Law*, 6 J. Legal Stud. 411,
The remainder of the paper is organized as follows. Section II presents the basic analysis. Section III extends the basic model to allow for asymmetric information. Section IV explores circumstances that affect the credibility of the threat to breach. Section V considers some of the main doctrinal implication of the analysis. Section VI concludes.

II. BASIC ANALYSIS

A. Setup

Consider a seller (he) and a buyer (she) contracting over the sale of one indivisible asset. At period 0 the two parties sign the original contract, specifying the delivery of the asset by the seller to the buyer in exchange for a payment, \( p \). The value of the asset to the buyer is

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This is clearly an incomplete contract. In particular, as will be clear below, the contract is “economically” incomplete in the sense that it is not contingency specific, that is, it does not specify the optimal provisions for every possible contingency. See, e.g., Hermalin & Katz, Judicial Modification of Contracts Between Sophisticated Parties: A More Complete View of Incomplete Contracts and
v. The seller’s cost of creating the asset (or parting with the asset) is thought to be c, at this period.

Before period 1, an “unanticipated” change of circumstances might increase the cost of performance for the seller from c to C > c. It is assumed that performance is efficient, even with the higher price C, namely v > C. As a result of the cost increase, at period 1 the seller may demand to renegotiate the contract price. It is initially assumed that the cost increase is symmetrically observable by both parties. This assumption simplifies the basic analysis and helps flesh out the main results. It will be relaxed in section III below. If renegotiation is successful, the parties agree on a new price, P > p. Then, at period 2, the seller decides whether to deliver the asset to the buyer.

Finally, at period 3, litigation may occur. There are two typical types of lawsuits. The first is a suit for the recovery of damages for breach of contract. If at period 1 the parties failed to agree on a modification, then the seller might decide to breach the contract at period 2. Consequently, at period 3 the buyer may sue for expectation damages, d. Ideally, expectation damages will be set to equal the buyer’s loss, d = v − p, but the analysis will also consider cases in which d deviates from this pure measure. Since no modification was agreed upon, this kind of lawsuit does not raise any issue regarding the validity of a modification.

The second type of lawsuit arises if at period 1 the parties agree on a modification of the original contract and the contract price is raised to P. Once this modified price induces the seller to perform at period 2, the buyer may renege upon her period 1 concession. In this case, the seller will sue for the unpaid balance P − p. It is here that the court has to decide whether to uphold the modification or invalidate it.

The timing of the interaction between the seller and the buyer, as described above, is depicted in figure 1.

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*Their Breach*, 9 J.L. Econ. & Org. 230 (1993). In analyzing the legal treatment of contractual modification, it makes sense to assume such incompleteness. Only when the original contract is incomplete will the parties find beneficial opportunities to modify it. For similar accounts of contractual incompleteness and subsequent renegotiation, see e.g. Milton Harris and Bengt Holmstrom, *On the Duration of Agreements*, 28 Int’l Econ. Rev. 389-405 (1987), and Steven Shavell, *The Design of Contracts and Remedies for Breach*, 99 Quar. J. Econ. 121-148 (1984).
The strategic interaction between the buyer and the seller is analyzed below. In examining the period 1 renegotiation and the seller’s period 2 decision whether to perform or breach the contract, we will first analyze the period 2 incentives and later return to examine the period 1 bargaining. This “backward induction” approach is appropriate since the parties’ period 1 bargaining strategies depend on what they expect the seller to do at period 2. Thus, to analyze the period 1 renegotiation we must first understand the seller’s decision patterns at period 2. Section II ends with a final step in the “backward induction” examining the ex ante effects on the period 0 contract design.

B. The Seller’s Threat to Breach

If the seller’s cost rises from $c$ to $C$ but his attempt at modification of the price fails, will he perform or breach the initial contract? The seller’s decision is based on a comparison between his performance payoff and his breach payoff. If the seller performs, he nets $p - C$. If he breaches, a court will ideally order him to pay damages of $d = v - p$ at period 3. Generally, however, the burden imposed on the seller by these prospective damages is different than $d$, and may be either higher or lower. Denote this burden by $D_s$.\(^{12}\)

Comparing the seller’s performance payoff and breach payoff, following a rejection by the buyer of the modification demand, the seller will decide to breach \textit{if and only if}

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\(^{12}\) The reasons why $D_s$ differs from $d$ has to do with imperfections in, and the cost of the enforcement process, resource constraints, and more. These factors will be analyzed in section IV \textit{infra}.
When condition (1) is satisfied, namely, when the seller’s net cost of performance exceeds the burden of remedies, we say that the seller has a credible threat to breach.\(^\text{13}\) When the seller does not have a credible threat to breach, the buyer (who, recall, is assumed to have perfect information concerning the seller’s cost) expects that the seller will perform the contract even if his modification demand is rejected. Accordingly, the buyer will reject any modification demand at period 1, regardless of whether a modification is enforced by the court.

\section*{C. The Buyer’s Decision: Modification v. Remedies for Breach}

We now turn to the case where condition (1) holds, namely, the seller has a credible threat to breach. Is it in the interest of the buyer to modify the contract?

The buyer’s bargaining strategy at the renegotiation stage is determined first and foremost by her outside option. The buyer may reject the modification demand, and after the seller breaches sue for damages. As discussed above, a court will ideally award the buyer damages of \(d = v - p\). Generally, however, the buyer’s payoff in the event of breach may be different from \(d\). Denote this payoff by \(B_D\).

Since the buyer can attain at least \(B_D\) without a modification, she will not agree to a modified price greater than \(P_B = v - D_B\).\(^\text{14}\) Consequently, the highest price increase that the buyer will consider, i.e. the buyer’s reservation price in the period 1 renegotiation, is: \(\Delta p_B = P_B - p = v - p - D_B\). Clearly, there will be no modification when \(\Delta p_B \leq 0\). Hence, a necessary condition for modification is

\[\Delta p_B = v - p \geq D_B \quad \text{(2)}\]

When condition (2) is satisfied, we say that the buyer is inadequately protected by legal remedies and will potentially benefit from a

\(^13\) Note that condition (1) implies \(D_S < d\).

\(^14\) If \(P_B \geq v - D_B\), then \(v - P_B \leq D_B\), and the buyer is better off waiting for the seller to breach and then collecting a damage award.
modification of the original contract. Otherwise, she will reject a-priori any attempt by the seller to extract a modification, and obtain the legal remedy for breach.\footnote{Other authors have invoked conditions in the spirit of condition (2). Schwartz, \textit{supra} note 10, discusses an “access to the market” condition, which is one important factor in assessing whether condition (2) is satisfied. Johnston, \textit{supra} note 10, at pp. 341-343, describes a condition that is identical to condition (2). In Johnston’s model, however, conditions (1) and (2) are interlinked, as both are assumed to arise from changed circumstances, and thus their effects are not clearly distinguished. As we will show below, this distinction has critical normative implications.}

D. Analysis of the Legal Regimes

1. \textit{The No-Enforcement Regime}

Consider first behavior under a legal regime where the court is expected to invalidate any modification. This is the old common law rule that deemed a modification to lack consideration, rendering it unenforceable. Under this regime, the buyer is entitled to recover the incremental price paid, \( P - p \). In such a scenario, if the seller performs at period 2, the buyer will indeed sue for restitution at period 3. Expecting this, the seller who has a credible threat to breach will not bother to seek a modification and will breach the contract.

2. \textit{The Unconditional Enforcement Regime}

Next, consider a legal regime where any modification is enforceable. The buyer will not agree to a modification unless the seller has a credible threat -- unless condition (1) holds. Further, the buyer will not agree to a modification unless condition (2) holds – unless her remedies for breach are inadequate.

Moreover, a modification will be agreed upon only if both parties can be made better off under it relative to their outside options. For the seller the new price must exceed the original price by at least \( \Delta p_s = C - p - D_s \), the difference between the seller’s performance payoff and breach payoff. This minimum price increase constitutes the seller’s reservation value in the period 1 renegotiation. For the buyer we already saw that the maximum price increase would be \( \Delta p_b = v - p - D_b \), her reservation value. The feasibility of a modification therefore depends on a comparison between the two reservation values. Clearly, a modification is feasible only if the maximum price increase that the buyer is willing to consider is greater
than the minimum price increase that the seller will accept. Namely, a modification is feasible only if

\[(3) \quad v - C > D_B - D_S.\]

We refer to (3) as the \textit{existence of a modification range} condition.\(^{16}\)

The precise value of the modified price, between \(p + \Delta p_\text{S}\) and \(p + \Delta p_\text{B}\), depends on the parties relative bargaining power.

Hence, under the unconditional enforcement regime, for a modification to occur three conditions must be met:

1. \textit{A credible threat}: \(D_\text{S} < C - p\);
2. \textit{Inadequacy of remedies}: \(D_B < v - p = d\); and
3. \textit{Existence of a modification range}: \(D_B - D_\text{S} < v - C\).

We demonstrate below that the legal system can optimally focus on condition (1) alone. However, already at this stage we can simplify the analysis by noting that conditions (1) and (3) together imply condition (2).\(^{17}\) When the seller has a credible threat to breach and a modification range exists, necessarily the buyer is inadequately protected by legal remedies. Before turning to the normative analysis, we can summarize the descriptive observations as follows:

\textbf{Claim 1:} \textit{When a modification is legally enforceable, it will occur if and only if conditions (1) and (3) hold, namely if and only if the seller has a credible threat to breach and a modification range exists. When a modification is legally unenforceable, it will not occur.}

Note that, in the case of perfect information, a modification would not occur unless the seller has a credible threat. It might be conjectured that even without a credible threat, since the buyer has much to lose from breach, a two-sided bargaining game would ensue whereby the buyer would concede some modification of price. However, if the buyer knows the threat not to be credible, it would be

\(^{16}\) When \(D_B = D_\text{S}\), a modification range exists whenever performance is efficient, namely, whenever \(v > C\).

\(^{17}\) Condition (3) can be rewritten as \(D_B < D_S + v - C\). Substituting condition (1), we obtain \(D_B < C - p + v - C = v - p\).
irrational from her perspective to concede a modification. The buyer would be risking nothing by rejecting the threat and leaving the seller the choice to perform, rather than breach, the initial contract.

E. The Regimes Compared

Proposition 1: Under perfect information, the threatened party is better off, and social welfare is increased, if, whenever a modification is agreed upon, the court enforces it.

Remarks: (i) Intuition. Whenever the seller has a credible threat, it is in the buyer’s interest to have the resulting modification enforced. Surely, the buyer prefers to pay the original, lower price, rather than the modified one. However, because of the credibility of the threat, this outcome is not feasible: it is not incentive-compatible for the seller. Recognizing that her most preferred outcome cannot be attained, the buyer’s remaining choice is between the modified contract and damages for breach. Put differently, enforcement of a modification is advantageous to the buyer because it helps her commit a higher payoff to the seller. If the modification were not enforceable, the buyer would not be able to make such a commitment—the seller would expect the buyer to invalidate the modification—and the seller would choose to breach, inflicting on the buyer her least preferred outcome.

(ii) Social Welfare. The transaction between the buyer and the seller is efficient, even when the cost of performance is $C$ (since $\nu > C$). Therefore, from a social welfare perspective, the contract should always be performed. Consequently, any breach by the seller reduces social welfare. Thus, although the modification has a distributive effect—a rent extracted by the seller—it also has a total welfare effect. Absent the modification, the seller would have inefficiently breached the contract. Therefore, enforcement of modifications not only promotes the private interests of the threatened party, but also increases social welfare.\(^{18}\)

(iii) Inadequacy of Remedies and the Doctrine of Duress. Proposition 1 argues that under perfect information all modifications

\[^{18}\text{Note that non-enforcement of modifications creates an inefficiency even in the complete information case. Compare to Johnston, supra note 10, Section II.A, where the inefficiency result is linked to asymmetric information.}\]
should be enforced. In particular, it implies that enforcement should not depend on the adequacy of the buyer’s remedies. The point is that if the buyer acquiesced to the modification demand, it must be the case that she perceived the remedies to be inadequate, or else she would have rejected the demand and settled for remedies. The existence of the modification indicates that the buyer prefers an enforceable modified agreement to breach remedies. If a court were to use the inadequacy of remedies as grounds not to enforce the modification, it would undermine the buyer’s preference and force her to settle for the inadequate remedies.

As we will show in greater detail in Section V below, this is precisely what many courts do when applying the doctrine of duress in modification cases. Whenever remedies are inadequate, (that is, whenever condition (2) is satisfied), the modification is deemed to be extortive, rendering it unenforceable. Since, according to our analysis, modifications will be agreed upon only if condition (2) is satisfied, the Duress regime renders all agreed upon modifications unenforceable. From an economic perspective, it is equivalent to the polar regime of non-enforcement. Proposition 1 can be interpreted to suggest that this conditional enforcement regime is inferior to unconditional enforcement of modifications.

(iv) The Doctrine of Changed Circumstances. Another approach, which is less common but nevertheless occasionally applied in courts, conditions enforcement of a modification on the existence of a demonstrable change of circumstances affecting the seller’s cost of performance. One way to interpret this doctrine is to say that modifications are enforceable only if condition (1) holds, i.e. if the changed circumstances created a credible threat to breach. Since, according to claim 1 of our analysis, condition (1) is necessary for modifications to emerge, this regime is equivalent to the polar regime of unconditional enforcement. Thus, proposition 1 can be interpreted to suggest that the doctrine of changed circumstances can lead to the optimal result. However, with symmetric information, courts do not need to actually verify changed circumstances, and can reach the optimal outcome by enforcing modifications unconditionally.

III. ASYMMETRIC INFORMATION

The analysis thus far suggests that courts should enforce any modification that the parties agree upon. Opportunistic, non-credible threats of breach will be rejected by the buyer, implying that agreed upon modifications must be arising from credible threats, which, in turn, arise only if the seller’s cost increased. This analysis, however, assumes that the buyer can distinguish between credible and non-credible threats. For if she cannot so distinguish, she will not be able to selectively acquiesce to demands when they are credible, and reject them otherwise. Since the credibility factor often depends on the seller’s costs, which the buyer cannot observe, the symmetric information model in Section II has only limited application. Accordingly, we extend the analysis in this section to the case of asymmetric information.

A. Setup

At period 1, when the seller realizes an updated cost, the buyer can only observe the distribution from which this cost is drawn. For simplicity, assume that there is a probability $p$ that the seller’s cost will be $C > c$, and a probability $(1 - p)$ that the seller’s cost will remain $c$. The buyer knows $p$. If the cost remains $c$, then condition (1) does not hold (i.e. $c - p < D_s$), and the seller prefers performance of the original contract over breach and the resulting damage payment. If the cost of performance turns out to be $C$, then condition (1) holds (i.e. $C - p > D_s$) and the seller prefers breach.

Apart from the seller’s preference between performance and breach, a second question concerns the existence of a modification range. When $v - C > D_B - D_s$, a modification range exists for either low or high cost realizations (we assume that $v - c > D_B - D_s$). When $C$ is so high that $v - C < D_B - D_s$, a modification range exists only for the low cost realization.

We assume that the buyer has all the bargaining power at the modification stage. This assumption simplifies the technical analysis and does not diminish the generality of the results. True, in many modification settings, in which sellers apply extortionary bargaining methods, this assumption is not realistic. Nevertheless, different assumptions about the division of bargaining power will only affect
the terms of the modification, and not the incidence of modification or its social value.\textsuperscript{20}

The basic analysis above examined only two legal regimes: No-Enforcement versus Unconditional Enforcement of modifications. Because the perfectly informed buyer was able to reject all non-credible demands, the only role remaining for courts was to enforce the conceded modification, and our analysis supported an unconditional enforcement regime. The intermediate regimes, under which modifications are conditionally enforceable, and where courts have to verify the existence of some condition, were demonstrated to be equivalent to the polar regimes. In the present setting, however, the imperfectly informed buyer cannot reject all non-credible demands. Accordingly, courts can have the additional role of distinguishing between modifications that are a result of credible threats and those that are not. Thus, the analysis examines in greater detail the two intermediate regimes. Under one intermediate regime, the “Duress” regime, a modification is enforceable only if the buyer was not “coerced”, namely, only if condition (2) does not hold. Under the other intermediate regime, the Changed Circumstances regime, a modification is enforceable only if the seller’s threat to breach was credible, namely, only if condition (1) holds.

B. Analysis of the Legal Regimes

1. The No-Enforcement Regime

If a modification is never enforceable, the introduction of asymmetric information has no effect on the analysis. The seller will never bother to make a modification demand. When the cost of performance turns out to be unexpectedly high (i.e. the period 1 cost realization is $C$), the seller will simply breach the contract.

2. The Duress Regime

As in the basic model, a selective enforcement regime based on condition (2) is equivalent to the No-Enforcement regime. Asymmetric information about the seller’s cost does not affect the basic observation that modifications will be agreed upon only if condition (2) is satisfied. Namely, the buyer will only agree to a modification if her remedies for breach are inadequate, but this is precisely the condition that renders the agreement voidable.

\textsuperscript{20} See Appendix C.
Accordingly, this legal regime makes all agreed upon modifications unenforceable. Under this regime, too, the seller will breach whenever his costs rise to $C$.

3. The Unconditional Enforcement Regime

We next study the polar regime under which modifications are always enforced. Here asymmetric information plays a critical role. When the seller makes a threat to breach, the buyer cannot distinguish between the case in which the threat is credible (when the seller’s cost increased to $C$) and the case in which it is not credible (the cost remained $c$). The seller will take advantage of this uncertainty.

In choosing her bargaining strategy, the buyer has to choose between a pooling offer and a separating offer. Since the seller’s cost is either $C$ or $c$, we have to consider each “type” separately. If the seller’s cost is $C$, he will accept a price increase of at least $\Delta p_s = C - p - D_s$. If the seller’s cost is $c$, he will perform even without any price increase, namely $\Delta p_s = 0$. In choosing her strategy, the buyer will either offer no price increase (inducing “separation” between high cost and low cost sellers, namely only a low cost seller will acquiesce; a high cost seller will breach), or she will offer a price increase that would surely be accepted by the seller, regardless of his “type”, i.e. $\Delta p_s = C - p - D_s$ (a pooling outcome). With the former alternative the buyer nets $\pi \cdot D_B + (1 - \pi) \cdot (v - p)$. With the latter she nets $v - p - (C - p - D_s)$. Comparing the two payoffs, the buyer will offer a price increase if and only if

$$v - C + D_s > \left[ \pi \cdot D_B + (1 - \pi) \cdot (v - p) \right],$$

or:

$$\pi > \frac{C - p - D_s}{v - p - D_B}. \quad (4)$$

21 A comparison between conditions (3) and (4), reveals that condition (3) is more easily satisfied, when conditions (1) and (2) hold. Specifically, condition (4) implies condition (3), but not vice versa. That is, under asymmetric information modification is less likely to occur. To see why, recall that condition (3) requires that the buyer’s reservation price $\Delta p_B$, will be greater than the seller’s reservation price, $\Delta p_s$. This implies $v - p - D_B > C - p - D_s$. Put differently, condition (3) requires that the buyer’s payoff from paying the high cost seller’s reservation
That is, facing a risk that the seller might breach the contract and leave the buyer inadequately protected by remedies, the buyer has to decide whether to “insure” against this outcome by paying a price increase to every type of seller. When this risk—the likelihood \( p \) of increased cost of performance—is sufficiently high, the buyer will offer such a price increase.\(^{22}\) Hence:

**Claim 2:** *In the unconditional enforcement regime, a modification will be agreed upon if and only if conditions (2) and (4) hold.*

Relative to the full information case, the renegotiation outcome changes in two ways. First, a modification of the price might occur with a \( c \)-type seller, namely, even when the seller’s threat to breach is not credible. Second, a modification may not occur even when conditions (1) and (3) hold—when the seller does have a credible threat—since condition (4) is less likely to hold than condition (3).

4. *The Changed Circumstances regime*

Consider the version of the Changed Circumstances regime under which a modification is enforceable if and only if condition (1) holds. A court is expected to verify whether the seller had a credible modification demand and only in such a case enforce the modification. We assume that at period 3 the court can perfectly verify the seller’s performance cost.\(^{23}\)

The outcome under this regime is identical to the outcome under the unconditional enforcement regime in the full information case. Here, too, the seller would not make a threat to breach unless it is credible. The buyer simply accepts any modification demand at period 1, and later—if it turns out that the seller’s cost did not rise to

price will be greater than her payoff from refusing modification and getting damages: \( v - p - (C - p - D_S) > D_B \). In comparison, condition (4) requires that the buyer’s same payoff from paying the high-cost seller’s reservation price will be greater than her payoff from refusing modification and getting either damages or performance at the original price: \( v - p - (C - p - D_S) > \pi \cdot D_B + (1 - \pi) \cdot (v - p) \). Since \( v - p > D_B \) (when condition (2) holds), then condition (3) is more easily satisfied than condition (4).

\(^{22}\) As in the perfect information case, the buyer will not concede to any modification (i.e. will not offer any price increase), unless she is inadequately protected by the legal remedies, i.e. unless condition (2) holds.

\(^{23}\) The imperfect verification case is analyzed in appendix B.
C, namely if the buyer expects that the court will invalidate the modification—she sues for restitution. Given the buyer’s strategy and the court’s selective enforcement approach, the seller will make a modification demand whenever condition (1) holds, namely if and only if the high cost $C$ is realized.

Stated differently, when courts can perfectly verify the credibility of the seller’s modification demand, the buyer’s imperfect information is immaterial from an economic point of view. Under a selective enforcement regime, the buyer can effectively “postpone” her decision whether to modify the contract until period 3, at which time the court will make the accurate observation and validate the modification only when the threat were credible, namely, only when it is in the buyer’s interest that a modification, rather than breach, occur. 24

Indeed, as in the full information model, in the asymmetric information case with selective enforcement all modifications that are made are enforced. True, courts are required, as a prerequisite for enforcement, to verify that the seller had a credible modification demand. That is, there are potential modifications that would not pass this scrutiny and would not be enforced. However, in equilibrium such modifications that do not satisfy condition (1) are never made.

In addition, as in the symmetric information case, there will be no modification unless a modification range exists (i.e. unless condition (3) holds). Hence:

Claim 3: Under the Changed Circumstances regime, a modification will occur if and only if conditions (1) and (3) hold, namely if and only if the seller has a credible threat to breach and a modification range exists.

24 A formal analysis of the imperfect verification case shows that this result - that modifications occur only when the cost rises to $C$ – holds in a model where courts’ verification is imperfect. See Appendix B. In the appendix, we construct a model, where the court might fail to recognize a cost increase. In this model, the risk of judicial error reduces the seller’s expected payoff from a modification, with the sole effect of increasing his reservation price at the modification stage. At the same time, the risk of judicial error induces an equal magnitude increase in the buyer’s payoff, thus increasing her reservation price. As a result, the conditions for a modification remain as in the perfect verification case, and judicial error only affects the terms of the modification.
E. The Regimes Compared

Proposition 2: Under asymmetric information, the Changed Circumstances regime, under which a modification is enforced only if the threat to breach is credible, is the superior regime in terms of maximizing both the buyer’s welfare and overall social welfare.

Remarks: 25 (i) Why No-Enforcement is Bad. In the polar regime in which modifications are not enforceable, the seller will breach whenever his cost of performance turns out to be unexpectedly high, C. Therefore, in this regime the seller will breach with probability p. These breaches cause a welfare loss, since by assumption the transaction is efficient even if the cost of performance is high (i.e. \( v > C \)). Moreover, the buyer would be better off had she been able to prevent these breaches by committing to an enforceable modification. Note that the disadvantage of this polar regime has nothing to do with the introduction of asymmetric information. The inability to commit to an enforceable modification reduces the buyer’s welfare for the same reason that an inability to make an enforceable promise reduces a transactor’s ability to enter into welfare increasing transactions.

(ii) Why the Duress Regime is Bad. As explained above, the Duress regime, under which a modification is enforceable only if “coerced” – only if the buyer’s resort to remedies is inadequate -- is effectively equivalent to the no-enforcement regime. Accordingly, any time the seller’s threat to breach is credible, breach will occur, causing a social welfare loss and a private loss to buyer.

(iii) Why Unconditional Enforcement is Bad. In the other polar regime in which modifications are unconditionally enforceable, the buyer’s welfare is compromised in the following way. Due to her lack of information the buyer might agree to a modification even when the actual cost of performance is c, such that the seller does not have a credible threat to breach. In addition, she might turn down a modification demand when the actual cost of performance is C, and suffer the consequences of breach. Note, however, that the likelihood of an inefficient breach is smaller, relative to the no-enforcement regime. Here, for an inefficient breach to occur it is not enough that

25 The following remarks describe the intuition underlying proposition 2. The formal proof of the proposition 2 is provided in Appendix A.
the seller has a credible threat, but also the buyer must find it in her interest not to propose a price increase.

(iv) The Optimality of the Changed Circumstances Regime. If “changed circumstances” are understood to arise if (and only if) they render the threat to breach credible, this regime is optimal for the buyer. Here, as in the symmetric information case, modifications are made if and only if conditions (1) and (3) are satisfied. Thus, the likelihood of an inefficient breach is the smallest: it will only occur when the seller’s cost is high and condition (3) is not satisfied, namely, when there is no modification range. Since condition (3) is more easily satisfied than condition (4), inefficient breach is least likely to occur under this regime.

F. Ex Ante Effects

Thus far, the analysis has focused on periods 1 and 2, that is, on how the legal regime would shape incentives at the modification and performance stages. We now turn to examine the effects of the different regimes on incentives at earlier stages. In particular, the analysis explores how the two prevailing regimes, the Duress regime and the Changed Circumstances regime, affect ex ante investments, risk sharing and the design of the initial contract.

1. Relationship-Specific Investments

A major purpose of contracts is to induce relationship-specific investments (i.e. reliance investments) by the contracting parties. Absent an enforceable commitment, it is commonly recognized that the hold-up problem may lead to underinvestment: If one party makes a relationship specific investment, after the investment is sunk the other party will be able to extract some of its returns by renegotiating more favorable terms. This hold-up might dilute incentives to engage in ex ante investments, and thus reduces the value of the transaction.

28 Such dilution will occur if the remedies for breach are under-compensatory and are not increasing in the level of investment. An opposite effect might occur when remedies are under-compensatory but increasing in either the level of investment or
It might be conjectured that the Changed Circumstances regime, which makes modifications enforceable in a relatively greater set of cases, would reduce relationship-specific investment. If an investing party anticipates that her counterpart might be able to make a credible threat to breach and thus modify the contract and extract some of the returns on her investment, her incentives to invest would diminish. Accordingly, so goes the argument, the Duress regime, which is strategically equivalent to a No-Enforcement regime and which reduces the incidence of modifications, would shield the contractual investment from subsequent hold-up, leading to greater investment and greater overall surplus.

This conjecture stems from an intuitive premise that the buyer’s investment is better “protected” under the Duress regime. Generally, this premise is not valid. In fact, more of the buyer’s investment can be “forfeited” under the Duress regime. True, under the Changed Circumstances regime some of the investment’s returns can be extracted by the other party, to an extent that depends on the legal remedy for breach and on the relative bargaining power of the parties. But similarly, under the Duress regime the investing party does not enjoy the full return to the investment since an undercompensated breach may occur. How often she loses her investment depends on the likelihood of breach, which in turn depends on how her investment affects the remedy she stands to collect. Accordingly, the buyer will invest more under the Changed Circumstances regime whenever the marginal effect of investment on her “post hold-up” payoff exceeds the marginal effect of investment the value of performance. Here, excessive reliance investment may result. See Shavell, supra note 26; William P. Rogerson, “Efficient Reliance and Damage Measures for Breach of Contract,” 15 Rand J. Econ. 39 (1984).

Under the Changed Circumstances regime, whenever the seller has a credible threat to breach and a modification is agreed upon the buyer’s payoff is \( v(r) - p - \Delta p(r) \), where \( r \) denotes the buyer’s investment. The value that is extracted from the buyer, \( \Delta p(r) \), may depend on \( r \). If \( \Delta p(r) \) is increasing (decreasing) in \( r \), underinvestment (overinvestment) will follow. If, instead, \( \Delta p \) is independent of \( r \), optimal investment will be taken. Thus, if the price increase depends solely on the seller’s cost, the buyer’s investment would be optimal.

Under the Duress regime, whenever the high cost contingency is realized and the seller breaches the contract the buyer’s payoff is \( D_B \). Since \( D_B \) is a function of \( v(r) \), an increase in the investment might increase the buyer’s remedy.
on her “post breach” payoff.\footnote{The buyer’s investment will be greater under the Changed Circumstances regime as long as } 1 − \partial\Delta p / \partial v > \partial D_b / \partial v. If the buyer has all the bargaining power, such that \Delta p = C − p − D_s, this condition will be satisfied as long as 1 + \partial D_s / \partial v > \partial D_b / \partial v, a highly plausible condition. If the seller has all the bargaining power, such that \Delta p = v − p − D_b, then 1 − \partial\Delta p / \partial v = \partial D_b / \partial v, and the buyer’s investment will be identical under both regimes. This analysis assumes that the likelihood of hold-up—of the seller having a credible threat to breach—is independent of the legal regime. It might be argued, however, that the Changed Circumstances regime \textit{increases} the incidence of hold-up. This intuition hinges on the assumption that under the Changed Circumstances regime, by sinking an investment, the buyer becomes \textit{more} vulnerable to rent appropriation, a vulnerability that she can reduce by investing less. This intuition, however, is misleading. While it is true that an investing party is more vulnerable to hold-up whenever her counterpart has a credible threat to breach, it is not true that relationship-specific investment increases the credibility of the threat. When one party invests to increase the surplus, the credibility of the opponent’s threat to breach would normally \textit{decline}, not rise. Recall condition (1): none of the factors bearing on the seller’s credibility—the seller’s cost or the effective burden of remedies on the seller—shift in the direction of greater credibility. On the contrary, more investment by the buyer will generally increase the buyer’s valuation, making the effective burden of remedies on the seller no smaller and perhaps larger; and, some relationship-specific investments by the buyer has the effect of reducing the seller’s cost, thereby directly diminishing the credibility of his threat.

Accordingly, we suggest that once the problem of relationship-specific investment is taken into account, the case in favor of the Changed Circumstances regime may only be reinforced.
2. Risk Sharing

Risk sharing is another central goal that parties seek to advance through contracting. Once again, it might be argued that the Changed Circumstances regime would limit the parties’ ability to allocate risks in their contract. For example, if parties wish to allocate the risk of a cost increase to the seller, so that the seller will perform (without any price increase) even when the cost of performance turns out to be high, they will be unable to do so. The parties anticipate that if the cost would turn out to be sufficiently high the seller would have a credible threat to breach, leading to an enforceable modification under which some of the cost increase is shifted to the buyer.

While it is true that the parties’ ability to allocate risks to the seller would be seriously limited, it is not true that this problem results uniquely from the Changed Circumstances regime. In fact, a similar problem—perhaps more severe—would arise under the Duress regime. Under this regime, if the high cost contingency materializes the seller would not bear the increased cost but instead breach the contract. If breach occurs, the buyer would end up suffering a greater decline in payoff (in terms of uncompensated expectation) than the decline in payoff she would have suffered had she borne some of the cost increase.

Stated differently, the reason why parties are limited in their choice of risk allocation is not the modification regime, but rather the weakness of contractual remedies. In a world in which remedies are perfectly compensatory, the buyer would never surrender to breach threats and the full risk of cost increases could be allocated to the seller. It is the inadequacy of legal remedies that precludes such risk allocations. Consequently, the two regimes differ only with respect to the type of risk that the buyer must bear: the risk of a price concession.


33 Under the Duress regime the buyer would suffer a decline in payoff equal to \( v - p - D_B \). Under the Changed Circumstances regime the buyer would suffer a decline in payoff equal to \( \Delta p = C - p - D_S \) (if the buyer has all the bargaining power, or \( \Delta p = v - p - D_B \) (if the seller has all the bargaining power). Since \( C - p - D_S < v - p - D_B \) (otherwise there will be no modification), the Changed Circumstances regime leads to a smaller decline in the buyer’s payoff (the decline will be identical under the two regimes only in the polar case where the seller has all the bargaining power).
versus the risk of inadequately compensated breach. If the buyer chooses modification over remedies, it must be that she deems her modification payoff to be higher.

3. Manipulating Credibility

Focusing on the Changed Circumstances regime, we have thus far assumed that the credibility of the threat to breach depends on the realization of a random event (affecting the seller’s cost) and is not subject to the direct control of the parties. However, in certain cases credibility might be subject to manipulation by the parties. For example, consider a seller, who has experienced an exogenous cost increase that renders the contract a losing prospect for the seller, but is not high enough to generate a credible threat to breach. The seller might take steps to further inflate his costs, anticipating that with the inflated costs his threat to breach would become credible and enable him to extract a modification from the buyer. Alternatively, the seller may attempt to reduce his expected burden of damages in case of breach \( (D_s) \), e.g. by assuming excessive higher-priority debt, as a means of bolstering the credibility of his threat to breach.

The credibility manipulation problem can be expected to be especially acute when ex ante competition drives down the initial contract price so that it is set only slightly above the seller’s cost. A lower initial price reduces the cost to the seller of manipulating the credibility of the threat breach, since a smaller increase in performance costs (or, alternatively, a smaller decrease in the burden of damages) will be required to generate credibility. A credible threat to breach reopens the negotiations when the seller is no longer competing with other sellers, but is rather in a bilateral monopoly situation in which he can extract a larger ex-post portion of the surplus as compared to what he obtained at the ex ante stage under intense competition.

Importantly, however, even with ex ante competition and a low initial price, the seller will often need to engage in substantial manipulation in order to generate credibility. Even if the initial price, \( p \), is only slightly above the cost, \( c \), a small increase in performance

\[ ^{34} \text{We are not referring to the case where a party simply claims credibility, e.g. by arguing that his costs have risen when in fact they have not. Rather, we are referring to the case where the party in fact generates higher costs to render his threat to breach credible.} \]
costs may not create a credible threat to breach. Recall that it is not enough for the cost of performance to exceed \( p \), it must exceed it by more than the cost of breach \( D_5 \) to generate a credible threat (the increased cost, \( C \), must satisfy condition (1), \( C - p > D_5 \)). When the burden of damages that the seller expects to bear is not trivial, bolstering credibility will require more significant manipulation.

Such rent-seeking investments in credibility are socially wasteful. They reduce the ex ante value of the transaction to both parties. Consequently, when credibility manipulation poses a significant problem, it weakens the normative case for the Changed Circumstances regime. There are, however, means to combat such manipulation. First, if manipulation is verifiable, courts could refuse to enforce modifications based on manipulated credibility. To the extent that courts are able to identify deliberate cost increases, the problem can be avoided.

Second, the parties themselves may design the initial contract so as to minimize the prospect of manipulated credibility. For instance, instead of a fixed-price contract, the parties may opt for a cost-plus contract, which eliminates the seller’s incentives to manipulate his cost of performance. Credibility manipulation can also be prevented if parties can contractually restrict their power to modify the contract.\(^{35}\) However, redesigning the initial contract to render it manipulation-proof has its own costs. A cost-plus contract may induce a sub-optimal allocation of risk (when it is efficient for the seller to bear the risk of a cost increase). And, restricting the ability to modify the contract generates ex post inefficiency (i.e. the possibility of inefficient breach), as under the Duress regime.

4. Summary

When parties are unable to enter into complete contingent contracts that are perfectly enforceable, some ex-ante inefficiencies might arise. However, reducing the incidence of renegotiation by making modifications unenforceable would not necessarily reduce these inefficiencies. Although the anticipation, at the contract drafting

\(^{35}\) Contract doctrine, however, makes it difficult to impose such an ex ante restrictions on modifications. See Christine Jolls, *Contracts as Bilateral Commitments: A New Perspective on Contract Modification*, 26 J. Legal Stud. 203 (1997).
stage, of subsequent enforceable modifications could distort both the provisions of the contract (e.g., the risk allocation) as well as subsequent behavior (e.g., inefficient investment), we argued that the anticipation of no-modification could potentially lead to more severe distortions (inefficient breach and derivative ex-ante concerns.) As long as the original contract is not perfectly enforceable, it is generally in the interest of both parties to have the power to modify it.

IV. THE CREDIBLE THREAT REGIME – NORMATIVE CRITERIA

The analysis above demonstrated that the optimal regime, both from a social perspective and from the buyer’s perspective, is the Changed Circumstances regime. A modification should be enforced if and only if condition (1) is satisfied, namely if the seller has a credible threat to breach. This section outlines a set of normative guidelines to assist a court in ascertaining whether this condition is satisfied.

Before looking at the credibility condition, however, it is important to emphasize what it is that courts need not pay attention to. Courts need not examine whether the buyer was coerced to agree to the modification – whether condition (2) also holds. While it is necessary that condition (2) hold for modification to be superior to breach, the law need not condition enforcement on the satisfaction of this condition and can focus solely on condition (1). Unless the buyer deemed remedies to be inadequate, she would not have entered into the modification agreement. Thus, if the buyer accepts the demand, it must be the case that condition (2) is satisfied, that is, modification is preferable to the buyer over suit for breach. It thus remains for the court to determine whether the modification was indeed necessary to induce the seller to perform, namely, whether the seller’s threat to breach was credible.

A. The Seller’s Performance Payoff

The seller will have a credible modification demand when his loss from performance, $p - C$, is greater than the effective damages

36 Other authors, while recognizing the importance of a credibility test, have nevertheless invoked conditions similar to condition (2). In particular, Schwartz, supra note 10, emphasizes the verifiability of his “access to the market” condition. Similarly, Johnston, supra note 10, at 342-343, assumes that the absence of substitutes is a pre-condition to the desirability of enforcement.
the seller expects to bear if he decides to breach, \( D_s \). We begin with the seller’s performance payoff.

To evaluate whether the seller faced an increased cost, and whether this cost rendered the seller’s threat to breach credible, the court should examine various types of cost factors and their relation to the original contract price. But not every type of cost affects the credibility of the seller’s threat to breach in the same way. It is worth distinguishing between two distinct categories of economic (or “alternative”) costs. On the one hand, if the seller discovers a new personal use for the asset or incurs higher “technological” costs of performance, then the credibility of his threat to breach is clearly enhanced. On the other hand, if a third party appears, offering a higher price for the asset, it is not only the cost of performance that increases, but also the seller’s ability to pay damages. To the extent that the credibility of the seller’s threat arises from his relative inability to pay a money judgment in case of breach, a higher price paid by the third party bidder increases the seller’s ability to pay. Namely, the case of a third party bidder is one in which both sides of the inequality in condition (1) rise, potentially in the same magnitude. Accordingly, this type of cost-increase does not necessarily affect the credibility of the seller’s demand, and may not justify enforcement of a modification. This argument suggests a different rationale for legal hostility towards a breach that is motivated by a third party bid. This hostility may be explained, not as distaste towards opportunistic breach, but on the grounds that such opportunities do not create a credible threat to breach. There is no social loss from deterring such rent-seeking threats.

Apart from the cost element itself, the net cost to the seller if he performs the original contract depends on the price term in the original contract. The lower this original price is, the more vulnerable will the seller be to any rise in the cost of performance. In cases in which courts cannot directly observe the price-cost gap, they may look to factors such as relative bargaining power and the competitiveness of the seller’s market as proxies for the magnitude of

\[37\] Non-economic, costs may also play an important role. We study one category of non-pecuniary costs associated with parties’ fairness concerns in a companion paper, Oren Bar-Gill and Omri Ben-Shahar, *Threatening an “Irrational” Breach of Contract*, in Francesco Parisi (ed.), *The Law & Economics of Bounded Rationality* (forthcoming).
this gap. When the price-cost gap is small, even a mild increase in production costs may render the seller’s threat to breach credible.

**B. The Seller’s Breach Payoff**

The credibility of the seller’s threat to breach is inversely related to his breach payoff. In other words, condition (1) is more likely to hold when the effective damages the seller expects to bear if he decides to breach, $D_s$, are small. Various factors influence the magnitude of this effective damages burden.

1. *The Judgment Proof Problem*

   If the seller has limited resources, he may end up judgment-proof and enjoy virtual immunity against high damage awards. Taking the possibility of judgment-proofness into consideration, the effective damages that the seller expects to bear, $D_s$, may be smaller than the fully compensatory damage measure, $d$.

   The possibility of judicial inaccuracy in assessing damages has an interesting interaction with the judgment-proof problem, which reinforces the systematic tendency of $D_s$ to drop below $d$. Clearly, judicial inaccuracy may cause court-imposed damages to deviate from $d$ in any specific case, and there is no a-priori reason to suspect that the deviations would be downward. Normally, unbiased deviations would be of little consequence: they cancel out on average, leaving the expected damage award equal to $d$. In the case in which the seller-defendant might by judgment-proof, however, the upward deviations from $d$ do not cancel out with the downward deviations. While downward deviations would be complied with, upward deviations might not, as they might be unaffordable to the potentially judgment-proof seller. Put differently, when judicial error leads to more-than-compensatory damages, the seller may enjoy an effective “discount”, whereas if the error leads to less-than-compensatory damages, the seller will pay them as ordered. On average, the seller will pay less than $d$.

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38 *See also* Johnston, *supra* note 10, p. 345.
40 To illustrate, consider the following example. Fully compensatory damages equal 1000. Courts impose damages of either 500 or 1500, each with equal likelihood (thus an unbiased average of 1000). The seller has an initial wealth of 1100, that is,
The judgment-proof problem is also related to the source of the seller’s cost increase. As pointed out above, a cost increase that is due to, say, higher input costs, can hurt the seller’s solvency, shrinking the resources from which a judgment can be collected. In contrast, a cost increase that is due to a higher third party bid increases the seller’s revenues and the likelihood that damages would be collected.

2. Delay
If the seller decides to breach, the damage payment will often be imposed long after the designated time of performance (i.e. the temporal distance between periods 2 and 3 is generally quite significant), leading to substantial discounting. On the other hand, if the seller performs, the cost of performance is incurred immediately at period 2. Thus delay in judgment may push the effective $D_3$ well below the theoretical $d$.

3. Downward-Biased Settlement
If the seller breaches, it is far more likely that the parties will agree on a settlement than pursue the case all the way to judgment. Even if the parties expect that judgment would center around $d$, it is plausible that the settlement amount would vary from $d$.

One of the factors that is known to affect the gap between settlement and judgment is the parties’ litigation costs. First, if the buyer’s litigation costs are substantial, she may find it unprofitable to sue, thus reducing the likelihood that the seller will have to pay any damages, and reducing the seller’s willingness to settle. In this case, the settlement amount cannot exceed the nuisance value of the suit.

more than enough to pay the fully compensatory damages. In this example, when courts award damages of 500 the seller pays in full out of his wealth. But when the court awards damages of 1500, the seller can only pay 1100. On average, the seller pays 800, less than the fully compensatory measure.

These effects are often enhanced by well-documented deviations from perfect rationality that might affect the seller’s decisionmaking process. As noted in the text, the cost of performance is imminent. It is salient and clear in the seller’s mind. The consequences of breach, on the other hand, lay in the future, often in the distant future. Myopic sellers will tend to excessively discount the cost of breach. Moreover, the cost of breach may seem uncertain. The imposition of damages for breach of contract is buffered by the unpredictability of trial. The uncertainty accompanying litigation opens the door for optimism and other self-serving biases, which have been shown to prevail in litigation contexts. See Loewenstein, et al., “Self-Serving Assessments of Fairness and Pretrial Bargaining,” 22 J. Legal Stud. 135 (1993).
which may be well below the buyer’s harm. Second, even if the buyer brings suit (or has a credible threat to sue), the expected settlement amount will generally deviate from the hypothetical court-imposed damages. Specifically, high litigation costs on the buyer’s side will push the settlement amount down below $d$. Finally, risk aversion may also affect the settlement amount. To the extent that litigation is risky, the more risk averse the buyer is relative to the seller, the lower will the settlement amount be.

4. Uncompensated Harm

Another set of factors reducing the seller’s breach burden $D_s$ has to do with contract law doctrines that operate to limit the compensable components of the buyer’s harm. If the buyer’s lost valuation, $v$, includes subjective idiosyncratic elements (such as emotional harm), uncertain elements (such as speculative profits that are lost), or unforeseen elements (such as high consequential damages), courts are likely exclude these elements when calculating the expectation damage award.

These limitations on recovery of damages reduce both $D_s$ and $D_B$. A lower $D_s$ enhances the credibility of the threat to breach. A lower $D_B$ renders the buyer more vulnerable to credible threats. In the extreme, if the buyer cannot recover any damages, she will yield to the seller’s demand any time it is credible. The seller’s demand in this case will be credible whenever $p - C < 0$, namely, any time the

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42 Shavell and Rosenberg, A Model in Which Suits Are Brought for Their Nuisance Value, 5 Int’l Rev. L. and Econ. 3 (1985).
43 See, e.g., Lucian A. Bebchuk, A New Theory Concerning the Credibility and Success of Threats to Sue, 25 J. Legal. Stud. 1 (1996). Conversely, high litigation costs on the seller’s side will push the settlement amount above $d$.
45 For the limitation on recovery of emotional damages, see Restatement (Second) of contracts (hereinafter “Restatement”) §353, and Valentine v. General American Credit, Inc., 362 N.W.2d 628 (Mich. 1984). For the limitation on recovery of uncertain damages, see Restatement §352, and Fera v. Village Plaza, 242 N.W.2d 372 (Mich. 1976). For the limitation on recovery of unforeseen harm, see Restatement §351, UCC 2-715, and Hadley v. Baxendale, 9 Exch. 341 (1854). In addition, damages for partial or defective performance are limited to the “objective” value diminution measure, which does not cover subjective or idiosyncratic harm. See, e.g., Peevyhouse v. Garland Coal & Mining Co. 382 P.2d 109 (Okl. 1962).
original contract is a losing one. These observations are of course not surprising. The strength of a contractual commitment depends on the remedies for its breach. The more limited these remedies are, the weaker the contractual commitment, and the more credible is the threat to breach it.

C. Verification

The preceding analysis identified factors relevant to the implementation of the credibility test. The applicability and success of a regime based on the credibility test depends on the ability of courts to verify these relevant costs, values, prices and damage burdens, as described in subsections A and B above. Given the host of factors that bear on the issue of credibility, this may not be an easy task. 46

The fact that credibility may be difficult to verify does not mean that a different, more readily applicable test ought to guide the courts. Whether verified or not, the credibility criterion is the one determining whether, in the absence of an enforceable modification, the threat would be carried out. Surely, the old common law regime of no-enforcement is easier to apply. It is also far more likely to get incentives wrong. Likewise, even if the adequacy of remedies test depends on factors that are easier to verify, it would still make better sense for courts to follow, however imperfectly, the credibility test.

One aspect of implementation concerns the choice between rules and standards. Ideally, the credibility condition would be regarded as a standard, under which courts would examine the various factors described in subsections A and B above on a case-to-case basis. On the other hand, due to the possible costs of verification, courts may choose to formulate bright line rules to implement the credibility test. Following such an approach, courts can define categories of situations where the threat to breach is likely to be credible, and enforce modifications only in cases that fall into one of these pre-determined categories. For instance, bankruptcy or judgment-proofness (or the imminent prospect of bankruptcy or judgment-proofness) may

46 While our focus has been on the various pecuniary factors affecting credibility, non-pecuniary factors, such as reputation effects, non-legal sanctions and fairness concerns may also affect credibility placing an additional verification burden on the courts. Some of these effects are explored in Bar-Gill and Ben-Shahar, Threatening an Irrational Breach of Contract, supra note 37.
constitute such a category, creating a presumption of credibility. Likewise, the Code’s attention to a “market shift which makes performance come to involve a loss” can be viewed as a bright line rule. While it focuses only on one side of condition (1), \((C - p)\), it provides a presumption of credibility.

Applying the credibility test as a standard might lead to inaccurate determinations whenever relevant factors are assessed with error. Applying the credibility test as a rule and focusing only on some of the categories—the pre-defined and easily verifiable ones—might similarly entail inaccurate determinations. This is the familiar tradeoff between rules and standards which courts routinely face. It is commonly assumed that even if the resulting set of commands is imperfect, it does not provide a case for abandoning the substantive legal regime.

Our goal is to present the credibility principle as a normative guideline for courts, in a doctrinal arena where such a unifying normative principle seems to be lacking. The success of this principle depends on its applicability. Accordingly, the doctrinal analysis below will illustrate the applicability of the credibility test, and its potential ability to instill greater coherence in this area of contract law.

V. DOCTRINAL IMPLICATIONS

A. Modification Doctrine

1. The Law’s Failure to Consider the Credibility Test

Under current law, modifications are selectively enforceable. Section 89 of the Restatement provides that a modification should be binding if it is “fair and equitable in view of circumstances not anticipated by the parties when the contract was made”. In interpreting what is “fair and equitable”, courts usually address solely the perspective of the acquiescing party. A typical decision would examine whether the acquiescence was a result of coercion and extortion. It would look at the acquiescing party’s alternative options,

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47 UCC 2-209 (cmt. 2)
48 The closer \(D_s\) is to zero, the better is this approximization. Since \(D_b\) is relatively low (otherwise the buyer would not have acquiesced to the modification), and since a low \(D_b\) usually implies a low \(D_s\), it is plausible to presume that \(D_s\) is low.
such as remedies for breach or the availability of a substitute partner. If these alternatives are judged to be inadequate, the court would ordinarily hold that the modification was a result of “duress” and refuse to enforce it. As a leading commentator explains,

“A modification coerced by a wrongful threat to breach under circumstances in which the coerced party has no reasonable alternative should prima facie be voidable. [...] In such circumstances, it should be immaterial that the party exercising coercion has a good business reason for its wrongful demands.\(^50\)

This duress criterion is flawed in two ways. First, the inadequacy-of-alternatives condition that courts impose is “redundant”; a modification would not have occurred absent the fulfillment of this condition. If remedies were adequate, or if substitute partners were available the threatened party would not have acquiesced to the modification demand. That is, within the set of all modification demands, those that are accepted (and eventually arrive at court) are necessarily ones where the inadequacy condition is met. Using this criterion as a condition for enforcement is equivalent to a strict no-enforcement regime.

The selective enforcement criterion that focuses on adequacy of remedies is flawed in a second, more disturbing, manner: it is oblivious to the issue of the credibility of the threat to breach. The analysis demonstrated that optimally, modifications would be enforced if and only if the threat to breach was credible. The problem is that threats can be credible even when they are coercive, namely, even when they leave the threatened party without adequate alternatives. That is, the approach often used by courts, of looking strictly at the adequacy of remedies issue, is not even a rough proxy for the changed circumstances test that courts ought to employ. Under

\(^{50}\) 7 CORBIN ON CONTRACTS §28.6 at p. 57 (Rev. ed. 2002) (emphasis added). This strict focus on the acquiescing party’s reasons for agreeing to the modification is endorsed by legal scholars. See, e.g., Timothy J. Muris, \textit{Opportunistic Behavior and the Law of Contract}, 65 Minn. L.Rev. 521, 534-36 (“In principle, the distinction between opportunistic and nonopportunistic modifications lies in the promisor’s reasons for agreeing to the modification.”); Robert A. Hillman, \textit{Policing Contract Modifications under the UCC: Good Faith and the Doctrine of Economic Duress}, 64 Iowa L.Rev. 849, 880-84 (“the issue of free assent is at the core.”)
the standard adequacy-of-remedies test courts are instructed to strike down a modification even if the threat that led to it was credible.\textsuperscript{51}

The doctrinal neglect of the credibility aspect can be easily demonstrated by the host of cases that exhibit credible coercion. Consider a leading representative case, \textit{Kelsey-Hayes v. Galtaco},\textsuperscript{52} involving a three-year requirements contract for the supply of brake parts, which the buyer assembled and sold downstream to the big automakers. Two years into the contract, in the presence of mounting losses, the seller threatened to shut down its operations unless a 30\% price increase was agreed upon. The buyer acquiesced. A month later, as losses kept increasing, the seller demanded an additional 30\% increase, to which the buyer again acquiesced. The buyer eventually refused to pay any increment above the original price.

In deciding not to enforce the modification, the court discusses exclusively the question of the adequacy of damages. The court points out that the buyer would have suffered a significant harm if the brake parts were to be delayed, as it would have to delay its own obligations to the automakers, which could potentially “halt production of a vehicle line [and] … injure its business reputations and subject it to large monetary damages”.\textsuperscript{53} This observation leads the court to conclude that the buyer was under extortion and duress, and to refuse to enforce the modified price.

The court overlooks the question of the credibility of the seller’s threat. The facts of the case do indicate, however, that in all likelihood the seller’s threat was credible. The fact that the seller was losing money was uncontested. Its board passed a final decision to discontinue its entire operations prior to the modification, and indeed it shut down after the termination of the contract. The departure of other customers increased the burden of fixed costs. In fact, it is quite clear that the seller remained in operation solely to perform the modified obligations under this contract and would have shut down but for the price modification.

\textsuperscript{51} “Duress is tested, not by the nature of the threat, but rather by the state of mind induced thereby in the victim.” Wolf \textit{v. Marlton Corp.}, 154 A. 2d 62 (NJ 1959).


\textsuperscript{53} 749 F.Supp. 798.
According to the analysis in this paper, given the credibility of the seller’s demand, enforcing the modification would have been in the buyer’s ex-ante interest. In the presence of a credible threat to breach, the inadequacy of remedies—which the court emphasizes—only reinforces the case in favor of enforcement. Had the seller anticipated that the court would strike down the modification, the seller would not have performed its obligations, causing the buyer a significant uncompensated loss.

*Kelsey-Hayes* is not unique in ignoring the credibility issue. Courts regularly focus solely on the buyer’s perspective, exploring whether remedies would have been adequate. For example, in the case-book favorite *Austin v. Loral*, the court is split on the issue of adequacy of damages, with a majority holding that, due to absence of substitute performance and the general inadequacy of remedies, the buyer was under duress and the modification is unenforceable. Both the majority and the dissent agree, however, on the methodology, namely that enforcement should depend strictly on the issue of duress. It must be shown that “the threatened party could not obtain the goods from another source and that the ordinary remedy of an action for breach of contract would not be adequate.” Neither examines the credibility issue, on which the decision should have, ideally, turned. Thus, if indeed Austin’s threat was credible, Loral—or a party who is similarly inadequately protected by legal remedies—would be worse off under the court’s decision not to enforce the modified agreement.

To be sure, even while failing to address the credibility condition courts might nevertheless “accidentally” arrive at the correct outcome. We saw that when a threatened party is imperfectly

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54 *Austin Instrument, Inc. v. Loral Corp.*, 272 N.E.2d 533 (NY 1971). This case appears in many casebooks, *e.g.*, FULLER AND EISENBERG, BASIC CONTRACT LAW 122 (7th ed. 2001).

55 272 N.E.2d, at 535.

56 From the reported facts, whether or not Austin’s threat to breach was credible is ambiguous. The seller claimed, and the majority in the lower court confirmed, that it suffered a cost increase. *See Austin Instrument v. Loral Corp.*, 316 N.Y.S.2d 528, 530 (1970). Further, it is reported that following its modification demand but prior to Loral’s acquiescence, Austin indeed ceased delivery. *See* 272 N.E.2d, at 534. It might still be argued that Austin, a solvent company, would have been able to afford a fully compensatory expectation remedy. It is clear, however, that the answers to these issues did not appear relevant to the judges in deciding whether to enforce the modification.
informed about the factors that affect the credibility of the modification demand, a modification might be agreed upon in circumstances where the demand was not credible. In these situations, non-enforcement would be in the interest of the threatened party. Courts, even when focusing on the adequacy of damages issue, may correctly decide not to enforce the modification. For example, in *Alaska Packers v. Domenico*,\(^{57}\) the sailors’ threat to stop work unless their wages were increased was, by standard accounts, not credible. Non-enforcement of the modified wage agreement would not, under these accounts, have resulted in work stoppage.\(^ {58}\)

2. **Exceptions**

While enforcement usually turns on the issue of coercion, there are instances in which courts apply a different approach of “unanticipated circumstances”, which focuses on factors that approximate the credibility condition. Courts examine the reasons underlying the modification demand and assess whether the demand was justified. An illustrative case is *Angel v. Murray*,\(^ {59}\) which involves a long-term waste removal contract between a contractor and the city of Newport. A few years into the contract term, as a result of an “unanticipated increase” in its costs due to an increase in the size of the city, the contractor requested an increase of the annual fee, to which the municipality agreed. The trial court refused to enforce the modification. The Supreme Court of Rhode Island, in reversing the decision, points out that the cost increase was “substantial”, justifying the modified price.

The court did not, however, consider the credibility issue directly. To be sure, it looked at the cost increase factor, which is a major factor affecting the credibility of the threat. But it did not ask the question ‘what would the contractor, facing increased costs, have done absent a modification?’\(^ {60}\) Instead, the court followed a

\(^{57}\) 117 Fed. 99 (9th Cir. 1902). See also *Pecos Construction Co. v. Mortgage Investment Co. of El Paso*, 459 P.2d 842 (N.M. 1969) (modification not enforced where money damages would have been inadequate; but seller’s threat to breach was in bad faith, not resulting from losses).

\(^{58}\) For a different view, suggesting that the sailors’ threat was credible, see Bar-Gill and Ben-Shahar, *supra* note 27.

\(^{59}\) 322 A.2d 630 (R.I. 1974).

\(^{60}\) Indeed, the contractor in *Angle v. Murray*, in the desire to maintain a long term relationship with the municipality, may well have opted to perform the remaining term on this contract at a loss. His threat to breach, then, was not credible
methodology of “fairness”, looking at the cost increase, and, importantly, at the fact that it was unanticipated at the time of contract formation, as factors that render the modified price “fair and equitable in the circumstances”.61 This methodology, which is often imported through the requirement of “good faith”, may lead to undesirable decisions. Modifications resulting from credible cost-driven demands that nevertheless seem unfair would not be enforced.

In a few cases, the credibility test, while not explicitly invoked, in fact underlies the decision. For example, during periods of economic slowdown, courts realize that if parties would be unable to renegotiate terms agreed upon prior to the recession, they would likely breach and suffer bankruptcy, leaving the breached-against party without remedy. One recurring scenario in which such analysis was conducted involves long-term tenants who, in the face of solvency problems, demand a price reduction midway through the lease or else abandon the premises. As one court explained,

“A lease which provides for too high a rent may be less valuable to the landlord than one providing for a proper rent [. . .] They desired that their tenants should continue in business under circumstances which should afford more assurance of success.”62

Nevertheless, this understanding is not universal. Other courts, in identical circumstances, refused to enforce the modification, even when the tenant’s threat to breach was clearly credible, and permitted landlords to turn around and sue for the pre-modified rent.63

The basic insight that enforcement of the modification may be in the interest of the acquiescing party occasionally surfaces in court decisions. For example, in Göbel v. Linn,64 the court understood that

61 A similar approach is applied in construction contracts, when the contractor discovers “unforeseen” quantities of hard rock, which increase its cost of excavation. Courts enforce the resulting modifications. See, e.g., Watkins & Son, Inc. v. Carrig, 21 A.2d 591 (NH, 1941); Brian Construction and Development Co. v. Brighenti, 405 A.2d 72 (Conn., 1978).
62 See, e.g., Jaffray v. Greenbaum, 20 N.W. 775, 778 (Ia. 1884); See also Ten Eyck v. Sleeper, 67 N.W. 1026 (Minn 1896).
63 See, e.g., Levine v. Blumenthal, 186 A. 457 (N.J., 1936) (depression-era store tenant struggled to maintain profits but continued occupancy after landlord conceded a rent reduction; held that the reduction is lacking consideration and the landlord is entitled to recover the entire high rent.)
64 11 N.W. 284 (Mich 1882)
even if the modification results in less favorable terms, it can be beneficial to the acquiescing party, once the alternative—suing an insolvent company—is accounted for. More recently and explicitly, Judge Posner explained that if a party cannot commit to a modification, the modification would not be offered, with the adverse effect of suffering breach and litigation costs.65

3. The Code’s Approach

The Uniform Commercial Code has adopted an approach that is seemingly in line with the credibility condition. Under §2-209, modifications need to meet a general test of good faith. Courts are instructed to look at the commercial reasonableness of the modification demand in deciding whether it was “extortionate”. Specifically, “such matters as a market shift which makes performance come to involve a loss may provide [a good faith] reason [to seek modification].”66

To the extent that the commercial reasonableness test focuses solely on such matters that affect the credibility of the threat to breach, it is indeed optimal. However, in applying this provision, courts have required, as a condition for enforcement, another element—“honesty in fact”, which looks at whether the modification was extorted by coercive conduct. Even if circumstances change to involve a loss, the resulting modification cannot be enforced if it is extracted by threats.67 Indeed, what constitutes “honesty in fact”

65 The Selmer Co. v. Blakeslee Midwest Co., 704 F.2d 924, 928 (7th Cir. 1983). This ex-ante view of the modification doctrine has also been proposed by contract law scholars. See, e.g., sources cited in note 10 supra.
66 UCC §2-209 (cmt 2). See, also, White & Summers, 1 Uniform Commercial Code 44-45 (4th ed., 1995) (“courts should not uphold such modifications unless there is some recognized commercial practice that sanctions them in the particular trade.”)
67 The leading case applying this two-part test is Roth Steel Products v. Sharon Steel Corp. 705 F.2d 134, 147-8 (6th Cir. 1983). Johnston, supra note 10, at 379, argues that this case demonstrates the Code’s willingness to enforce a modification when circumstances change. Our understanding of the case is different. The court indeed confirms that “increased costs made performance come to involve a loss”, but nevertheless ruled that the modification was ineffective because it was extracted by a refusal to perform under the original terms, violating the honesty requirement. In a footnote to the decision, the court acknowledges that this good faith or honesty-in-fact requirement is equivalent to the coercion test under the duress doctrine. See footnote 31, at p. 148. See also Farnsworth, supra note 10 at 282 (the Code’s modification doctrine is “remarkable consistent with the liberalized rules on duress”).
depends on the identity of the threatened party—whether it is a merchant or a consumer.\textsuperscript{68} Two threats of identical credibility, issued in identical circumstances, one to a merchant and the other to a consumer, would be characterized differently due to the different set of alternatives these parties might have, further demonstrating the doctrinal prevalence of the Duress regime.

The failure to consider the ex-ante view further manifests itself by the requirement that a party who is coerced into a modification agreement must "protest" it and put the demanding party "on notice" of its intentions to retract from the modification ex-post.\textsuperscript{69} Surely, such "notice" would indicate to the threatening party that the modification might not be enforced, thereby inducing him to breach.

\section*{B. Duress}

As mentioned at the outset, our analysis is not restricted to threats that arise at the modification stage, but extends also to threats occurring during the original negotiation of a deal. At this stage, a party may "coerce" the opponent to agree to a costly concession by threatening to refrain from dealing. In general, the doctrine of duress applies similar principles to threats made at either the negotiation or the renegotiation stage.

It has long been recognized by contracts scholars and courts that an "improper threat" can create duress even if it does not involve the infliction of physical harm (the "gun-to-the-head" case). However, it has proven difficult to generalize a unifying principle that will group together every kind of improper threat and will prescribe when the resulting agreement should and when it should not be enforced.\textsuperscript{70} Nevertheless, the focus of the duress jurisprudence has been, by and large, on the perspective of the threatened party. If this party is deemed to have had "no reasonable alternative", enforcement will be denied. The "no reasonable alternative" criterion has been interpreted in quite the same way as condition (2) of our analysis. That is, it

\begin{itemize}
\item \textsuperscript{68} See, e.g., Palmer v. Safe Auto Sales, 452 NYS 2d 995 (1982).
\item \textsuperscript{70} See, e.g., Dawson, supra note 1.
\end{itemize}
requires that the threatened party would be unable to find substitute performance or would have inadequate resort to remedies.\textsuperscript{71}

Our analysis suggests that this criterion for duress is undesirable. While it provides ex-post protection for threatened parties who wish to shed off a concession they were coerced into, it might eventually hurt their own interest. If indeed the threatened party had no reasonable alternatives and experienced an urgent need to induce the performance by the threatening party, it will be unfortunate if she will have no means of generating such inducement. If the threat is credible, the desired result of dealing under less coercive terms is probably not feasible. The only realistic choices for the threatened party are to acquiesce or to seek remedies. And when the remedies option is inadequate, the threatened party is better off if she can commit to the acquiescence.

The question of when threats should be deemed coercive has occupied the attention of many writers before. Within the economic tradition, it has been suggested that when threats are motivated merely by the threatening party’s desire to increase his rents, in a zero-sum fashion, it would be inefficient to enforce the modifications. Such enforcement would only lead to increased transactions costs, both at the renegotiation stage and initially, at the contracting stage, and would frustrate the contractors’ ability to commit to certain allocations of risk.\textsuperscript{72} Our analysis suggests that even if a modification is zero-sum (from an ex post perspective), it might be necessary to prevent breach (namely, it might not be zero-sum from an ex ante

\textsuperscript{71} Restatement (Second) of Contracts § 175 ("If a party's manifestation of assent is induced by an improper threat by the other party that leaves the victim no reasonable alternative, the contract is voidable by the victim"). Restatement (Second) of Contracts § 175 cmt b, Ill. 5: "A, who has contracted to sell goods to B, makes an improper threat to refuse to deliver the goods to B unless B modifies the contract to increase the price. B attempts to buy substitute goods elsewhere but is unable to do so. Being in urgent need of the goods, he makes the modification. [...] B has no reasonable alternative, A's threat amounts to duress, and the modification is voidable by B." In comment b to §89, the Restatement refers also to the test of 'unanticipated circumstances', but only as a supplement to the duress test. Thus, a coercive modification that was nevertheless reached under a credible threat arising from unanticipated circumstances is unenforceable. See also WILLISTON ON CONTRACTS §7.37 at 603 (4th ed. 1992) (under the Restatement, “the only justification for enforcement of the modified undertaking seems to be the apparent voluntariness of the promisor in freely uttering his new promise").

\textsuperscript{72} See Aivazian et. al., supra note 8.
perspective). If the threat is credible, the benefit from enforcing the resulting modification might outweigh the transaction costs.\textsuperscript{73}

\textbf{VI. CONCLUDING REMARKS}

This paper has demonstrated the importance of the credibility condition for modification and duress doctrines. When a court must decide whether to enforce or rather rescind a modification (or an initial contract) entered into under threats, questions of duress, coercion and fairness, which are currently viewed as critical to this determination, should be ignored. Focusing on these questions will only hurt the threatened party. If (and only if) the threat was credible, the concession that was induced by it should be enforced.

The analysis in this paper showed that the development of the modification doctrine in the common law, which substituted the rigid no-enforcement approach with a liberal duress principle, is of little practical consequence. Since a threatened party will agree to a modification only if other alternatives are inferior, the duress requirement would be fulfilled in every modification case, rendering modifications effectively unenforceable. In general, and apart from a few celebrated exceptions, contract law’s modification doctrine is not optimal. Under the credibility test developed here, modifications would be enforced more often than under current doctrine.

\textsuperscript{73} In later work, Trebilcock proposed a somewhat different principle of duress, focusing on whether the coerced transaction “renders both parties to it better off [...\right] relative to how they would have perceived their welfare had they not encountered each other”. \textit{See} Trebilcock, \textit{supra} note 7, at 84. The credibility condition developed in this paper can be viewed as the factor that determines whether the parties are better off in the way that Trebilcock defines.
APPENDIX A: PROOF OF PROPOSITION 2

Appendix A presents the formal proof of proposition 2.

Proposition 2: Under asymmetric information, the Changed Circumstances regime, under which a modification is enforced only if the threat to breach is credible, is the superior regime in terms of maximizing both the buyer’s welfare and overall social welfare.

Proof: To facilitate the comparison among the four regimes, we first collect the conditions for a modification, and where applicable the terms of the modification, under each regime.

Lemma A1:
(i) When the buyer is adequately protected by the legal remedies (i.e. condition (2) does not hold), under all four regimes there will be no modification, low cost sellers will perform the original contract, and high cost sellers will breach the original contract.
(ii) When the buyer is inadequately protected by the legal remedies (i.e. condition (2) holds) –
   a. In the No-Enforcement regime and in the Duress regime, low cost sellers will perform the original contract, and high cost sellers will breach the original contract.
   b. In the Unconditional Enforcement regime - if condition (4) holds, then regardless of the actual cost realization a modification will be agreed upon, with a price increase of \( \Delta p = C - p - D_s \); if condition (4) does not hold, then there will be no modification, low cost sellers will perform the original contract, and high cost sellers will breach the original contract.
   c. In the Changed Circumstances regime, a modification with a price increase of \( \Delta p = C - p - D_s \) will be agreed upon if and only if conditions (1) and (3) hold. Otherwise, low cost sellers will perform the original contract, and high cost sellers will breach the original contract.

The four regimes lead to identical outcomes, when the buyer is adequately protected by legal remedies (part (i) of lemma A1).
Therefore, in comparing the four regimes, we focus on the arguably common case where legal remedies offer inadequate protection, i.e. where condition (2) holds.

Lemma A2: When condition (2) holds -

a. In the No-Enforcement regime and in the Duress regime, there will not be a modification. Low cost sellers will perform the original contract, and high cost sellers will breach the original contract. Consequently, the probability of breach will be $\pi$, and the welfare loss from inefficient breaches will be $\pi \cdot (v - C)$.

b. In the Unconditional Enforcement regime, a modification will be agreed upon if and only if condition (4) holds. Otherwise, low cost sellers will perform the original contract, and high cost sellers will breach the original contract. Consequently, the probability of breach will be $\Pr(\neg(4))$, and the welfare loss from inefficient breaches will be $\Pr(\neg(4)) \cdot (v - C)$.

c. In the Changed Circumstances regime, a modification will always be agreed upon if and only if both conditions (1) and (3) hold. Consequently, the probability of breach will be $\Pr(\neg(3))$, and the welfare loss from inefficient breaches will be $\Pr(\neg(3)) \cdot (v - C)$.

Proposition 2 follows from the preceding lemmas (using the definitions of conditions (3) and (4)). QED

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74 Note that when condition (2) holds, if condition (4) does not hold, then necessarily condition (1) holds (to see this note that condition (4) can be rewritten as $C < p + D_s + \pi \cdot (v - p - D_B)$ and condition (1) can be rewritten as $C > p + D_s$).

75 Note that when condition (2) holds, if condition (3) does not hold, then necessarily condition (1) holds (to see this note that condition (3) can be rewritten as $C < p + D_s + (v - p - D_B)$ and condition (1) can be rewritten as $C > p + D_s$).
APPENDIX B: THE CHANGED CIRCUMSTANCES REGIME
WITH IMPERFECT VERIFICATION

In Section III, we demonstrated that with perfect verification, the Changed Circumstances regime is optimal both from the social perspective and from the perspective of the threatened party. Appendix B studies an imperfect verification model. In this model, the Changed Circumstances regime retains its superiority, even when the possibility of judicial error is accounted for.

To capture the idea of imperfect verification, we make the following assumptions. At period 3, the court is required to verify the seller’s cost of performance, in order to ascertain whether the seller had a credible threat to breach – the condition for enforceability. We assume that usually the court correctly observes the seller’s performance cost, but that certain errors in verification cannot be completely ruled out. In particular, we assume that if the true cost of performance is the standard cost, \( c \), the court will always observe \( c \) correctly. If, however, the true cost is the unexpectedly high cost, \( C \), there is a small probability, \( \varepsilon \), that the court will mistakenly observe \( c \), rather than \( C \).

This account of imperfect verification with one-sided errors seems natural when the “ordinary” cost of performance is \( c \), and the high cost, \( C \), is a result of the materialization of an unanticipated low-probability contingency. Under these circumstances, courts can be expected to presume that the cost of performance is the ordinary cost, \( c \), and place the burden on the seller to prove otherwise. Arguably, the seller will find it extremely difficult to meet this burden, unless the cost of performance is indeed the extraordinarily high cost, \( C \).

Since courts will not mistake a low cost \( c \) for a high cost \( C \), but only \textit{vice versa}, low cost sellers will not bother to demand modifications, as in the perfect verification case. Hence, when faced with a modification demand, the buyer will know that the demand is credible. While low cost sellers will not demand a modification, as in

\[76\] We assume that the increased cost component cannot be fabricated, but also cannot always be proved. Accordingly, we argue that it is easier for a court to observe that a cost is \textit{not} incurred than it is to observe that a cost \textit{is} incurred. For an analysis of imperfect verification with two-sided errors, see Johnston, \textit{supra} note 10.
the perfect verification case, imperfect verification does affect the high cost sellers.

An immediate implication of imperfect verification is that some legitimate modifications will be wrongly invalidated. With perfect verification, a seller that learns at period 1 that his cost of performance is $C$ would clearly extract a modification. With imperfect verification, on the other hand, opting for a modification becomes somewhat risky. At period 3, the buyer will sue to invalidate the modification, and with probability $\varepsilon$ the court will mistakenly restore the original price, $p$. Consequently, the risk of judicial error raises the minimum price increase that the seller will demand. Specifically, the modified price, $P$, must satisfy

\[ P - C - \varepsilon \cdot (P - p) > -D_s, \]

and the price increase, $\Delta p$, must satisfy

\[ \Delta p \geq \frac{C - p - D_s}{1 - \varepsilon}. \]

Put differently, the seller’s reservation price in the imperfect verification case is $\Delta p_s = \frac{C - p - D_s}{1 - \varepsilon}$ (as compared to $\Delta p_s = C - p - D_s$ in the perfect verification case). As in the perfect verification case, a modification will not be agreed upon unless condition (1) holds (otherwise $\Delta p_s < 0$).

Imperfect verification also affects the maximum price increase that the buyer will concede to. Knowing that she may be able to rescind the modification and restore the original price, $p$, the buyer will be willing to accept a larger price increase. Still, the modified price must satisfy

\[ v - P + \varepsilon \cdot (P - p) > D_b \]

The left-hand side denotes the buyer’s payoff if she accepts the modification, in which case her profit is only $v - P$, but she has a chance—defined by the likelihood of court error—of invalidating the
modification and restoring the old price $p$.\footnote{Recall that the buyer knows that she is facing a high-cost seller.} The right-hand side denotes the buyer’s payoff if she rejects the modification demand, in which case the seller will breach and that the buyer will have to resort to damages. This condition can be written as:

$$\Delta p < \frac{v - p - D_B}{1 - \epsilon},$$

and, thus, the highest price increase that the buyer will consider, i.e. the buyer’s reservation price is: $\Delta p_B = \frac{v - p - D_B}{1 - \epsilon}$.

Comparing the parties’ reservation prices, we note that condition (3) still guarantees the existence of a modification range. As in the perfect verification case, the parties will agree on a modification \textit{if and only if} both condition (1) and condition (3) are satisfied (recall that together these two conditions imply condition (2) and hence $\Delta p_B > 0$). Assuming that the buyer has all the bargaining power, if a modification is agreed upon, the price increase will be $\Delta p = \frac{C - p - D_s}{1 - \epsilon}$. Imperfect verification raises the magnitude of the agreed price increase in order to compensate the seller for the risk of an erroneous rescission of a legitimate modification.

These results are summarized in the following claim.

\textbf{Claim B:} Under the Changed Circumstances regime with imperfect verification, a modification will occur \textit{if and only if} conditions (1) and (3) hold, namely if and only if the seller has a credible threat to breach and a modification range exists. \textit{If a modification occurs, the agreed upon price increase will be} $\Delta p = \frac{C - p - D_s}{1 - \epsilon}$. \textit{If a modification does not occur, low cost sellers will perform the original contract and high cost sellers will breach the original contract.}

In our model, imperfect verification does not alter the conditions for a modification. Judicial error only shifts the terms of the
modification in the seller’s favor – from $\Delta p = C - p - D_s$ with perfect verification to $\Delta p = \frac{C - p - D_s}{1 - \varepsilon}$ with imperfect verification – to compensate the seller for the risk of an erroneous rescission of a legitimate modification. Consequently, the superiority of the Changed Circumstances regime is robust to the introduction of this form of imperfect verification.

**Appendix C: Relative Bargaining Power – Alternative Assumptions**

For expositional reasons, the analysis in the text assumes that the buyer has all the bargaining power at the modification stage. Appendix C demonstrates that different assumptions about the division of bargaining power will only affect the terms of the modification, and not the incidence of modification or its social value. In particular, we study the alternative polar assumption that the seller has all the bargaining power. We show that under this assumption, the conditions for modification under each of the four regimes studied in section III remain unchanged. It will be clear that the same result holds under intermediate assumptions regarding the division of bargaining power between the two parties. We thus show that the superiority of the Changed Circumstances regime is robust to variations in the parties’ relative bargaining power.

We begin by repeating the analysis of the four regimes under the assumption that the seller has all the bargaining power at the modification stage.

a. **The No-Enforcement Regime**

If a modification is never enforceable, the seller will never bother to make a modification demand. Therefore, the division of bargaining power is irrelevant.

b. **The Duress Regime**

The selective enforcement regime based on condition (2) is equivalent to the no-enforcement regime. Hence, again, the division of bargaining power is irrelevant.

c. **The Unconditional Enforcement Regime**

We next study the polar regime under which modifications are always enforced. In this regime, the modified price that the buyer will accept must satisfy
\[ v - P \geq \pi \cdot D_B + (1 - \pi) \cdot (v - p). \]

Hence, the buyer’s reservation price is:

\[ \Delta p_B = \pi \cdot (v - p - D_B). \]

By definition, this is the highest price increase that the seller can hope for, even when he has all the bargaining power. As in section III, condition (2) is clearly a prerequisite for modification.

A high cost seller will prefer breach to modification if he cannot attain a price increase of at least

\[ \Delta p_S = C - p - D_S. \]

Comparing the two reservation prices, we find that condition (4) still determines the incidence of modification under the Unconditional Enforcement regime.\(^{78}\) If condition (4) holds, the different assumption about relative bargaining power does affect the terms of the modification. Specifically, the parties will agree on a price increase of \( \Delta p = \pi \cdot (v - p - D_B) \).

These results are summarized in the following claim.

Claim C1: In the Unconditional Enforcement regime, a modification will be agreed upon if and only if conditions (2) and (4) hold, in which case the agreed price increase will be \( \Delta p = \pi \cdot (v - p - D_B) \).

d. The Changed Circumstances regime

Based on the analysis in section III, it is clear that under the Changed Circumstances regime a modification will be agreed upon if and only if both conditions (1) and (3) hold, regardless of the division of bargaining power between the two parties. Bargaining power will however affect the terms of the modification when these two conditions hold. Specifically, if the seller has all the bargaining power at the modification stage, the price increase will be \( \Delta p = v - p - D_B \) (rather than \( \Delta p = C - p - D_S \), if the buyer has all the bargaining power).

These results are summarized in the following claim.

\(^{78}\) If condition (4) does not hold, then high cost sellers will not demand a modification. The buyer will know this. Consequently, the low cost sellers also will not be able to extract a modification.
Claim C2: Under the Changed Circumstances regime, a modification will occur if and only if conditions (1) and (3) hold, namely if and only if the seller has a credible threat to breach and a modification range exists. If a modification occurs, the agreed upon price increase will be $\Delta p = v - p - D_b$. If a modification does not occur, low cost sellers will perform the original contract and high cost sellers will breach the original contract.

Based on the preceding analysis of the four regimes, it is clear that the Changed Circumstances regime is optimal from a social perspective. From the buyer’s perspective, we can immediately rule out the No-Enforcement regime and the Duress regime as the least attractive regimes, following the section III reasoning. Comparing the Changed Circumstances regime and the Unconditional Enforcement regime, we find that as in section III the former is optimal from the buyer’s perspective as well as from a social welfare perspective. Consider the following scenarios:

1) Condition (3) does not hold, which implies that condition (4) does not hold as well: There will be no modification under both regimes, low cost sellers will perform and high cost sellers will breach.

2) Condition (3) holds, but condition (4) does not hold: Under the Changed Circumstances regime, high cost sellers will attain a modification and perform. Under the Unconditional Enforcement regime, there will be no modification, and high cost sellers will breach, to the buyer’s detriment.

3) Condition (4) holds, which implies that condition (3) holds as well: Under the Changed Circumstances regime, only high cost sellers will attain a modification with a price increase of $\Delta p = v - p - D_b$. (Low cost sellers will perform the original contract.) Namely, on average the buyer will pay an additional $\pi \cdot (v - p - D_b)$. Under the Unconditional Enforcement regime, all sellers will attain a modification with a price increase of $\Delta p = \pi \cdot (v - p - D_b)$. Hence, in this scenario the buyer is indifferent between the two regimes (on average).
Therefore, proposition 2 remains valid under the assumption that the seller (rather than the buyer) has all the bargaining power at the modification stage.