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RETHINKING THE THEORY OF EFFICIENT BREACH: AN APPROACH BASED IN INDUSTRIAL ORGANIZATION

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RETHINKING THE THEORY OF EFFICIENT BREACH:
AN APPROACH BASED IN INDUSTRIAL ORGANIZATION

A Dissertation APPROVED FOR THE
DEPARTMENT OF ECONOMICS

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ABSTRACT

This paper applies industrial organization principles to efficient breach theory. Discordant with the contemporary literature, the results of this paper deviate from several prior theories concerning contracts in competitive markets and otherwise challenge the value of common law principles regarding expectancy damages. The paper consists of seven chapters. Chapters one through three provide background information to the reader concerning common law remedies, the state of the literature on point and the relationship of industrial organization to contracts. Chapters four through six confront the literature by analyzing contractual breach in competitive and non-competitive markets. Chapter seven aggregates the analysis of the paper by forming positive and normative conclusions regarding the evaluation of efficient breach theory under the common law. This analysis suggests that the current system is inefficient, but that extensions of specific performance to all cases of welfare-based breach of contract could improve pareto and market efficiency.

INTRODUCTION

A *contract* is an agreement between two or more persons which creates an obligation to do or not to do a particular thing.[1] If a contracting party fails, without legal excuse, to perform any promise material to the contract, the party acts *in breach* of the contract's terms.[2] Injuries caused by contractual breaches are actionable in equity and at law, giving rise to remedies including specific performance and damages.[3] However, modern contract law acknowledges that, within certain contexts, it is efficient for a party to breach a contract and pay damages to those injured by that breach; extensive debate by numerous economists and legal scholars exists concerning the merits of this principle, now known to the literature as *the theory of efficient breach*.[4]

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[1]*Black's Law Dictionary,* 6th ed., s.v. "Contract."

[2]Ibid., s.v. "Breach of contract."

[3]Actions in law assume that awards of monetary damages can compensate aggrieved parties fully. If such damages are insufficient to make the party whole, equitable remedies such as specific performance are available. See Ibid., s.v. "Damages" and "Specific performance."

[4]Ibid., s.v. "Breach of contract." The origins of the theory trace to Justice Oliver Wendell Holmes, Jr., "The Path of the Law," *Harvard Law Review* 10, no. 8 (1897): 457; Robert L. Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," *Rutgers Law Review* 24, no. 2

From the economist's viewpoint, a breach of contract is efficient only if it reflects a pareto improvement over performance of the contract's terms.[5] Thus, efficient breach theory specifically contemplates the payment of damages such that the breaching party benefits from the breach while the non-breaching party is no worse off after an award of damages.[6] Two situations lead to this possibility, described by Cooter and Ulen as the cases of *loss* and *windfall*.[7] Cases of "loss" emanate from a decline in one party's valuation of the welfare generated from the contract after the contract's formation such that the party must breach to minimize his or her own losses; the law recognizes such losses as inevitable within the stream of commerce, reflected by the existence of

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(1970): 273; and John H. Barton, "The Economic Basis of Damages for Breach of Contract," *Journal of Legal Studies* 1, no. 2 (1972): 277. Credit for the term's coinage links to Charles J. Goetz and Robert E. Scott, "Liquidated Damages, Penalties and the Just Compensation Principle: Some Notes in an Enforcement Model of Efficient Breach," *Columbia Law Review* 77, no. 4 (1977): 554.

[5]This parallels the legal community's perspective, which perceives a breach as efficient if the breaching party profits after fully compensating the injured party for its losses (i.e., the breaching party becomes better off without making the other party any worse off). *Black's*, s.v. "Breach of Contract.".

[6]Dan Dobbs, *Law of Remedies: Practitioner Treatise Series*, 2d ed. (St. Paul: West Publishing Co., 1993), 1:§ 1.9.

[7]Robert Cooter and Thomas Ulen, *Law and Economics*, (New York: HarperCollins College Publishers, 1988), 290.

numerous defenses designed to alleviate the burdens of the affected party.[8] Conversely, cases of "windfall" arise from a potential gain to the breaching party, the theory being if the societal rents accrued from a breach exceed the losses of the (compensated) breachee, the result generates a pareto improvement to society.[9] A generalized example of the windfall scenario follows.

Assume that Seller, with a minimum willingness to sell (WTS) contracts to sell a good (G) to Buyer with a maximum willingness to pay (WTP) at some price (P).[10] Assumptively, the condition WTS $\leq$ P $\leq$ WTP must hold if the parties are rational; therefore, the social surplus increases through the transaction by an amount equal to the value WTP - WTS, wherein Buyer's and Seller's respective gains from the sale

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[8]The defenses available to the suffering party depend upon the circumstances surrounding the contract. If the other party aided in the creation of the loss, the affected party may avoid the contract through the defenses of duress, coercion, unilateral mistake based upon the other party's actions, fraud, misrepresentation, failure to disclose material facts, or unconsionability. If the other party is blameless, the affected party may still avoid performance if it can prove commercial impracticability (i.e., financial ruin due to the contract). Ibid., 248-288. Absent the ability to use these defenses, a pareto improvement results notwithstanding if the losses avoided from the breach exceed the value of the breachee's damages. Ibid., 290-291.

[9]Ibid., 290.

[10]This example is a generalization of the windfall example posed by Cooter and Ulen, 290.

are "WTP - P" and "P - WTS". Next, assume that Interloper approaches Seller after the contract with Buyer arises but before performance to Buyer reaches completion; Interloper offers a price P_I equal to its own willingness to pay such that (WTP - WTS) < (P_I - WTS). Assuming no transactions costs, social welfare increases by the amount (P_I - WTP) if Seller breaches its contract with Buyer. However, for the breach to create a pareto improvement Seller must leave Buyer no worse off after the breach; thus, Seller pays Buyer the amount (WTP - P), leaving Seller with post-breach profits (P_I - WTS) - (WTP - P) = (P_I - WTP) + (P - WTS) > 0. Interloper and Buyer are no worse off from the breach, while Seller is strictly better off; the breach is therefore "efficient" in an economic sense, as breach of the contract reflects a pareto improvement over performance and furthers the private interests of all parties involved.

This paper analyzes windfall-based contractual breach from the perspective of industrial organization. The paper illustrates six points. First, that the topical literature generally assumes static market conditions and ignores the relevance of market structure to efficient breach. Second, that within competitive markets, contractual breach is never efficient and will result in a welfare loss if transactions are costly or market information is imperfect. Third, that breaches within competitive markets may generate equivalent damage awards under general expectancy measures and other combinations of remedies such as restitution and reliance.[11] Fourth, that the efficiency gain of a windfall-based breach accrues by arbitrage, possible only through the exertion of market power by a monopolistic or monopsonistic breacher. Fifth, that efficient breach theory supports efficiency in a transactional capacity, but may fail to improve social or market efficiency because the present system does not force breaching parties to internalize all costs associated with their breaches. Sixth, that improvements within the present system may therefore arise if awards of specific performance extend to all cases welfare-based breach.

The paper consists of seven chapters. Chapter one examines the theories of damages available under contract law. Chapter two discusses the current literature concerning efficient breach theory, separating its analysis into three categories which specifically consider the views of legal, economical and critical perspectives of efficient breach theory. Chapter three defines the properties of industrial

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[11]Chapter one explains the legal foundations for these theories. However, at this point it is pertinent to note that *expectation damages* place the breachee in the position it would attain given full performance of the contract, *reliance damages* place it in the position it would be in absent the contract's existence, and *restitution* awards the breachee the gains made by the breacher from its breach. See Dobbs, 3:§ 12.1.

organization necessary to support the theory of efficient breach and discusses the inadequacies of the literature in exploring the phenomenon from the perspective of market power. Chapter four demonstrates the inapplicability of the theory of efficient breach to non-static models of perfect and pure competition. Chapters five and six then analyze the only forums within which efficient breaches may occur by respectively considering markets characterized by one-sided or two-sided market power. Chapter seven summarizes the aggregate analysis of the paper, consisting of a positive analysis which correlates compensation under the common law with efficient breach theory and a normative examination of alternatives to the present system. The paper concludes by discussing its limitations as constrained by the relied upon assumptions, thereby establishing its place in the existing literature within the field of Law and Economics.

CHAPTER I

THE REMEDIES FOR BREACH OF CONTRACT

Modern contractual remedies remain the prodigy of the common law, reflected within the provisions of prescriptive statutes applied within specific contexts.[1] The complexity of and diversity in the remedies for contractual breach is staggering, mandating the condensed presentation which follows. To promote clarity, the following sections separate the various forms of relief into five categories: liquidated damages, specific performance, punitive damages, judicially determined monetary damages and restitution. The chapter concludes with a summary designed to identify the principles governing the selection of remedies under the common law. Note that this chapter centers exclusively upon the legal

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[1]For example, the Uniform Commercial Code (adopted by all states except the civil law jurisdiction Louisiana) governs remedies for sales among merchants engaging in the normal course of business and makes numerous allusions to common law remedies. See the *Uniform Commercial Code* (West, 1997), §§ 1-106. 2-706, 2-708, 2-709, 2-712 and 2-713 (refer to the expectation interest), §§ 2-710 and 2-715 (allow incidental and consequential damages), § 2-716 (allows for specific performance) and § 2-718 (allows for liquidated damages).

aspects of contractual remedies; discussion of the economic effects of such awards appears in chapter II, section (D).

(A) Liquidated Damages[2]

Liquidated damages arise when a contract stipulates the amount of damages payable in place of performance.[3] Court approval of a liquidated damage clause is contingent upon a finding that the relief granted by that clause is a reasonable approximation of the actual damages a court would award absent the provision; further, approval requires that actual damages were uncertain at the time of contractual formation.[4] Judicial disdain for stipulated relief emanates from concerns that such awards overcompensate the interests of breachees, thereby constituting a "penalty" against the breaching parties;[5] allowance for penalistic damages would therefore amount to an unwarranted wealth transfer to the non-breaching party in violation of the fundamental intent of contractual remedies.[6] However, the scholastic community

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[2]"Liquidated" and "stipulated" damages are identical within legal contexts. *Black's*, s.v. "Stipulated damage."

[3]Ibid., s.v. "Damages."

[4]Dobbs, 3:§ 12.9(1).

[5]Ibid. However, courts routinely uphold liquidated damage clauses found to be *undercompensatory* in spite of their relationship to actual damages. Ibid., 3:§ 12.9(2).

[6]As stated by Justice Holmes, "The duty to keep a contract at common law means a prediction that you must pay damages if you do not keep it, and nothing else." Holmes, 462. Thus, the expectation interest implicitly caps all

has expressed growing dissatisfaction with the ramifications of this "penalty rule" on economic efficiency;[7] chapter II, section (D)(1) will therefore return to the discussion of liquidated damages from the perspective of efficient breach.

(B) Specific Performance

An award of specific performance arises in equity and, if granted to a party injured by a breach, forces the party in breach of contract to perform according to the terms of that contract.[8] The equitable nature of the remedy reflects its sporadic use; courts grant specific performance only when awards of damages are insufficient to compensate the

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damage awards generated from a breach. See also Goetz & Scott, 556.

[7]For example, see Ibid., 578; Dobbs, 3:§ 12.9(1); Barton, 286-287; Thomas Ulen, "The Efficiency of Specific Performance: Toward a Unified Theory of Contract Remedies," *Michigan Law Review* 83, no. 2 (1984): 350-355; Richard Craswell, "Contract Remedies, Renegotiation, and the Theory of Efficient Breach," *Southern California Law Review* 61, no. 3 (1988): 637-640; Peter Diamond and Eric Maskin, "An Equilibrium Analysis of Search and Breach of Contract, I: Steady States," *Bell Journal of Economics* 10, no. 1 (1979): 293-308; Philippe Aghion and Patrick Bolton, "Contracts as a Barrier to Entry," *American Economic Review* 77, no. 3 (1987): 389-392; Tai-Yeong Chung, "On Strategic Commitment: Contracting versus Investment," *American Economic Review* 85, no. 2 (1995): 438-440; and Kathryn Spier and Michael Whinston, "On the Efficiency of Privately Stipulated Damages for Breach of Contract: Entry Barriers, Reliance and Renegotiation," *RAND Journal of Economics* 26, no. 2 (1995): 186-188.

[8]*Blacks*, s.v. "Performance;" Dobbs, 3:§ 12.8(1).

interests of the aggrieved party fully.[9] Classic examples of this situation include cases where the good traded is unique, where substitute performance is difficult to procure or when actual damages are extremely arduous to ascertain.[10] However, growing support for the extension of the remedy to broader spectrums of cases exists on the basis of efficiency concerns;[11] full consideration of these arguments forms the basis for chapter two, section (D)(2).

(C) Punitive Damages

Awards of punitive damages demand reparations above compensatory damages to punish a flagrant wrongdoer and/or deter others from mimicking that wrongdoer's behavior in the future.[12] Use of punitive sanctions in cases for breach of

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[9]Ibid. Numerous subjective issues enter into the judicial decision to award this remedy, including fairness to the parties, sufficiency of the contractual terms and supervisory considerations. See Dobbs, 3:§§ 12.8(2)-12.8(5).

[10]Dobbs, 3:§ 12.8(2).

[11]For example, see Robert L. Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law," *Duke Law Journal* 1969, no. 1 (1969): 69-70; Ulen, "The Efficiency of Specific Performance," 364-396; Craswell, 637-640; Ian R. Macneil, "Efficient Breach of Contract: Circles in the Sky," *Virginia Law Review* 68, no. 5 (1982): 951-957; Christopher Wonnell, "The Contractual Disempowerment of Employees," *Stanford Law Review* 46, no. 1 (1993): 100-102; Goetz and Scott, 569-570; Spier and Whinston, 188-192; and Daniel Friedmann, "The Efficient Breach Fallacy," *Journal of Legal Studies* 18, no. 1 (1989): 18-19. See also the analysis of chapter VII, section (B).

[12]*Black's*, s.v. "Damages."

contract is rare, specifically limited to situations wherein a party's actions are egregious enough to amount to tortious behavior.[13] The basis for this revulsion flows from the same source as judicial disdain for penalistic liquidated damage clauses, for the compensation principle of contract law does not endorse wealth transfers greater than those specified by a contract's terms.[14] However, some critics of efficient breach theory suggest that expanded use of punitive decrees could improve market efficiency.[15] These authors do not propose extension of punitive damages into contracts *per se*, but rather see the usefulness of restitutive disgorgement as a mechanism for the prevention of contractual breach.[16]

(D) Judicially Determined Monetary Damages

The traditional forms of remedy granted for cases in contract perceive the judicial determination of monetary damages in an amount aimed at compensating the non-breaching party for losses due to the breach. That which constitutes

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[13]Such cases include breach of fiduciary duty, fraud in the inducement of a contract or other situations governed by statute. See Dobbs, 3:§ 12.5(2); and the *Uniform Commercial Code*, § 1-106(1).

[14]See Dobbs, 3:§ 12.5(2); Craswell, 637-640; and section (A), *supra*.

[15]Friedmann, 19.

[16]Ibid., 4-6, 12, 18-19; Lionel Smith, "Disgorgement of the Profits of Breach of Contract: Property, Contract and Efficient Breach," *Canadian Business Law Journal* (Canada) 24 (1994-1995): 135-140; and section (E), *infra*.

"compensation" varies according to numerous criteria, such as the nature of the promises made and the risks undertaken by the parties;[17] however, the key element to classifying compensatory remedies is the interest which different types of damages seek to protect. Four types of money damages are discernible on this basis and are the topic of the remainder of this section and of chapter two, section (D)(3).

(1) Expectancy Damages

Remedies based upon an injured party's *expectancy interest* seek to place that party in the position it would gain were the contract fully performed.[18] The common law of expectancy arose in the nineteenth century[19] and remains the cornerstone of modern contractual remedies.[20] This is due in part to the evolution of efficient breach theory, as perfect compensation to the injured party leaves it indifferent to

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[17]Dobbs, 3:§ 12.1(1).

[18]Ibid., 3:§ 12.2(1).

[19]Barton, 278; and Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law," 58-59.

[20]The expectancy measure of damages establishes the basis of comparison for all other types of damage awards. See Dobbs, 3:§§ 12.3(2) (expectancy as a cap on reliance), 12.7(5) (expectancy as a cap on restitution), 12.9(2) (liquidated damages must bear relation to actual damages) and 12.5(2) (punitive damages disallowed because they exceed the expectation interest). Note that an award of specific performance also equates to expectancy, assuming costless transactions and perfect victim compensation; see Ulen, "The Efficiency of Specific Performance," 366-371 and 379-396.

performance and breach and leaves the breaching party free to reap the profits of its breach.[21] Inadequate information concerning relevant transactional parameters (e.g., Seller's marginal costs or Buyer's demand schedule) complicates the measurement of expectation damages;[22] however, a formulation developed by Cooter and Eisenberg simplifies the process and supports the analyses conducted later in this paper.[23]

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[21]Support in the literature for the theoretical value of the expectancy measure is widespread: see Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 281 and 285; Ulen, "The Efficiency of Specific Performance," 360-363; Diamond and Maskin, 293 and 308; and Steven Shavell, "Damage Measures for Breach of Contract," *Bell Journal of Economics* 11, no. 2 (1980): 472. For other perspectives, see Spier and Whinston (only *ex ante* measures of expectancy promote efficiency); and Craswell, 637-638 (expectation damages typically undercompensate victims).

[22]For discussion regarding the costs involved in determining expectancy damages, see Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 285; Dobbs, 3:§ 12.2(2); Ulen, "The Efficiency of Specific Performance," 360-363; and Smith, 133-134.

[23]Two proposed formulas could reflect the expectation interest: the *substitute-price* formula, which awards the non-breaching party the cost of substitute performance, and the *lost-surplus* formula, which awards the value of the welfare gain accrued under the contract. Robert Cooter and Melvin Aron Eisenberg, "Damages for Breach of Contract," *California Law Review* 73, no. 5 (1985): 1439-1440. This paper agrees with the authors' contention that the substitute-price formula best identifies the measure of expectancy *damages*; however, the paper deviates from the authors' conclusions by contending that the lost-surplus formula accounts for the expectancy *interest*. Ibid., 1448.

(2) Reliance Damages

Remedies based upon a breachee's *reliance interest* try to place that party in the position it would enjoy had the contract never existed;[24] therefore, the reliance interest is a function of the *opportunity costs* of the breachee.[25] Reliance damages emulate this principle by awarding relief equal to the breachee's investment in the contract prior to the breach.[26] Like expectancy damages, support for reliance-based awards exists on efficiency grounds;[27] similarly, the literature criticizes reliance damages for the complexity of their assessment[28] and their tendency to undercompensate.[29]

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[24]Dobbs, 3:§ 12.3(1).

[25]Within the context of this paper, an opportunity cost equals the value of welfare generated by the next-best alternative available to the non-breaching party. See Cooter and Ulen, *Law and Economics*, 135.

[26]Cooter and Eisenberg, 1440-1441 and 1448; Shavell, 470-472; and Dobbs, 3:§§ 12.3(1) and 12.3(2). The analyses that follow therefore use the opportunity cost measure of reliance damages discussed by Cooter and Eisenberg, 1439-1440 and 1448.

[27]Specifically, the literature asserts that damages under reliance and expectancy equate under competition. See Lon L. Fuller and William R. Perdue, "The Reliance Interest in Contract Damages: 1," *Yale Law Journal* 46 (1936): 62; Cooter and Eisenberg, 1445; and Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 286. However, unlike the contentions made later in this paper, these appraisals assume static prices over the life of the contract. See chapters III through VI, *infra*.

[28]Ulen, "The Efficiency of Specific Performance," 358-359.

[29]Craswell, 637-640; Shavell, 472; and Spier and Whinston, 188-192.

(3) Consequential Damages

The common law perceived that damages incurred by non-breaching parties could exceed the value of those parties' expectation damages. As such, the law allowed for injured parties to obtain relief for losses arising as a secondary consequence of a breach.[30] Awards of consequential damages are circumspect due to judicial aversion to remedies which overcompensate;[31] however, the goal of perfect compensation directs the collection of such awards to make breach victims indifferent between contractual performance and damages.[32]

(4) Statutory Damages

In addition to remedies defined by the common law, the victim of a contractual breach may often seek relief under theories designed by legislative intent; for example, the Uniform Commercial Code allows for many common law remedies

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[30]Dobbs, 1:§ 3.3(4) and 3:§ 12.4(1). Such losses exist as part of the expectancy *interest*. Ibid., 3:§ 12.2(3).

[31]Specifically, awards of consequential relief require the breaching party to prove that the losses were a direct cause of the breach, that they were reasonably certain in amount and that they were foreseeable to the breaching party at the time of the breach. Ibid., 3:§§ 12.4(1)-12.4(7). Note that lost profits from a breach are assumptively foreseeable under the common law. Ibid., 1:§ 3.3(4).

[32]The law specifically rejects awards of consequential damages within certain contexts. See Ibid., 3:§ 12.4(1). Otherwise, consequential damages are a necessary addition to awards of expectation damages, provided the joint remedy is not duplicative. Ibid., 1:§§ 3.3(4) and 3.3(7).

to supplement its own provisions[33] and specifies additional remedies applicable to particular situations.[34] However, it is more common to require breach victims to choose between the damages provided by the common law and by statute.[35] Similar to other forms of monetary relief, the purpose of contractual statutory damages is compensatory in nature;[36] however, statutory remedies need not adhere to common law principles, allowing for the expanded use of punitive damages when indicated.[37]

(E) Restitution

The most curious remedy available under contract law is restitution. Recovery under restitution does not equate to an award of damages,[38] although restitution may protect the same interests specifically guarded by damages under the

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[33]*Uniform Commercial Code*, §§ 1-103, 1-105 and 1-106.

[34]See *Uniform Commercial Code*, §§ 2-710 and 2-715(1), which allow for the recovery of *incidental damages* (specific transactions costs arising from the breach) for sellers and buyers, respectively.

[35]Dobbs, 2:§ 9.4.

[36]*Uniform Commercial Code* § 1-106(1) states "The remedies provided by this Act shall be liberally administered to the end that the aggrieved party may be put in as good a position as if the other party had fully performed . . . ."

[37]*Uniform Commercial Code* § 1-106(1) continues ". . . but neither consequential or special nor penalistic damages may be had except as specifically provided in this Act or by other rule of law."

[38]Dobbs, 1:§ 4.1(2).

law.[39] The basis for awards of restitution is *not* the injury to the non-breaching party; rather, restitution measures from the *unjust enrichment* gained by the breaching party from its breach and/or by the value of the breaching party's profits made from the breach (*disgorgement*).[40]

Many benchmarks exist for the measurement of awards of unjust enrichment,[41] but typical calculations equate unjust enrichment to the value of the wealth transferred to the breaching party from the non-breaching party prior to the breach.[42] Conversely, disgorgement awards the value of the breaching party's profits from its breach to the victim. Availability of disgorgement is rare under the common law,[43] perhaps due to fears of penalistic applications of the remedy.[44] Since uncapped disgorgement removes the incentive

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[39]Restitution may protect the expectancy interest, the reliance interest, or both. *Black's*, s.v. "Restitution." See also Shavell, 472.

[40]Unjust enrichment occurs when one party makes itself better off at the expense of another. *Black's*, s.v. "Unjust enrichment doctrine;" and Dobbs, 1:§§ 1.1 and 4.1(2). Disgorgement is a more severe remedy warranted for tortious breach, equitable conversion, or abuse of contract. Dobbs, 1:§ 1.1 and 3:§ 12.7(4).

[41]Dobbs, 1:§§ 4.1(2) and 4.5(1)-4.5(5).

[42]See Ibid.; and Lionel Smith, 121-122.

[43]Dobbs, 3:§ 12.7(4).

[44]In general, restitution may exceed the value of the non-breaching party's expectation interest; however, restitution in excess of expectancy is unavailable when the breachee seeks to recover the breacher's collateral profits from the breach. Ibid., 3:§ 12.7(5).

for contractual breach, those purporting to attack efficient breach theory suggest extension of the remedy beyond its current applications.[45] For this reason, the efficiency of restitution forms the basis of chapter II, section (D)(4).

(F) Summary: The Selection of Remedies

Since compensation is the goal of contract remedies, the common law shuns duplication of damage awards for breach of contract; hence, courts should never combine different measures which compensate the same underlying loss, even if those measures produce dissimilar figures or use different calculations.[46] To explain this point, consider the award of specific performance given a breach; since the remedy causes full performance of the contract's terms, additional awards of expectation or reliance damages or of restitution would overcompensate the breach victim.[47] Conversely, a review of the information on consequential and expectancy damages reveals that both types of remedies protect the expectancy

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[45]For perspectives on the value of disgorgement, see Lionel Smith, 135-140; and Friedmann, 4-6, 12. For opposing views, see Birmingham, "Breach of Contract," 282; Ulen, "The Efficiency of Specific Performance," 356-357; Craswell, 637-640; Spier and Whinston, 188-192; and Shavell, 472.

[46]Dobbs, 1:§ 3.3(7).

[47]Other types of damages do not necessarily conflict with awards of specific performance; consequential damages could arise due to lost profits caused by the breach, while transactions costs suffered by the non-breaching party might be recoverable through statutory means.

interest,[48] warranting simultaneous recovery absent evidence of duplication.

Complexity in judicial application of the remedies generates confusion concerning which forms of damages are inherently at odds. For example, opportunity costs often provide the basis for computing expectancy damages, while awards of consequential losses may include expenditures made in reliance of a contract.[49] The prior discussion is useful in resolving this chaos: assuming that "full compensation" equals the sum of the general and special expectation interests of the breachee,[50] judicial contempt for penalties mandates that all other remedies must restore this amount of welfare or a portion thereof.[51] Remedies by stipulation or

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[48]Expectation damages as defined herein protect the *general* expectancy interest, while consequential damages protect the *special* expectancy interest. Dobbs, 3:§ 12.2(3).

[49]Respectively, see Ibid., 3:§§ 12.3(1) and 12.3(2).

[50]Ibid., 3:§ 12.2(3). Note that several scholars have pointed out that this combination can be inherently *under-compensatory* if transactions are costly. See Craswell, 637-640; Friedmann, 13; and Spier and Whinston, 188-192.

[51]The expectancy interest caps all non-statutory remedies unless special circumstances exist. See Dobbs 3:§§ 12.3(2) (expectancy as a cap upon reliance damages unless the contract results in a loss to the non-breaching party), 12.7(5) (expectancy as a cap upon restitution when breachee seeks to recover collateral profits from a breach) and 12.5(2) (punitive damages disallowed for exceeding the expectancy interest). See also Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law," 69-70; Goetz and Scott, 569-570; Ulen, "The Efficiency of Specific Performance," 366-371 and 379-396; and Macneil,

statute reflect similar adherence to this "Holmesian compensation principle," although variations on the formula may arise to promote fairness to the parties involved.[52]

Assuming that liquidated and statutory remedies roughly equal damages under the compensation principle, the question surfaces as to how other forms of relief contrast with the expectancy interest. Awards of specific performance clearly protect the general expectancy interest alone, as subsequent performance of the original contract cannot recover the value of post-breach consequential losses.[53] Reliance damages and restitution pose greater comparative difficulty; for a windfall-based breach, reliance damages must be less than or equal to damages under the compensation principle,[54] whereas recovery under restitution may exceed

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951-957 (specific performance equates to damages under the theory of expectancy).

[52]Judicial suspicion of liquidated damage terms in contracts mandates judicial scrutiny of those terms against actual damages. Dobbs 3:§ 12.9(1). Similarly, damages allowed under the Uniform Commercial Code yield remedies equal those under the compensation principle and include provisions for the compensation of transactions costs in the event of breach by a buyer. See *Uniform Commercial Code* §§ 2-708, 2-710, 2-711, 2-712, 2-713 and 2-715.

[53]This assumes that the parties do not cooperate in dividing the potential surplus from a breach after a grant of specific performance. See Macneil, 951-957; and Ulen, "The Efficiency of Specific Performance," 364-371.

[54]Specifically, reliance will only equal expectancy under conditions of perfect competition; other market structures will yield expectancy damages greater than

the sum of expectation and consequential losses.[55] Since restitution and reliance are significant to the analysis of efficient breach theory, chapter II, section (D)(5) further considers the legal and economic consequences of these remedies.

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reliance in the event of a windfall-based breach due to divergence of the contract price from opportunity costs. For further analysis, see chapters III through VI, *infra*.

[55]Dobbs 3:§§ 12.7(1) and 12.7(5).

CHAPTER II

THE THEORY OF EFFICIENT BREACH: A LITERATURE REVIEW

The literature concerning efficient breach pre-dates economic analysis of the laws,[1] although published attempts to apply efficiency principles to the phenomenon did not surface until over seventy years after the first conceptual description appeared.[2] Numerous modern contributions from economists and legal scholars now exist, though the number of articles specifically addressing the theory as a primary topic is few. Classification of the development of this literature separates into three categories: the *mainstream*, which contrived, refined and applied the theory from the perspective of legal research,[3] fostered acceptance of the theory within the legal and economic communities[4] and aided

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[1]Holmes, 462; and Fuller and Perdue 63. The evolution of the Coase Theorem in 1960 provided the seed for the field of Law and Economics. See Ronald H. Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3 (1960): 1.

[2]See Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law," 49 (1969).

[3]See Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 273 (1970); Barton, 277 (1972); and Richard A. Posner, *Economic Analysis of the Law*, (Boston: Little, Brown & Company, 1972).

[4]See John P. Dawson and William B. Harvey, *Contracts*, 3d ed. (Mineola: Foundation Press, 1977); and Richard A.

the application of the theory to various contexts;[5] *game theoretic analyses*, which paralleled the mainstream in reflecting the economic community's contribution to the theory, added strategic bargaining to the issues of remedy selection and the choice as to whether to breach;[6] finally, *critiques* of the theory's validity emerged, based partially upon economic foundations and otherwise upon moralistic grounds.[7] Figure one illustrates the historical lineage of these three lines of thought.

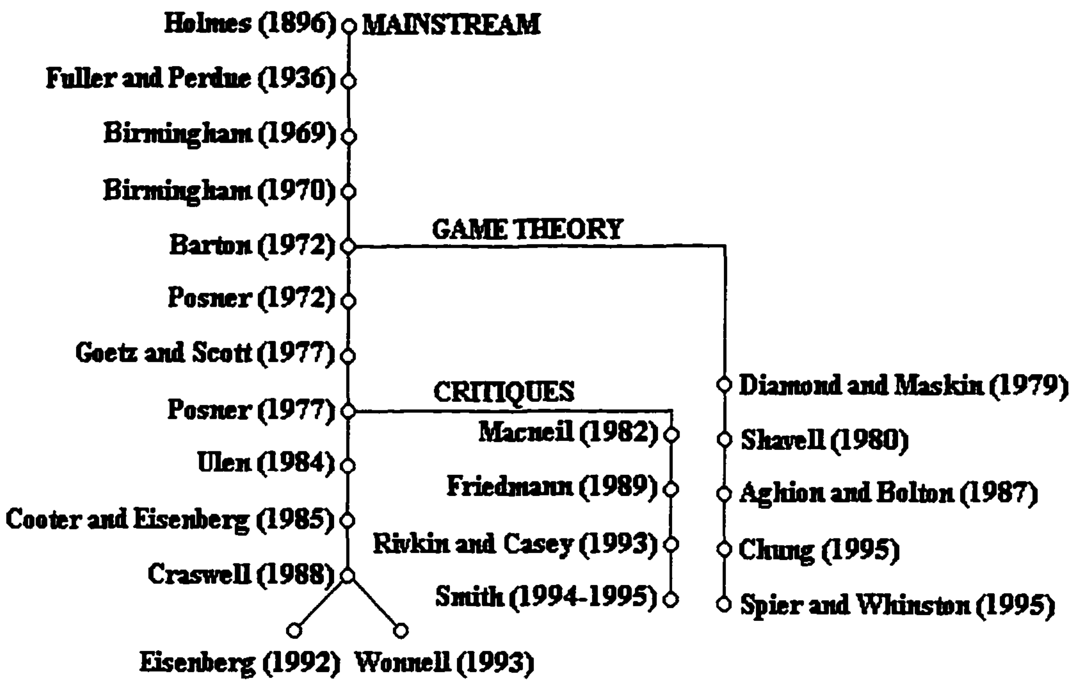
Posner, *Economic Analysis of the Law*, 2d ed. (Boston: Little, Brown & Company, 1977).

[5]Primary focus centered upon the value of the theory of efficient breach in determining the choice of equitable, stipulated or legal remedies under contract law. See Goetz & Scott, 554 (1977); Cooter and Eisenberg, 1432 (1985); Ulen, "The Efficiency of Specific Performance," 343 (1984); and Craswell, 630 (1988). Other analyses compare the theory to legal decisions in an effort to adjudge the applicability of the theory to legal precedent. See Melvin Aron Eisenberg, "The Principle of Hadley v. Baxendale," *California Law Review* 80, no. 3 (1992): 563. Finally, a few papers center upon the applicability of the theory to specific economic problems. See Wonnell, 87 (1993).

[6]The initial attempt to apply game theory to efficient breach arose from Barton (1972); subsequent attempts reflect the evolution of game theory and the acceptance of efficient breach theory as a tautology. See Diamond and Maskin, 282; Shavell, 466; Aghion and Bolton, 388; Chung, 437; and Spier and Whinston, 180.

[7]See Macneil, 947; Friedmann, 1; David B. Rivkin and Lee A. Casey, "How Binding Are Contracts?," *The American Enterprise* 4, no. 6 (1993): 59; and Smith, 121.

Figure 1. The Evolution of Efficient Breach Theory



Support for this paper requires a deeper analysis of the relevant literature. The following examination separates its discourse into four parts. The first considers articles relevant to the mainstream view of efficient breach (Holmes, Fuller and Perdue, Birmingham, Barton, Posner, Goetz and Scott, Ulen, Cooter and Eisenberg, Craswell, Eisenberg and Wonnell). The second examines contributions made by game theoretic analyses (Barton, Diamond and Maskin, Shavell, Aghion and Bolton, Chung and Spier and Whinston). The third studies criticisms of the theory (Macneil, Friedmann, Rivkin and Casey, Smith). The final section reevaluates the various contractual remedies from the viewpoint of efficient breach theory, culminating in an assessment of the different forms of relief when applied to the example of windfall-based breach posed at the beginning of this paper.

(A) The Mainstream

The conceptual foundation of efficient breach theory traces to Justice Oliver Wendell Holmes, who in 1897 first recognized the compensatory purpose of expectation damages in the event of breach.[8] The next seventy years produced few additions to the Holmesian compensation principle, with the notable exception of the work of Lon Fuller and William Perdue concerning compensation through reliance damages; in their article "The Reliance Interest in Contract Damages," the authors defined the reliance interest in relation to the expectancy interest under conditions of perfect competition, thereby reflecting the first relation of economic principles to damages for contractual breach.[9] Thirty-two years would pass before a similar attempt would arise in the literature.

The seminal works relating economic analysis directly to the Holmesian compensation principle surfaced in 1969 and 1970 from Robert L. Birmingham. The initial paper centered upon a case-based economic analysis of contractual remedies

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[8]Holmes, 462.
[9]Fuller and Perdue, 62-63.

using the Edgeworth Box Model.[10] Therein, Birmingham argued in defense of actions which promote pareto efficiency in contractual settings,[11] specifically citing breaches with the payment of expectancy damages,[12] judicial alteration of contractual terms[13] and awards of specific performance.[14] The subsequent paper expanded upon the conclusions of the first, focusing upon the efficiency of expectation damages for breach,[15] citing examples of efficient breaches within the context of labor contracts,[16] and expanding the analysis to consider reliance damages and restitution.[17] The second article also exposed the potential for expectation damages to undercompensate injured parties if transactions costs are present; Birmingham's response to this problem posited that

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[10]Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law," 53-64. For specific discussion of the Edgeworth Box Model, see James M. Henderson and Richard E. Quandt, *Microeconomic Theory: A Mathematical Approach,* 3d ed. (New York: McGraw-Hill Book Company, 1986), 238-240 and 287-288.

[11]Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law," 61.

[12]Ibid., 66-68.

[13]Ibid., 63 and 66-68.

[14]Ibid., 69-70.

[15]Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 284.

[16]Ibid., 288-289 and 291.

[17]See Ibid., 281-282 (unlike restitution, expectancy prevents penalistic awards and therefore promotes efficient breach) and 286 (reliance and expectancy damages are equally efficient under conditions of perfect competition).

if the parties internalized such costs, expectancy measures would yield greater efficiency than would awards under the theories of restitution or reliance.[18]

Following the works of Birmingham, analysis of the efficiency of contractual remedies entered the realm of game theory through the contribution of John H. Barton. Barton's article centered upon the shortcomings of expectancy by noting that expectation damages are the product of classical contract theory, which innately promotes the maintenance of incentives to prevent breaches;[19] the possibility of loss-based efficient breach was therefore alien to the Holmesian compensation principle,[20] mandating that a more efficient measure of damages could exist. Barton's solution was to extend judicial tolerance for liquidated damage provisions, assuming the parties to the contract had full information concerning the contractual environment.[21] The usefulness of economics therefore rested in the strategic allocation of risk among contracting parties, assuming that the assignment of such risks occurred only when known to those agents.[22]

Subsequent to these efforts, the emerging field of Law and Economics acknowledged the implications of the Holmesian

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[18]Ibid., 285.
[19]Barton, 278.
[20]Ibid., 280-281 and 291.
[21]Ibid., 282 and 286-287.
[22]Ibid., 291-293 and 296.

compensation principle, as evidenced in Richard Posner's treatise on point, *Law and Economics*.[23] However, refinements were necessary upon the initial theories; game theoretic techniques improved, as did the economic sophistication of the legal community. The second edition of Posner's *Law and Economics* reflected these changes,[24] as did the literature within the mainstream.

Coinage of the term "theory of efficient breach" arose in 1977 within the article of Charles J. Goetz and Robert E. Scott, whose paper extended upon the works of Barton and Birmingham by using an Edgeworth Box analysis to determine the efficiency of liquidated damage awards. In acknowledging the Holmesian argument against penalistic liquidated damage clauses,[25] the authors perceived that deviations from the compensation principle reflect nothing but a wealth transfer among the parties.[26] Further, the authors recognized the efficiency of compensatory damages, the potential efficiency of awards of specific performance when monetary compensation

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[23]Posner, *Economic Analysis of the Law*, § 4.9 (1972).

[24]Specifically, the concept of *opportunistic breach* (caused when the windfall is wrongfully generated by the breaching party) separated from efficient breach theory at this time. Posner, *Economic Analysis of the Law*, 2d ed., § 4.9 (1977).

[25]Goetz and Scott, 556. Note that the authors support the penalty doctrine from the perspective of minimizing transactions costs. Ibid., 561-562.

[26]Ibid., 558-559.

is impossible,[27] and the possible inefficiency of liquidated damages when applied to efficient breach theory.[28] However, the paper endorsed enforcement of stipulated damage clauses absent evidence of unfairness in the bargaining process,[29] for if the parties' decision to stipulate damages results from their desire to minimize transactions costs or allocate the risk of uncertainty,[30] the enforcement of such clauses maximizes efficiency by reducing the transactions and error costs accompanying trial.[31] Two assumptions support this assertion: first, moral hazard will not disturb the process due to the plethora of common law safeguards in existence;[32] second, the parties themselves are in the best position to insure against contractual breaches.[33]

Further support for expanded acceptance of liquidated damage provisions came from Thomas Ulen, who denounced the "penalty rule" by noting that addition of punitive elements within stipulated damage clauses reflects assurances as to

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[27]Ibid., 569-570.

[28]The paper substantiates fears of liquidated damages by proving that such provisions could induce breach or force performance when breach would be efficient. Ibid., 562-568 and 586-588.

[29]Inequity may result from an abuse of monopoly power or the presence of unconscionable factors. Ibid., 588-593.

[30]Ibid., 558.

[31]Ibid., 570-576 and 578.

[32]For example, laws governing unconsionability or fraud will intervene when necessary. Ibid., 583-586.

[33]Ibid., 579-583.

the parties' willingness to perform and the parties' choices as to allocation of risk.[34] However, Ulen's focus was upon the expanded use of specific performance in the event of a windfall-based breach absent the existence of a liquidated damage clause. Given an award of specific performance, the party seeking to breach has the incentive to negotiate a release of performance from other parties; the non-breaching parties therefore share in the windfall from the breach with the breaching party, the resource transfers to the owner who values it the most and the pareto efficient result arises though the cooperation of all parties to the contract.[35] Ulen argued that the efficiency of this result exceeds that of restitution and is equal to that obtained by reliance or expectancy damages.[36] Further, he deemed the transactions costs of specific performance to be lower than those associated with reliance or expectancy protection,[37] for the parties' prior relationship allows them to cooperate more cheaply than possible through non-cooperative means.[38]

The first paper offering a specific economic appraisal of the relative efficiency of damages under expectancy and reliance measures arose from Robert Cooter and Melvin Aron

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[34]Ulen, "Efficiency of Specific Performance," 350-355.
[35]Ibid., 364-366.
[36]Ibid., 356-363.
[37]Ibid., 358-363.
[38]Ibid., 366-371 and 379-396.

Eisenberg in 1985.[39] Therein, the authors quantified several different damage measures used by the courts to estimate the reliance and expectation interests, though only two appeared to be adequately representative.[40] Like the prior work of Fuller and Perdue, the paper determined that expectation and reliance damages equate under perfect competition, assuming that the probability of breach is low.[41] However, Cooter and Eisenberg extended this analysis to consider the case of *imperfect competition;*[42] assuming the seller's surplus under monopoly exceeds that obtainable under perfect competition, expectation damages exceed reliance damages in the event of a breach by the buyer.[43] The authors suggested that reliance damages are inferior to expectation damages under this circumstance, for expectation damages assure protection of the reliance interest, better facilitate planning on the assumption of performance, provide proper incentives for efficient performance and precaution, and provide no worse

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[39]Cooter and Eisenberg, 1432.

[40]Specifically, the authors found the substitute-price and opportunity-cost formulas to reflect the expectancy and reliance interests, respectively. Ibid., 1439-1441 and 1448.

[41]Ibid., 1445.

[42]Imperfect competition refers to any situation where the buyers or sellers have market power concerning the price of the good traded. See chapter III, section (A), *infra*. In the context presented by the authors, however, discussions of imperfect competition pertain to monopoly power held by the seller. Cooter and Eisenberg, 1451.

[43]Cooter and Eisenberg, 1451.

incentives for over-reliance on a contract.[44] Unfortunately, the authors did not consider the impact of these conclusions on the theory of efficient breach, nor did they consider the event of breaches by sellers given identical assumptions.[45]

In 1988, Richard Craswell surveyed the literature concerning efficient breach theory and exposed unexplored phenomena associated with the various contractual remedies. In asserting that the award which maximizes social welfare at the lowest cost is pareto superior,[46] Craswell focused upon the costs of renegotiation brought about by different compensation principles.[47] His analysis assumed that prior works ignored many externalities affecting the different remedies,[48] such as the degree of risk aversion among the parties[49] and the level of judicial error present.[50] Hence, Craswell asserted that prior analyses failed to recognize potential inefficiencies inherent to every common law and liquidated remedy;[51] absent perfect information, efficient levels of insurance against breach and efficient selection

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[44]Ibid., 1459-1468.

[45]From this perspective, the paper partially exists as an extension of the results of Cooter and Eisenberg. See chapters IV, V and VI, *infra*.

[46]Craswell, 632-633.

[47]Ibid., 634-636.

[48]Ibid., 637-640.

[49]Ibid., 641-645.

[50]Ibid., 664-665.

[51]Ibid., 637-640.

as to whether to breach are impossible to determine absent perfectly compensatory damage awards,[52] which in turn are impossible to determine in different cases due to variances in renegotiation costs and the parties' risk preferences.[53] Responses to these claims have yet to emerge from the legal community, although recent game theoretic works address some of Craswell's concerns.[54]

A review of the mainstream literature of this decade reveals a minor schism in the choice of topics based upon efficient breach theory. Although both emerging branches accept the validity of the theory, interests deviate from the viewpoint of its applicability to different situations; the first category of topics centers upon the relevance of the theory to precedential case law,[55] whereas the second focuses upon the usefulness of the theory within specific economic contexts.[56] Lacking from these analyses are the

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[52]Ibid., 646-653 and 653-656.

[53]Ibid., 637-645.

[54]Specifically, see the discourse concerning the efforts of Tai-Yeong Chung, Kathryn E. Spier and Michael D. Whinston contained in section (B), *infra*.

[55]Eisenberg, "The Principle of Hadley v. Baxendale," 584-587 (compares the theory of efficient breach to the case and finds conflict due to the case's unwillingness to award foreseeable post-breach consequential damages).

[56]See Wonnell, 100-102 (mentions the theory as it pertains to labor contracts and notes that awards of specific performance, though perhaps efficient, are not available in labor contexts due to oppressiveness).

intuitive discussions of the comparative efficiency of different damage awards available in contract. Perhaps the legal community perceives such issues as settled within the literature; more likely, further development within the mainstream depends upon the economic community, whose game theoretic contributions form the topic of the next section.

(B) Game Theoretic Analyses[57]

The initial effort to apply game theoretic principles to efficient breach theory arose from John Barton in 1972.[58] However, improvements in gaming techniques soon removed such analyses from the mainstream, placing them into the eager hands of economists. This section chronicles the evolution which followed, centering upon the economic community's contributions to the evolution of efficient breach theory.

Peter Diamond and Eric Maskin offered the first modern game theoretic models of efficient breach in 1979; assuming symmetric information among the contracting parties, their paper focused upon the value of liquidated and expectation damages with respect to the amount of efficient search required to obtain efficient breach. Their analysis judged contracts as attaining either "good" or "bad" results given

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[57]For a discussion of game theoretic techniques, the reader should consult Drew Fudenberg and Jean Tirole, *Game Theory* (Cambridge: The MIT Press, 1991).

[58]See Barton, 279-283.

two alternative contracting environments.[59] Two models separately considered the cases of complete information and unobservable matches, although each assumed the existence of search externalities;[60] these tested three possible search-breach arrangements in quest of a stable equilibrium.[61]

Reflecting the mainstream spirit of their era, Diamond and Maskin debated the relative efficiency of expectancy and liquidated damages; in noting that both types of awards are identical if compensation is perfect,[62] the authors stressed that stipulated remedies may generate monopoly power.[63] The results of their models supported this notion and suggested the comparative efficiency of expectancy over liquidated damages, although neither remedy proved to support efficient breach or search under every scenario tested.[64] The authors explicitly exempted issues of ignorance, uncertainty, risk aversion, asymmetric information and decisions concerning price changes from their analysis.[65] These omissions lead to

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[59]The authors described these as the *quadratic* environment, where the probability of contracting rises linearly with the number of partners available, and the *linear* environment, where the probability of contracting rises linearly with the number of persons searching for a new partner. Diamond and Maskin, 282-283.

[60]Ibid., 284 and 306.

[61]Ibid., 286.

[62]Ibid., 293.

[63]Ibid., 294.

[64]Ibid., 308.

[65]Ibid., 311.

the development of further game theoretic research, as well as that of the mainstream and this paper.

The next contribution came from Shavell in 1980. Shavell's article considered incomplete contracts wherein parties strategically choose their levels of reliance and decisions as to breach given alternative compensation under reliance and expectation measures; assuming risk neutrality, his model examined the impact of asymmetric information upon these decisions and upon efficient breach theory. In noting that allocation for all potential contingencies within a contract is an inefficient pursuit,[66] Shavell proposed that efficient breaches arise due to the rational omission of contractual provisions governing the event precipitating the breach.[67] Hence, the contracting parties must consider the probability of such occurrences in determining the optimal amount of reliance to invest in a contract.[68]

Concerning the relative efficiency of expectancy and reliance under asymmetric information, Shavell determined that both forms of compensation promote over-investment in contractual reliance. However, the author found expectancy damages to be pareto superior to those under reliance, for

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[66]Shavell, 468-469.

[67]Ibid., 470.

[68]Ibid., 470-471. Note that the author specifically excluded opportunity costs from the reliance measure. Ibid., note 18, 471.

protection of the expectancy interest innately guarantees proper incentives for efficient breach.[69] Based upon these observations, Shavell concluded that neither remedy could simultaneously guarantee efficient reliance and efficient breach, nor could other remedies compare to the efficiency of expectancy damages except on a case-by-case basis.[70]

In 1987, Philippe Aghion and Patrick Bolton proposed a different asymmetric information model based upon efficient breach theory. In their paper "Contracts as a Barrier to Entry," the authors demonstrated that optimal contracts may create inefficiency by generating monopoly power for the original contracting parties; specifically, the seller and buyer seek to act as non-discriminating monopolists against future market entrants,[71] making use of liquidated damage clauses and long-term contracts to attain this end.[72] Their paper purports that efficient breaches are possible given contractual stipulation of damages, but that a reduction of seller entry results therefrom because not all entrants with costs below those of the incumbent seller may profit from such a breach.[73] Similarly, given that the incumbent seller

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[69]Ibid., 472.

[70]Ibid.

[71]Aghion and Bolton, 391-392.

[72]The authors note that a single long-term contract equates to a series of short-term contracts, but is more effective in preventing entry. Ibid., 389.

[73]Ibid., 391-392.

has private information concerning the likelihood of entry, that seller will vary the initial contract's length to signal the buyer of entry barriers.[74] The authors conclude that this phenomenon effectively reduces the monopoly power of the buyer-seller coalition against new entrant sellers,[75] but may give the incumbent seller the ability to price discriminate if the number of buyers is large.[76]

A return to the heart of mainstream thought arose from Tai-Yeong Chung in 1995. In focusing upon negotiation costs, Chung asserted that the ability of a buyer to breach against a seller with negotiation power causes that buyer to over-invest in means that would improve its bargaining position. These investments are sunk costs that cannot be renegotiated if a breach occurs. Chung's analysis followed this logic: if the contracting parties can renegotiate after a breach, then penalistic liquidated damage clauses will not prevent the occurrence of efficient breach;[77] however, those parties may have the incentive to inflate the size of liquidated damage

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[74]Requests for longer contract length signal the buyer of likely entry and cause the buyer to demand a lower price as compensation. Ibid., 392-396.

[75]Ibid.

[76]Ibid., 396-398. Note that this observation lends credence to this paper's conclusion that efficient breach theory is misunderstood as a mechanism for arbitrage. For further discussion of the distinction between discriminatory pricing and arbitrage, see chapter III, section (A).

[77]Chung, 438.

awards above compensatory levels.[78] Therefore, courts should generally ignore liquidated damage provisions in favor of compensatory damages,[79] though such awards are not perfectly efficient as the sunk costs of the buyer's investments are unrecoverable by renegotiation.[80]

Spier and Whinston offer the most recent contribution based in game theory. As an extension of prior mainstream and game theoretic analyses, their paper reflects economic acceptance of common law dictum in asserting that the proper measure of compensatory damages arises *ex ante* a breach. The paper's primary model assumes that after contract formation, the seller chooses reliance of positive value, a potential entrant states a price in relation to that of the contract, negotiation occurs, then the buyer chooses to either breach or perform by the contract's terms.[81] The authors conclude that within competitive markets, efficient liquidated damage clauses are superior to court imposed measures;[82] however, if market entrants behave strategically, all damage awards cause seller over-investment except for *ex ante* expectation damages, despite the ability to renegotiate.[83]

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[78]Ibid., 439.
[79]Ibid., 440.
[80]Ibid., 441.
[81]Spier and Whinston, 184.
[82]Ibid., 186-188.
[83]The authors note that specific performance, *ex post* expectation damages and liquidated provisions lead to equal

(C) Criticisms of the Theory of Efficient Breach

Few outright critics of efficient breach theory exist, perhaps due to a lack of concentrated interdisciplinary effort toward the subject. However, the next section reviews the opinions of those who dispute the validity of the theory for both positive and normative economic reasons. Despite their lack economic of rigor, the topic of this paper exists as an extension of these critiques, for the purpose of the paper seeks to refine windfall-based efficient breach theory through the principles of industrial organization.

Ian Macneil presented the first outright attack upon efficient breach theory on the bases of entitlements and transactions costs. Assuming costless transactions, Macneil noted that awards of specific performance create efficient breaches if the contracting parties cooperate.[84] However, the theory of efficient breach specifically perceives *non-cooperation* in granting expectancy damages as its basis for contractual dispute resolution.[85] Therefore, Macneil argued that efficient breach theory forsakes economic efficiency by shunning cooperative solutions, thereby raising transactions costs above those accrued in a cooperative environment with

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levels of seller over-investment, while awards of reliance damages generate a greater loss. Ibid., 188-192.

[84]Macneil, 951-957.

[85]Ibid., 968.

settlements.[86] On an ethical slant, Macneil further noted that the theory is repugnant because it ignores contractual entitlements, which innately have positive economic value.[87]

A broader set of arguments against efficient breach theory arose from Friedmann in 1989. In raising questions similar to Macneil regarding entitlements[88] and transactions costs,[89] Friedmann borrowed more heavily from the mainstream and game theoretic communities in asserting that the theory forces contracting parties to take inefficient steps to assure performance[90] and that the levels of compensatory damages awarded for efficient breach are suspect in terms of their efficiency.[91] Friedmann's analysis centered upon the comparison of efficient breach theory to that of "efficient conversion," wherein the remedy of restitution is proper.[92] Conjoined with his observations of increased application of

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[86]Ibid., 954-960. Note that Macneil's paper pre-dates that of Thomas Ulen (discussed in section [A], *supra*), which specifically addressed this concern.

[87]Macneil, 962, 966-967. Many critics of efficient breach seem to raise theories of entitlement within their analyses. For example, see Friedmann, 13-18; and Smith, 135. However, arguments in this vein also ignore the negative externalities generated by a breach upon a breaching party, i.e., injury to reputation. For discussion, see Ulen, "The Efficiency of Specific Performance," 347-349.

[88]Friedmann, 13-18.

[89]Ibid., 6-7.

[90]Ibid., 7.

[91]Ibid., 13.

[92]Ibid., 4-6 and 12.

specific performance and punitive damages in cases involving contracts,[93] Friedmann determined that courts are no longer willing to observe breaches as "efficient" on the basis of assumption,[94] indicating the growth of institutional disdain for the theory of efficient breach.

Recent criticisms of the theory reflect a shift in focus away from efficient breach as a primary topic. For example, the work of Rivkin and Casey attacked the judicial practice of interpreting contractual terms from a normative perspective; although their paper did not expressly address efficient breach, their conclusions served to underscore the belief that courts are inefficient in applying the theory.[95] Lionel Smith provided an additional example of this trend. In defending the extended use of disgorgement in contractual settings, Smith briefly discussed shortcomings in the theory of efficient breach from the perspectives of transactions costs[96] and entitlements.[97] Concordant with the arguments of his predecessors, Smith offered no formal economic analysis to support his conclusions; however, his advocation of the extension of disgorgement within contract is unique to the

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[93]Ibid., 18-19.

[94]Ibid., 13.

[95]Rivkin and Casey, 59.

[96]Smith's argument focused upon the theory's reliance upon the Coase Theorem, which fails in the presence of costly transactions. Lionel Smith, 133-134.

[97]Ibid., 135.

literature and relevant to the conclusions of this paper.[98] Hence, further discussions of Smith's conclusions arise in the following section and within the normative analysis of chapter VII, section (B).

(D) Contractual Remedies and the Theory of Efficient Breach

The discussion of chapter one revealed the classes of damages available for contractual breach through the common law and other sources. However, that discourse was devoid of economic scrutiny, particularly concerning efficient breach theory. The following sub-sections correct for this omission by blending the information of this chapter with the rules governing breach of contract. The section concludes with an assessment of the various forms of contractual relief when applied to the example of windfall-based breach posed in the introduction to this paper.

(1) Liquidated Damages

The greatest source of debate regarding the efficiency of damages centers upon awards stipulated by the parties to a contract. The controversy focuses upon the allowance for

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[98]This paper reevaluates the conclusions purported by Smith; specifically, chapter VII, section (B) considers whether awards of disgorgement combined with other remedies may enhance economic efficiency through the encouragement of settlements, which may simultaneously preserve entitlements and mitigate against abuses of market power.

damages in violation of the "penalty clause," wherein the wealth transfer created by a liquidated provision exceeds the injured party's expectancy interest in the contract. The analysis of this sub-section therefore focuses upon the relevance of penalistic damages to efficient breach; the relation of industrial organization becomes apparent herein, as the issue of market structure arises with significant consequence to the efficacy of liquidated damage measures.

Endorsement of stipulated damages arose early within the literature, based on the assumption that the contracting parties have perfect information.[99] However, Goetz and Scott provided the first empirical justification for rejection of the penalty rule doctrine. In noting that *excessive* damages quash the incentive for efficient breach through the support of inefficient performance, these authors demonstrated that liquidated damages beyond the expectation measure are not *per se* excessive.[100] Goetz and Scott further explained the decision to stipulate damages as a function of the parties' desire to minimize transactions costs and/or allocate risk in the face of uncertain damages,[101] account for unobservable valuations at a low cost and reduce the error costs linked

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[99]Barton, 286-287. However, note that this analysis stressed the value of liquidated damages in supporting *loss-based* efficient breaches. Ibid., 282.

[100]Goetz and Scott, 562-568.

[101]Ibid., 558.

to trial.[102] Hence, the authors supported liquidated damages in furtherance of the goals of efficient breach, assuming abatement of moral hazard by procedural safeguards[103] and the lack of monopoly power in contractual negotiations.[104]

Further support for expansion of liquidated damages beyond the penalty rule came from the mainstream and game theoretic communities. Ulen extended upon the conclusions of Goetz and Scott by asserting that penalistic clauses reflect assurances of performance and a method for risk allocation, mandating enforcement of *all* stipulated damage provisions, regardless of punitive intent.[105] Spier and Whinston agreed with this result assuming a competitive environment, wherein the original contracting parties could draft an award pareto superior to any court-imposed remedy.[106] Even Chung, whose paper attacked the validity of liquidated damages, admitted the uselessness of the penalty rule if contracting agents have post-breach negotiation power.[107]

Detractors of the value of stipulated damages to the theory of efficient breach generally seize upon Goetz and Scott's concerns of monopoly power;[108] for example, Craswell

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[102]Ibid., 570-576 and 578.
[103]Ibid., 583-586.
[104]Ibid., 588-593.
[105]Ulen, "Efficiency of Specific Performance," 350-351.
[106]Spier and Whinston, 186-188.
[107]Chung, 438.
[108]Goetz and Scott, 558-593.

suggests that liquidated provisions are overcompensatory due to monopolistic inclusions of penalistic clauses.[109] Those in the game theoretic community offer a different perspective; they perceive the availability of stipulated damages as a vehicle for the *creation* of monopoly power,[110] either due to the establishment of entry barriers[111] or the suppression of efficient search/breach criteria.[112] In either case, these criticisms touch upon yet bypass the intent of this paper; that is, to apply the principles of industrial organization directly to the theory of efficient breach.

(2) Specific Performance

Initial endorsements of specific performance as a remedy in furtherance of efficient breach were not ardent.[113] However, Ulen proposed that the remedy is the most efficient possible if the contracting agents can cooperatively divide the post-breach surplus.[114] Minimized transactions costs create this efficiency, for the parties' prior association allows them to divide the rents from breach more cheaply

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[109]Craswell, 637-640.

[110]Diamond and Maskin, 294.

[111]Aghion and Bolton, 389-392.

[112]Diamond and Maskin, 308. See also Chung, 439-440.

[113]See Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law," 69-70; and Goetz and Scott, 569-570.

[114]Ulen, "Efficiency of Specific Performance," 364-366.

than is possible through the courts.[115] Macneil echoed these conclusions by noting that awards of specific performance support efficient breach when transactions are costless and the parties are willing to cooperate.[116] The implication of these works is clear from the perspective of industrial organization; under perfect competition, awards of specific performance protect the general expectancy interest as well as expectation damages could if cooperation is possible.[117] Further, normative efficiency may improve under specific performance due to the ability of the parties to split the benefits of an efficient welfare-based breach.[118]

(3) Monetary Damages

The central principles governing efficient breach theory anticipated that pecuniary remedies would suffice in

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[115]Ibid., 366-371 and 379-396.

[116]Macneil, 951-957.

[117]As the discussions of chapter III, sections (A) and (B) explain, the parties' cooperative ability and the market structure involved are only significant if they generate different transactions costs; otherwise, awards of specific performance and expectancy damages are identical from a positive economic perspective.

[118]Monetary awards under the theory of efficient breach allow the breacher to recoup the entire post-breach surplus; conversely, awards of specific performance empower the non-breaching party to negotiate away some or all of the surplus from the breacher, thereby compensating the breachee for its entitlement interest in the contract. See Macneil, 951-957; Ulen, "The Efficiency of Specific Performance," 379-396; and the discussion of chapter VII, section (B), *infra*.

generating efficiency.[119] Recognition of expectancy damages as the preferred method for attaining this result arose in the first economic analyses conducted on point,[120] although several refinements upon those theories now exist. This subsection considers those refinements and addresses the value of other types of monetary awards in bolstering or replacing expectation damages.

Concerns about the use of expectancy damages emanated from fears that such awards undercompensate the interests of the non-breaching party due to factors inherent to the legal system.[121] Authors in the mainstream abated these anxieties by comparing expectation damages to other forms of relief, concluding therefrom that expectancy damages create a pareto superior outcome.[122] The game theoretic community probed the

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[119]Holmes, 462.

[120]Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law," 61; Goetz and Scott, 562-568; and Diamond and Maskin, 293.

[121]See Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 285; Ulen, "Efficiency of Specific Performance," 360-363; Craswell, 637-640; Friedmann, 6-7 and 13 (high transaction costs and difficulty in measurement result in undercompensation of the non-breaching party); and Chung, 441 (expectancy damages do not account for the sunk costs of specific investments in the original contract).

[122]See Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 285 (if the contracting parties can internalize their transactions costs, expectancy awards yield greater efficiency than combined awards of reliance and restitution), 281 and 284 (expectation damages prevent punitive elements, unlike awards of restitution); and Cooter

subject from a similar approach,[123] though the article of Spier and Whinston raised an issue previously unexplored in the efficient breach literature; whether the measure of expectancy should arise *ex ante* or *ex post* the breach.[124] In finding that expectancy damages computed *ex ante* a breach result in the only possible method for creating efficiency, Spier and Whinston ignored a variable essential to the efficient breach mix: *consequential damages.*[125]

Surprisingly, the relationship of consequential losses to the theory of efficient breach has yet to pique sweeping interest in the literature, perhaps due to analytic fixation upon perfectly competitive market structures.[126] This lack of interest reflects a serious omission, for the common law sanctions simultaneous protection of the general and special

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and Eisenberg, 1459-1468 (expectation damages are superior to reliance damages in promoting efficiency).

[123]See Diamond and Maskin, 308 (compensatory damages exceed the efficiency of liquidated damages in promoting efficient breach and search); Shavell, 472 (expectation damages are superior to reliance in supporting efficient breach); and Chung, 440 (ignoring liquidated damage terms in favor of expectancy damages maximizes efficiency).

[124]Spier and Whinston, 188-192.

[125]Ibid. Note that the only specific mention of consequential losses within the surveyed literature arose from Goetz and Scott concerning statutory damages under the Uniform Commercial Code. Goetz and Scott, note 50, 572.

[126]Under perfect competition, consequential damages should never arise due to assumptions of perfect information and zero transactions costs. See chapter IV, section (A).

expectancy interests to assure full compensation to injured parties.[127] This paper seeks to correct for the literature's oversight by including consequential measures in its damage calculations when appropriate.

Interest in the significance of reliance damages to efficient breach centered upon the relationship of reliance to the expectation interest; specifically, assuming a static perfectly competitive environment, many authors concluded that reliance and expectation measures equate.[128] Absent this assumption, the authors addressing the issue criticized the efficiency of reliance for reasons of pareto inferiority[129] and other problems similarly attributed to expectancy.[130] However, these arguments generally failed to consider the potential efficiency of combinations of reliance with other measures of compensation, especially consequential damages

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[127]Dobbs, 3:§ 12.2(3).

[128]Fuller and Perdue, 62; Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 286; and Cooter and Eisenberg, 1435-1438 and 1445.

[129]See Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 285 (awards under the theories of reliance and restitution are less efficient than awards of expectancy); Cooter and Eisenberg, 1459-1468; Shavell, 472; and Spier and Whinston, 188-192 (expectation damages provide better incentives for efficient performance and against over-investment in contractual reliance).

[130]See Ulen, "The Efficiency of Specific Performance," 358-359; Friedmann, 6-7 and 13 (reliance damages are costly to determine); and Craswell, 637-640 (reliance damages tend to undercompensate breach victims).

or restitution.[131] Later chapters cure this deficiency by considering the value of reliance to non-static situations of breach in competitive and non-competitive environments.

Similar to omissions concerning consequential losses, comparisons of statutory damages to efficient breach theory are sparse within the literature, although two of the papers made significant reference to the Uniform Commercial Code.[132] The works of Ulen and of Goetz and Scott devoted significant attention to a contrast of common law remedies with several code sections. Therein, the authors found clauses comparable to common law rules governing general unconscionability,[133]

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[131]Birmingham offered the lone exception to this rule, though his discussion on point was quite brief: "If recovery for breach of contract were limited to protection of restitution and reliance interests, a party could frequently profit through repudiation of one agreement and entry into another offering him a larger share of a smaller joint gain." Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 285.

[132]Note that several authors made incidental references to the code. See Barton, note 6, 280 (relates § 2-704(2) concerning sale for scrap to expectancy damages); Cooter and Eisenberg, note 49, 1474 (refers non-specifically to code provisions governing liquidated damages); Craswell, note 13, 637 (general reference to the Uniform Commercial Code); and Macneil, note 54, 964, note 57, 965 (respectively discuss Uniform Commercial Code §§ 2-606 and 2-501(1) in an effort to demonstrate contractual entitlements under the code) and note 68, 967 (§ 2-713 equates to expectation damages for a buyer under the common law).

[133]The authors suggested that Uniform Commercial Code § 2-302 prevents penalistic liquidated damage clauses under the code but does preclude undercompensatory provisions.

liquidated damages,[134] specific performance,[135] expectation damages,[136] consequential losses[137] and restitution.[138] It is therefore plausible that statutory remedies such as those sanctioned by the Uniform Commercial Code support the theory of efficient breach and are subject to the same advantages and criticisms relevant to their common law counterparts. Later chapters reflect this contingency by referencing specific provisions of the Uniform Commercial Code when analytically pertinent.

Goetz and Scott, note 29, 561, note 91, 589, note 94, 591, note 95, 591, and note 100, 592.

[134]Specific references pointed to § 2-718 and its comments, which allows for the stipulation of non-penalistic damage awards if they reasonably approximate actual damages. Ulen, "The Efficiency of Specific Performance," note 27, 350; and Goetz and Scott, note 13, 556, note 21, 559, note 25, 560, note 29, 561 and note 94, 591.

[135]Uniform Commercial Code § 2-716 allows awards of specific performance only if the goods traded are unique. Goetz and Scott, note 46, 570; and Ulen, "The Efficiency of Specific Performance," note 83, 364 et seq.

[136]Expectancy damages measured under the lost surplus formula respectively arise under §§ 2-708(1) and 2-713 for sellers and buyers. Sellers also have the option of seeking expected lost profits under § 2-708(2). Goetz and Scott, note 19, 558, note 44, 569 and note 45, 569.

[137]§ 2-715(2) allows awards of consequential losses only for aggrieved buyers. Ibid., note 50, 572.

[138]Although the Uniform Commercial Code has no specific sections governing restitution, §§ 2-702, 2-703, 2-705 and 2-709 allow for restitution-like remedies within identified situations. Ibid., note 46, 570; and Ulen, "The Efficiency of Specific Performance," note 49, 356.

(4) Restitution

Perspectives within the literature are unambiguous concerning the disruptive value of restitution to the theory of efficient breach. Hence, supporters of the theory reject the use of restitution in any form,[139] while critics of the theory embrace and argue for the extension of its usage in preserving entitlements.[140] Except for Smith,[141] these authors did not distinguish between restitutive awards based upon the theories of unjust enrichment and disgorgement; this distinction becomes relevant in the presence of market power and in the event of a price-based breach, as discussed in the chapters which follow.

(5) The Selection of Remedies Under Efficient Breach Theory.

Table one summarizes the economic and legal traits of the many contractual damage measures considered herein. A comparison of the discussion of this chapter with that of the summary to chapter one reveals three conclusions central to the current analysis of efficient breach theory. First, assuming static perfectly competitive conditions, victims of breach are indifferent among awards of expectancy damages,

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[139]See Ibid., 282 and 285; Ulen, "The Efficiency of Specific Performance," 356-357; Craswell, 637-640; and Shavell, 472 (restitution contains punitive elements and is at best inconsistent in promoting efficiency).

[140]See Friedmann, 4-6, 12 and 18-19; and Smith, 121.

[141]Lionel Smith, 121-123.

Table 1

Economic and Legal Effects of Contract Damages

Type of Award	Legal Effect	Economic Effect
Expectancy Damages (General Expectancy Damages)	Places the breachee in its post-performance position	Returns to the breachee its expected welfare gain generated by the original contract
Consequential Damages (Special Expectancy Damages)	Places the breachee in its post-performance position given mutually anticipated losses due to a breach	Compensates the breachee for secondary losses based upon an expectation of performance in the original contract
Reliance Damages	Places the breachee in its pre-contractual position	Returns to the breachee the opportunity cost of its investment into the original contract
Restitution (Unjust Enrichment)	Returns the value of all assets given to the breacher by the breachee prior to performance	Gives no returns on investments into the contract, thus falling short of reliance damages
Restitution (Disgorgement)	Forces the breaching party to remit all profits from its breach to the breachee	Nullifies the incentive for efficient breach absent the possibility of a cooperative solution.
Specific Performance	Forces the breachee to perform according to the terms of the original contract	Returns to the breachee its expected welfare gain generated by the original contract
Liquidated Damages (Stipulated Damages)	Absent penalistic provisions, such damages approximate the awards courts would grant under expectancy principles	Absent evidence of market power, such awards should equate to those generated under the expectancy interest
Statutory Damages (e.g., the Uniform Commercial Code)	Damage systems under such schemes generally defer to the common law	Given U.C.C. § 1-106, the code seeks to protect the expectancy interest
Punitive Damages	Such damages lie outside the tenets of contract law	Such damages produce unwarranted wealth transfers

restitution, reliance damages, liquidated damages, specific performance, and (given rules equivalent to those under the Uniform Commercial Code) statutory damages. Second, given static imperfect competition, expectancy damages and awards of statutory relief provide superior support for efficient breaches as compared to other forms of relief. Third, awards of restitutive disgorgement or of penalistic liquidated damages may destroy the incentive for efficient breach.

To illustrate the validity of these assertions, consider the windfall example posed in the introduction to this paper. This model is not directly applicable to the first point, for Interloper would not pay a price above that specified in the contract if "P" is the market price for the good under perfect competition; however, adaptation of the example by setting $P = P_I$ reveals that Buyer's return in the event of Seller's breach equates to the value WTP - P under all forms of compensation.[142] Return of the model to its original limits supports the second and third points; under imperfect competition, awards of expectancy damages will

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[142]The assumptions of perfect competition mandate that Buyer may immediately secure equivalent performance after the breach, mitigating against the entirety of its interest in expectancy (WTP-P); thus, Buyer receives no damages under expectation or reliance theories because of its ability to obtain an identical contract immediately. Buyer also gains nothing under the theories of restitution, as competitive markets create no reason for investments by Buyer and no means by which Seller may profitably breach. Buyer is then as well off as would occur given the enforcement of a liquidated damage clause, an award of specific performance in the original contract, or under § 2-712 of the Uniform Commercial Code. Note that Seller is no better off by any of these awards, indicating that *efficient breaches are not possible under perfect competition*. For further support of this assertion, see chapters III and IV, *infra*.

perfectly compensate Buyer and permit efficient breaches to occur,[143] while allowance for excessive liquidated damages or of restitutive disgorgement could disable all incentives for efficient breach.[144]

This analysis is incomplete. Inquiries into the value of consequential damages in protection of the expectancy interest are absent, as are efficiency considerations for mixable awards such as restitution and reliance.[145] Hence, a

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[143]Expectation damages equal the value WTP-P. Reliance awards may fall below this amount due to Seller's ability to raise its price above the competitive price; liquidated damages could similarly be undercompensatory due to the monopoly power of Seller. Specific performance could fully compensate Buyer, but would interfere with the ability of Seller to breach profitably. Finally, statutory remedies could approximate the expectation value, assuming that consequential awards offset limited valuations of expectancy damages. See Uniform Commercial Code §§ 2-713 and 2-715.

[144]Excessive liquidated damages would be unlikely in the windfall example due to Seller's market power. However, an award of disgorgement would award Buyer the value P_I - P, thus overcompensating it by the amount P_I - WTP and eliminating Seller's incentive to breach.

[145]If P = P_I in the windfall example, disgorgement equals zero. This implies that the addition of restitution to reliance creates no conflict absent the presence of unjust enrichment. See Dobbs, 1:§ 4.1(2). Restitution and reliance damages are simultaneously obtainable under the common law, as the expectation interest constricts only reliance damages. Dobbs, 3:§§ 12.3(2) and 12.7(1). However, compensation for breach should never allow the sum of reliance and restitution to exceed the expectation interest; otherwise, the payment afforded the non-breaching party may exceed the defined value of the contract, thereby creating a penalty to the breaching party. For support of this view,

deeper analysis of the impact of market structure upon the theory of efficient breach follows, from which a complete perspective of contractual damages may emerge. Demonstrated in the chapters which follow, the precepts of industrial organization reduce the essence of efficient breach theory to its foundation: a method of establishing arbitrage-based opportunities for the breaching party with significant market power. Conclusions from this observation strike at the heart of efficient breach theory, for (as the existing literature has failed to demonstrate) the theory fails to deliver welfare gains absent restrictive assumptions;[146] this observation indicates the need for a reappraisal of the use of expectancy damages as the basis for contractual remedies, as explained within the analyses of chapter VII.

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see Dobbs, 3:§ 12.7(6); and chapter I, sections (A) and (C), *supra*. However, the positive and normative conclusions of this paper ostensibly reject Holmesian limitations upon contract damages; see chapter VII, section (B), *infra*.

[146]Absent cooperation, the analyses of the following chapters demonstrate that efficient breaches are possible only if the breaching party possesses market power and holds an absolute cost advantage over other market participants in providing the subject matter of the original contract to an alternative interloping party.

CHAPTER III

INDUSTRIAL ORGANIZATION AND EFFICIENT BREACH THEORY

The discussions of chapters I and II avoided issues of market structure to emphasize the value of the literature regarding efficient breach theory and the potential efficacy of various damage awards. This chapter deviates from those analyses by stressing the impact of industrial organization upon the theory of efficient breach. The discourse herein separates into four sections. The first considers five types of environments applicable to this paper: perfect and pure competition, monopoly, monopsony and bilateral monopoly. The second reexamines the selection of contractual remedies from the viewpoint of industrial organization. The third suggests some inadequacies in the existing literature, focusing upon a lack of non-static analysis consistent with microeconomic theory. The fourth then establishes the value of this paper as an improvement upon the existing literature through study of the relation of market power to efficient breach theory.

(A) Industrial Organization

This section considers five market environments: perfect competition, pure competition, monopoly, monopsony and bilateral monopoly. These differ greatly with respect to assumptions concerning the relative market power of buyers and sellers, the availability of market information and the nature of transactions costs. Since these distinctions are relevant to efficient breach theory, the section concludes by discussing the efficiency of these market structures.

(1) Perfect Competition[1]

Four assumptions characterize perfectly competitive markets. First, large numbers of small buyers and sellers interact independently in the marketplace such that no individual agent influences other's decisions. Second, the product traded is homogenous, meaning that no physical or psychological differences exist among the many seller's goods. Third, market agents engage in costless transactions such that trade is frictionless and seller exit and entry is free. Finally, buyers and sellers have perfect information regarding market conditions and seek to use that information for profit or utility maximizing purposes.

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[1]For information concerning the perfectly competitive market structure, see Henderson and Quandt, 136-137 and 292-293; George Stigler, *The Theory of Price,* 4th ed. (New York: MacMillan Publishing Company, 1987), 82-85 and 178-192; Gary S. Becker, *Economic Theory* (New York: Alfred A. Knopf, Inc., 1971), 89-91; Hal R. Varian, *Microeconomic Analysis*, 2d ed. (New York: W.W. Norton and Company, 1984), 82-91; and Walter Nicholson, *Microeconomic Theory: Basic Principles and Extensions*, 6th ed. (Orlando: Dryden Press, 1995), 443-480.

These assumptions nullify the relevance of static perfectly competitive markets to efficient breach theory, for under such conditions there is no reason for contract formation, much less a cause to breach.[2] This contradicts many of the analyses discussed in chapter II; specifically, articles which base their conclusions upon static perfectly competitive markets ignore the incentives for breach because they do not consider the effects that the assumptions of the market structure have upon the many contractual remedies.[3] The analysis of chapter IV, section (A) further extends this criticism to non-static circumstances, for the efficiency of perfectly competitive markets cannot improve by windfall-seeking acts in breach of a contract.

(2) Pure Competition

Purely competitive firms resemble those acting under perfectly competitive conditions, absent the advantages of

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[2]Since buyers and sellers abide by the market price, there is no reason to contract as substitute performance is obtainable instantaneously given zero transactions costs and perfect information. Further, should a contract arise, there is no incentive to breach as the breaching party receives at best a price identical to that under the original contract.

[3]Of specific concern are articles which extend upon the assertion that the various forms of contractual relief equate under perfectly competitive conditions. See Fuller and Perdue, 62; Cooter and Eisenberg, 1445; Macneil, 951-957; and Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 286. Further discourse on problems generated from this assertion exists in section (C), *infra*.

perfect information[4] or costless transactions. Hence, firms operating within such industries act as price takers, yet cannot rely upon the stability of zero economic profits in the long run.[5] Variance in prices among sellers can persist indefinitely, for imperfect information discourages the formation of an equilibrium price upon which firms may estimate marginal revenues. However, given a prolonged static state, the equilibrium of the purely competitive firm and market should emulate that of perfect competition.[6] This does not imply that pure and perfect competition produce identical equilibria in the long run; as this chapter's sub-section (A)(6) and chapter IV, section (B) demonstrate, pure competition produces efficiency results inferior to those of perfect competition and further is incapable of generating efficiency through windfall-based contractual breaches.[7]

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[4]Within this paper, relaxation of the assumption of perfect information extends only to the ability of the non-breaching party to secure substitute performance subsequent to the breach.

[5]Since entry and exit are costly, some sellers who would exit under costless conditions might choose to remain in the industry, while others seeking to enter the market could face costs barring them from that entry.

[6]This assumes that sellers and buyers eventually perceive some singular market clearing price upon which sellers may base their future income streams.

[7]Efficient contractual breaches are impossible within this environment: if the market finds a stable equilibrium price (P*) prior to contract formation, gross losses from a breach would equate to the transactions costs generated from

(3) Monopoly[8]

Three assumptions define monopolized markets. First, a large number of small, independent buyers interact in the industry, whose combined utility maximizing behavior forms a downward sloping market demand curve. Next, a single seller producing a unique product searches for a profit maximizing price-output combination upon this curve. Finally, the firm's monopoly position persists into the long run through the maintenance of entry barriers. Compared to competitive markets, these assumptions allow the monopolist to act as a price searcher, setting its output where marginal revenues equal marginal costs and raising its price above marginal cost to the maximum allowable by the demand curve. Study of the inefficiency of this result appears in section (A)(6).

The availability of substitutes and the operations of antitrust laws prevent the formation of absolute monopolies at national levels within the United States. Thus, realistic discussions of efficient breach might incorporate models of oligopolistic behavior, which perceive that several firms behave interdependently in sharing or competing for market

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that breach. However, if contract formation occurs *prior* to market clearing, a non-static situation arises wherein price changes further reduce the ability to breach within purely competitive industries. Analysis of this second possibility forms the discussion of chapter IV, section (B).

[8]The concepts contained in this sub-section derive from Henderson and Quandt, 176-190; Stigler, 200-210; Varian, 79-81; Nicholson, Chap. 20; and Becker, 94-95.

share.[9] However, numerous models of oligopoly exist and none are applicable to every market situation. Therefore, this paper rejects discussion of specific oligopolistic forms in favor of a determination of the value of monopoly power to efficient breach theory.

In the example of windfall-based breach posed at the outset of this paper, Seller's monopoly power clearly is a necessity for its ability to breach efficiently.[10] However, monopoly power alone is insufficient to generate efficient breaches, for if a seller with monopoly power sets a static price upon its entire output there is neither reason to form nor reason to breach a contract.[11] Chapter V, section (A) therefore pursues a non-static course by analyzing efficient breach as a form of arbitrage practiced by the breaching seller with significant market power.[12]

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[9]See Henderson and Quandt, 206-212; Nicholson, Chap. 21; Stigler, 221-233; and Varian, 98-103.

[10]Specifically, Seller's ability to raise its price above Buyer's maximum willingness to pay generates the efficient breach.

[11]In setting a fixed market price "P*" upon its entire output, the monopolist guarantees that no buyer willing to pay a price above P* will contest the distribution of the good. Thus, the monopolist precludes the need for contracts in exacting its price and no opportunity for breach should arise as all interested buyers receive the firm's product.

[12]*Arbitrage* refers to the practice of buying goods for a low price and selling those same goods at a higher price. Jochen E. M. Wilhelm, *Lecture Notes in Economics and Mathematical Systems: Arbitrage Theory* (Berlin: Springer-

(4) Monopsony

Monopsonized industries mirror markets controlled by monopolies: hence, monopsony assumes that a large number of small, independent sellers produce a homogenous product and maximize profits in a price taking manner, reflected by an upward sloping market supply curve. A single buyer then seeks a utility maximizing price/output combination upon the market supply curve and maintains its monopsony position in the long run through the maintenance of buyer integration.[13] Like the monopolistic seller, a monopsonistic buyer acts as a price searcher in setting output at the intersection of its marginal expenditure and demand curves then extracting the lowest possible price off the market supply curve.

True monopsonies are possible only in isolated cases where sellers have no access to substitute buyers and act as

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Verlag, 1985), 40. Efficient breach fits this definition through legal requirements of reparation to injured parties, for the party in breach essentially purchases the subject matter of the original contract from the breachee through the payment of damages to accrue the windfall available from trade with an alternative source.

[13]Large employers offer the main example of monopsony power within the United States, reflecting the ability to pick and choose among many prospective employees. See Ronald G. Ehrenberg and Robert S. Smith, *Modern Labor Economics: Theory and Public Policy,* 5th ed. (New York: HarperCollins College Publishers, 1994), 413-427. However, monopsony power exists within product markets as well, as evidenced by the formation of consumer unions through informal and political outlets. For discussion, see Stigler, 216-218; Henderson and Quandt, 190-192; Nicholson, 724-729; and Varian, 103-105.

price takers due to small size and product homogeneity.[14] However, reality dictates that monopsony power often exists in the marketplace, whereby large buyers seek to exact low prices from the sellers in an industry.[15] From a non-static perspective,[16] this action could generate efficient breaches through manifestations of arbitrage-based behavior by buyers with monopsony power. Thus, chapter V, section (B) considers the relevance of monopsony power to the theory of efficient breach by focusing upon the capacity of the monopsonist to behave as an arbitrageur through breaches of contract.

(5) Bilateral Monopoly[17]

In its definitional state, a bilateral monopoly arises when a pure monopolist transacts with a pure monopsonist in

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[14]One author has asserted that secondary workers in the coal mining industry faced such power during the great depression; see Lawrence Boyd, "The Economics of the Coal Company Town: Institutional Relationships, Monopsony and Distributional Conflicts in American Coal Towns" (Ph.D. diss., West Virginia University, 1993).

[15]For examples pertaining to agricultural markets, see Richard Rogers and Richard Sexton, "Assessing the Importance of Oligopsony Power in Agricultural Markets," *American Journal of Agricultural Economics* 76, no. 5 (1994): 1143.

[16]If the monopsonist establishes a static price upon the entire output, there exists no reason for contracting nor a reason to breach as the buyer's determination of price and output precludes sellers with marginal costs at or below the price from contesting the result.

[17]The discussion herein arises from Nicholson, 729-730; and Henderson and Quandt, 222-226 and 296.

the marketplace. Three outcomes potentially arise from this arrangement. First, the parties could refuse to cooperate such that no trade occurs. Second, one party might use leverage to force the other party to accept an equilibrium favorable to the leveraged party. Third, both parties may agree to cooperate and jointly divide the gains from trade. However, these solutions extend beyond the singular buyer and seller, for numerous market participants could achieve identical results given collusion[18] or aggressive behavior against market rivals.[19] Such conduct clearly impacts upon efficient breach theory, as suspected by several of the authors included in the discussion of chapter II.[20]

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[18]Henderson and Quandt, 225-226.

[19]Specifically, if several sellers of roughly equal size engage in fierce competition, each may behave as a price taker in the short run. See Harold Demsetz, "Why Regulate Utilities?," *Journal of Law and Economics* 11 (1968): 55. If several buyers emulate this example, the result would approximate the competitive equilibrium. It is also possible that one side of the market would collude while the other competes, making the monopolistic or monopsonistic equilibria possible. Finally, both sides of the market could collude and refuse to trade, as exemplified in labor markets by the existence of strikes.

[20]Note that a windfall-based breach cannot arise under pure bilateral monopoly due to the lack of alternative contracting parties. However, interactions among several buyers and sellers with market power add a dynamic to the model which supports efficient breach (see chapter VI). Many of the surveyed authors touch upon this issue. See Goetz and Scott, 588-593 (monopoly power invalidates the efficiency of stipulated damage awards); Cooter and Eisenberg, 1459-1468

From a static perspective, efficient breach theory fails under all of these potential equilibria as the market participants' myopic behavior concerning profit and utility maximization prevents deviations from the price and output combinations designated therefrom. This outcome is absurd, however, for the parties' ability to negotiate must create opportunities for the market to move toward the competitive equilibrium through the operation of incentives to maximize profit and utility. This process is game theoretic in nature, as discussed within the analyses of chapter VI.

(6) Efficiency Considerations

The efficiency of the various market structures may be summarized as follows. First, perfect competition yields productive, allocative and pareto efficiency for the market and its participants.[21] Second, pure competition reflects an

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(expectancy damages are superior to reliance damages under conditions of imperfect competition); Aghion and Bolton, 391-392 (incumbent seller and buyer collude as a non-discriminating monopolist against future entrant sellers) and 396-398 (long-term contracts between incumbent sellers and individual buyers allow those sellers to discriminate against other buyers); and Spier and Whinston, 188-192 (if entrant sellers may behave strategically, *ex ante* expectancy damages provide the only efficient contractual relief). For a critique of these propositions, see section (C), *infra*.

[21]*Efficiency in production* arises because perfectly competitive firms produce at the minimums of their average cost curves. *Allocative efficiency* arises because those firms collectively produce the highest feasible market

inefficient form of perfect competition, for the presence of costly transactions and imperfect information mandates that such markets sell fewer goods at a higher price than would perfectly competitive markets and concurrently generate a smaller social surplus.[22] Third, the existence of monopoly or monopsony power induces putative allocative, productive, and pareto inefficiency.[23] Finally, the various equilibria of bilateral monopoly generate efficiency results comparable to those of competition, monopoly and monopsony.

The efficiency characteristics of the different market environments suggest that the potential for efficient breach depends upon the possession of market power by the breaching party.[24] Specifically, price taking behavior is sufficient

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output at the lowest possible price. *Pareto efficiency* also results, as the entirety of the available social surplus converts to rents (thus, no party may gain welfare without making a different party worse off, ceteris paribus).

[22]Higher transactions costs shift the firms' marginal and average cost curves up, resulting in higher prices for the good traded; similarly, the market supply curve would shift further left due to higher seller costs and (perhaps) greater seller exodus, reducing the available transactions space and causing a societal welfare loss.

[23]Both market structures perpetuate a sub-competitive output, reflecting allocative inefficiency. Further, neither structure encourages production at the minimums of firms' average cost curves, promoting productive inefficiency. Finally, both structures generate a deadweight loss of social welfare, reflecting a pareto inefficient state.

[24]In the case of a seller, market power equates to the ability to raise price above marginal cost; conversely, the

to negate the potential for an efficient breach because of the breaching party's inability to improve upon the surplus generated under the original contract,[25] while industries characterized by market power have the potential to improve efficiency through the use of pricing variances designed to accrue additional profits to the breaching party.[26] This observation exemplifies the value of industrial organization

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ability to purchase goods at prices below a buyer's demand curve reflects that buyer's market power.

[25]Efficient breaches of contract are impossible under perfect competition, as the net welfare effect of a breach performed therein sums to zero; similarly, under conditions of pure competition, positive transactions costs mandate that a breaching party must incur losses including the summed costs incurred by the parties from its breach. For further discussion, see chapter IV, sections (A) and (B).

[26]For example, firms with monopoly power may have the ability to *price discriminate* among various buyer groups, allowing monopolistic industries to gain efficiency near or equal to that of competitive markets. Price discrimination refers to charging different buyers different prices for different units of identical goods or services without cost justification. This practice requires the firm to organize buyers into groups according to differing price elasticities of demand, keep buyers within their respective groups and prevent arbitrage (see note 12, *infra*) among those groups. Absent transactions costs, a monopolist may *perfectly* price discriminate along the market demand curve, allowing that firm to produce at the competitive output while converting the entire consumer surplus into profit. The efficiency of this result equals that of perfect competition from pareto and allocative perspectives, though productive efficiency generally suffers unless the condition $MC \cap AC \cap D$ holds. See Becker, 102-105; Nicholson, 619-627; Henderson and Quandt, 182-185; Stigler, 210-211; and Varian, 84-85.

to the theory of efficient breach, for the ability to breach efficiently arises from the breacher's capacity to act as an arbitrageur within legal constraints.[27]

(B) Remedy Selection Within Industrial Organization Theory

In deference to the analyses of chapters I and II, an understanding of microeconomic principles allows for a clear appraisal of the theory of efficient breach: *the theory cannot survive from a static perspective, regardless of the market structure involved.* This does not imply that remedies for contractual breach equate under all industrial classes, as divergences emerge among stipulated, statutory and common law forms of relief due to relaxation of the assumptions of costless transactions, perfect information and price taking agents. Since chapter II, section (D)(5) discussed the many remedies under static perfectly competitive conditions, this section contrasts those remedies within static purely and imperfectly competitive environments. The section concludes

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[27]Classical efficient breach theory therefore acts to reserve arbitrage profits to the breaching party, for the compensation principle caps damage awards by the expectancy interest. This enhances the ability of monopolists to price discriminate, for the prevention of arbitrage among demand groups assists in the conversion of consumer surplus into profits for the firm. Chapter VII discusses the positive and normative implications of this effect, as guided by the principles of industrial organization discussed herein, the rules governing contract damages, the literature scrutinized in chapter II, and the analyses of chapters IV, V and VI.

by discussing potential combinations of these remedies as sanctioned by economic principles, the surveyed literature and the directives of the common law.

(1) Pure Competition

Relaxation of the assumptions of perfect information and costless transactions mandates that breach victims incur losses beyond those protected by general expectancy damages. If buyers and sellers act as price takers, awards under the theories of general expectancy and reliance equate, but are insufficient to compensate injured parties for the secondary losses of a breach.[28] Awards of specific performance equal the general expectancy interest,[29] while restitution offers no compensation for breach victims.[30] Thus, an additional legal remedy must combine with awards of general expectancy,

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[28]Assuming that contractual formation occurs after the determination of a market clearing equilibrium, expectancy and reliance damages should equal the lost opportunity costs incurred during the breach victim's search for equivalent substitute performance.

[29]Although the transactions costs associated with an award of specific performance may fall below those of legal remedies, the assumptions of pure competition effectively nullify the cooperative advantage of specific performance as the contractual breach creates no additional welfare for the parties to bargain for.

[30]Awards of restitution equate to zero, for the market structure provides no reason for investing in contracts (due to product homogeneity) nor means for profitably breaching (due to the static price-taking behavior of market agents).

reliance or specific performance to protect the breachee's total expectancy interest: *consequential damages*.[31]

Statutory provisions could provide for consequential damage awards equivalent to the special expectancy interest, though the remedial scope might not extend to all parties under every situation.[32] Liquidated damages may also provide equal compensation under pure competition, though imperfect information casts doubt upon the accuracy of such awards.[33] However, judicial acceptance of liquidated provisions relies upon a comparison of those provisions against the expectancy interest, which specifically perceives consequential losses within its computation. Thus, it follows that breach victims may find sufficient relief from any award that covers their special expectancy interest, though the amount of the award may differ given the underlying theory of compensation.[34]

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[31]The analysis of chapter II, section (D)(5) suggests that consequential relief combined with general expectancy or reliance damages exceeds that given an award of specific performance because the breach victim must find substitute performance under the legal forms of relief.

[32]Compare *Uniform Commercial Code* §§ 2-715 and 2-710 (breaches by sellers give rise to consequential damages, but breaches by buyers do not).

[33]Compare Barton, 286-287 (supports liquidated damages given perfect information) with Goetz and Scott, 558, 570-578 (suggest the value of stipulation given imperfect market information). Note that imperfect information may increase judicial enthusiasm toward these awards. Dobbs, 3:§ 12.9(2).

[34]This assumes that awards of consequential damages combine with other forms of relief; then, consequential

(2) Imperfect Competition

The introduction of market power greatly affects the comparative efficiency of contractual remedies in the event of a breach. Assuming perfect information and costless transactions, awards of specific performance or of statutory or expectancy damages uniquely protect the total expectancy interest; awards of reliance damages or of restitution under unjust enrichment fall below this amount,[35] while liquidated damages and awards of restitutive disgorgement provide no guarantee of equivalent compensation.[36] Relaxation of the information and cost assumptions further separates the efficiency of the various awards, for only a joint award of special and general expectancy damages guarantees protection of the expectancy interest under such circumstances.[37]

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damages will equate under reliance, expectancy or available forms of statutory relief. Smaller awards should arise given specific performance or liquidated remedies, for such awards reduce the transactions costs associated with the breach.

[35]Reliance guarantees only the opportunity costs of specific investments made in the original contract, which fall below expectancy if the victim of the breach has market power. Unjust enrichment falls below the reliance measure, as the breach victim receives compensation only for specific contractual investments paid to the breaching party.

[36]Liquidated damages are suspect due to the presence of market power. Goetz and Scott, 558-593; and Craswell, 637-640. Disgorgement is also suspect due to its removal from the actual harm received by the breach victim.

[37]Statutory damages such as those provided under the Uniform Commercial Code do not guarantee equivalent relief for sellers due to unavailability of consequential damages. Reliance damages would also undercompensate the victim of

(3) Potential Combinations of Contractual Remedies

Table 2

Mitigated Value of Contractual Remedies Under Static Purely and Imperfectly Competitive Market Conditions

Type of Award	Pure Competition	Imperfect Competition (No transactions costs & perfect information)	Imperfect Competition (Transactions costs & imperfect information)
Expectancy Damages (General Expectancy Damages)	Lost opportunity costs incurred by breachee's search for equivalent substitute performance	Lost expected welfare in the original contract less the opportunity costs of that contract	Lost expected welfare in the original contract less the value of substitute performance
Consequential Damages (Special Expectancy Damages)	Secondary losses above lost opportunity costs incurred due to breach	Zero (due to costless transactions and perfect information)	Secondary losses beyond lost expectancy in the original contract
Reliance Damages	Lost opportunity costs incurred by breachee's search for equivalent substitute performance	Opportunity costs of investments made in the original contract	Opportunity costs of investments plus those lost during search for substitute performance
Restitution (Unjust Enrichment)	Zero (no incentive for contractual investment)	Specific contractual investments paid to the breaching party	Specific contractual investments paid to the breaching party
Restitution (Disgorgement)	Zero (no opportunity for profitable breach)	The breacher's profits from its breach	The breacher's profits from its breach
Specific Performance	Equivalent relief to that awarded under general expectancy damages	Equivalent relief to that awarded under general expectancy damages	Equivalent relief to that awarded under general expectancy damages
Liquidated Damages (Stipulated Damages)	May equate to the total expectancy interest if imperfect information does not interfere	May equal the total expectancy interest if market power does not interfere	Unlikely to protect expectancy given market power and imperfect information
Statutory Damages under the Uniform Commercial Code	Equals the general/total expectancy interests of sellers/buyers, respectively	Fully protects the total expectancy interest of sellers & buyers due to costless transactions	Equals the general/total expectancy interests of sellers/buyers, respectively

breach if that victim possessed market power. Liquidated remedies are unreliable given the presence of market power. Specific performance would protect the general expectancy interest, but would not cover consequential losses. Finally, restitution provides no guarantee of equivalent compensation given its detachment from the harm suffered from the breach.

The analysis of chapter II, section (D)(5) established that the net effect of all contract remedies equates to zero under static perfectly competitive conditions. Table two summarizes the discussion of this section, reflecting that relaxation of the assumptions of perfect competition causes divergences to emerge among those remedies. The table shows that under imperfect competition, awards of expectancy and reliance damages assume that the breach *victim* has market power, while awards of restitution assume that such power vests in the *breaching party*.[38]

The Holmesian compensation principle dictates that joint awards of contractual damages should not exceed those protecting the expectancy interest of the injured party; the discourse of this chapter indicates that (under all market structures) the protection of that interest equates to the traditional measure of general expectancy damages when information is perfect and transactions are costless, or the sum of general and special expectancy damages given costly transactions and imperfect information. However, alternative combinations to these measures may exist, depending upon the assumptions underlying the various market structures. Table three depicts this possibility, indicating combinations of

[38]Otherwise, these remedies equal those under pure or perfect competition, depending on the presence of perfect information and costless transactions.

contract remedies which roughly equal (=), fall below (<) or exceed (>) the expectancy interest under conditions of pure competition, imperfect competition with perfect information and no transactions costs, and imperfect competition with imperfect information and positive transactions costs.[39]

Table 3

Combined Remedies Under Pure Competition, Imperfect Competition With Perfect Information and Zero Transactions Costs, and Imperfect Competition With Imperfect Information and Positive Transactions Costs

	General Expect.	Special Expect.	Reliance Damgs	Unjust Enrich.	Disgorge-ment	Specific Perform.	Liquid. Damgs	Statut. Damgs
General Expect.		=,=,=		<,≥,≤	<,≥,?			
Special Expect.			=,<,<	<,<,<	<,?,?	=,=,=		
Reliance Damgs					=,?,?			
Unjust Enrich.					<,?,?	<,≥,≤		
Disgorge-ment						=,≥,?		
Specific Perform.								
Liquid. Damgs								
Statutory Damgs								

[39]Note that the analysis excludes perfect competition, as all contractual remedies equate therein.

As an upward triangular matrix, table three "blacks out" those combinations which are innately overcompensatory or duplicative; furthermore, the table uses the symbol (?) to indicate joint awards which could either overcompensate or undercompensate the interests of the breach victim.

Table three demonstrates that *none* of the combinations of remedies are overcompensatory by their inherent nature. However, special attention directs toward those combinations which *could* equal the expectancy interest under all market conditions: consequential damages and specific performance, disgorgement and specific performance, and reliance combined with disgorgement. Thomas Ulen implicitly considered the first of these combinations by noting that the transactions costs associated with specific performance fall below those of legal remedies.[40] The second and third alternatives fail only if the breaching party *adds to the welfare generated by the original contract*; this phenomenon is a prerequisite for efficient breach, indicating that the expectancy interest is superior in promoting efficient breach theory as defined by the common law and the existing body of literature.

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[40]Therefore, it follows that the secondary losses from a breach fall below those of pure expectancy protection. However, Ulen assumed that cooperative bargaining induces this result, thereby generating efficient breach of contract through the settlement of the parties. Ulen, "The Efficiency of Specific Performance," 358-366.

As the analyses of chapters IV, V and VI demonstrate, a presumption of the pareto superiority of joint awards of general expectancy and consequential damages follows the study of efficient breach into the domain of non-static models based upon industrial organization. However, certain flaws in the surveyed literature complicate this transition; specifically, many of the analyses conducted therein ignore the relevance of market power to efficient breach theory or are otherwise inconsistent in applying the various contract remedies within specific industrial environments. The next section discusses these errors in a manner designed to aid the evolution of non-static studies of efficient breach.

(C) Inconsistencies Within the Existing Literature

Conjoined with the subsequent analyses of chapter IV, sections (A) and (B),[41] the discussion of this chapter hints at two limitations upon the assumptive welfare gains accrued through efficient breach theory. First, the theory functions through the exercise of a breacher's market power. Second, the theory applies only in non-static market environments. These observations contradict several of the conclusions cited by the relevant literature, as discussed within the remainder of this section.

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[41]As discussed previously, these sections demonstrate that windfall-based efficient breaches cannot arise under non-static conditions of perfect or pure competition.

Academic reliance upon the principles of the perfectly competitive market structure arose prior to the analysis of the theory of efficient breach and continues within modern treatments of the topic; specifically, the analyses of many of the authors discussed in chapter II depend in part or in whole upon the assumptions of price taking agents,[42] perfect information[43] or costless transactions.[44] Such observations are superior to those which entirely ignore the significance of market structure to the theory of efficient breach,[45] but are trivial when viewed from the perspective that windfall-based breaches are impossible under perfectly competitive conditions. This assertion does not imply ignorance on the

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[42]See Fuller and Perdue, 62; Cooter and Eisenberg, 1445; Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 286 (reliance and expectancy damages equate under perfect competition); and Spier and Whinston, 186-188 (stipulated damages promote efficient breach as well as any other remedy under perfect competition).

[43]See Barton, 286-287 (liquidated clauses must always be upheld given perfect information); Goetz and Scott, 578 (absent bargaining asymmetries, stipulated clauses should be strictly enforced); Diamond and Maskin, 293 (liquidated and legal remedies are equivalent given perfect information); and Craswell, 646-656 (only perfect information guarantees efficient levels of precaution against and selection for breaches of contract).

[44]Macneil, 951-957 (absent transactions costs, awards of specific performance generate efficient breaches).

[45]See Birmingham, "Damage Measures and Economic Rationality: The Geometry of Contract Law" (a discussion based solely upon the principles of pareto efficiency as defined within an Edgeworth Box analysis).

part of the authors pontificating their views. However, *none* of the surveyed works explicitly recognize the relevance of market power to efficient breach theory, despite significant efforts aimed at showing the consequence of market power,[46] informational inadequacies[47] and transactions costs[48] on the efficiency of the damage theories relevant to contract law.

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[46]See Cooter and Eisenberg, 1451 (expectancy damages exceed those under reliance under imperfect competition and are then solely capable of promoting ef:ciency); Diamond and Maskin, 294; Aghion and Bolton, 389-392 (liquidated damage clauses create monopoly power); and Spier and Whinston, 188-192 (given monopoly power, only expectancy damages computed *ex ante* a breach promote efficiency).

[47]See Diamond and Maskin, 308 (given imperfect information concerning the value of contractual matches, only legal compensatory damages support efficient breach); and Shavell, 472 (given asymmetric information, expectancy is pareto superior to reliance but cannot support efficient breach and efficient reliance simultaneously).

[48]See Birmingham, "Breach of Contract, Damage Measures and Economic Efficiency," 286; Ulen, "The Efficiency of Specific Performance," 358-363 (given costly transactions, expectancy damages are undercompensatory but are superior to reliance damages); Craswell, 632-633 (the most efficient remedy is that which minimizes transactions costs while maximizing the parties' welfare); Goetz and Scott, 559 and 578 (stipulated damage clauses reflect the parties' desire to minimize transactions costs and must be strictly enforced as reducing the transactions costs associated with breach); Ulen, "The Efficiency of Specific Performance," 358-363 (awards of specific performance minimize transactions costs by promoting cooperative bargaining); Friedmann, 6-7 (the theory of efficient breach increases transactions costs by forcing litigation); and Smith, 133-134 (efficient breach theory assumes the Coase Theorem, which fails due to its assumption of costless transactions).

Failure to recognize the non-static nature of the efficient breach phenomenon attributes primarily to the legal community, which seems to lack the requisite skills needed for such analyses.[49] However, the economic community also slighted the analysis of non-static breach by ignoring the value of secondary contractual interests such as those protected by consequential damages.[50] Joined with oversights concerning the relation of market power to efficient breach, much of the relevant literature offers conclusions which are discrepant with the theories of this paper.[51] The following chapters therefore embellish this literature by developing non-static models designed to explain efficient breach in a manner consistent with industrial organization.

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[49]Such inquiries generally rely upon complicated game theoretic models; see chapter II, section (B).

[50]Spier and Whinston offer the best example of this omission, asserting that expectancy damages computed *ex ante* a breach promote efficiency. Spier and Whinston, 188-192. For a more subtle example, see Chung, 440-441 (compensatory damages support efficient breach, but are incapable of recovering the sunk costs of specific investments).

[51]Some authors posit that monopoly power invalidates the efficiency of liquidated damage provisions; this point is moot, for efficient breaches are impossible without the existence of market power. Goetz and Scott, 588-593. Other works suggest that liquidated damage clauses *create* market power, without suggesting that such power is integral to the operation of efficient breach theory. Diamond and Maskin, 294; and Aghion and Bolton, 389-392.

(D) Toward Non-Static Models of Efficient Breach

The discourse of this chapter viewed efficient breach theory through the principles of industrial organization and identified several problems within the surveyed literature on that basis. Combined with the analyses of the prior two chapters, six conclusions emerge. First, the common law does not sanction duplicative awards for breaches of contract and perceives the joint payment of expectancy and consequential damages as full indemnity of a breach victim's rights under the Holmesian compensation principle. Second, other remedies should not provide relief above that under the compensation principle, for the incentives of efficient breach may vanish given such awards. Third, market structure determines which remedies satisfy this principle, although expectancy and consequential damages always attain this end. Fourth, market power is an essential element to efficient breach, evidenced by the windfall example posed at the outset of this paper. Fifth, breaches of contract should never occur given static market conditions, as fixed prices eliminate the need for contracting and the incentive to breach. Sixth, the need for the further development of non-static approaches to the efficient breach issue therefore exists, based upon the principles of industrial organization and the assumption that joint awards of consequential and expectancy damages best fulfill the compensation principle.

The most constrictive assumption of static analyses concerns the price of the good traded. The inability of a breaching party to vary its price prevents arbitrage, thus precluding the need to contract and the ability to breach efficiently. The following chapters therefore observe the motivation of the windfall example by allowing market prices to vary after contract formation but before the completion of contractual performance. However, the relevance of market power is *not* presumed therein, for the literature has yet to remove non-static analysis of competitive market structures from the study of efficient breach. In compliance with the Holmesian compensation principle, calculations of expectancy damages and the expectancy interest equal those sanctioned by the common law.[52] Account for consequential damages also occurs when relevant, as does reference to alternative forms of contractual relief.

Chapter IV considers the possibility of price-based contractual breaches under competitive conditions. Although efficient breaches cannot arise under such circumstances, alternative remedial combinations may *perfectly* comply with

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[52]Specifically, the following chapters use equations which resemble expectancy as defined by the substitute-price and lost-surplus formulas. Cooter and Eisenberg, 1439-1440. Note that this paper assumes that the lost-surplus formula represents the expectancy interest, while the substitute-price formula defines general expectancy damages.

the compensation principle, given that no deductions for the breaching party's transactions costs attach to a victim's award and that courts do not err in assessing contractual damage claims. Analyses therein assume that no investments arise in contracts beyond opportunity costs,[53] allowing for separation of reliance damages and restitution as distinct remedies.[54] The conclusions of that chapter therefore close discussions of efficient breach with respect to competitive markets, as the assumption of price taking agents prevents windfall-seeking welfare gains from contractual breach.[55]

Chapters V and VI respectively explore the dynamics of efficient breach under conditions of one-sided and two-sided market power. The corollaries generated from these analyses demonstrate that although market power is imperative to the

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[53]Measurement of reliance damages therefore equals the opportunity cost formula specified by Cooter and Eisenberg. Ibid., 1440-1441 and 1448.

[54]Contractual investments are perceivable as either unjust enrichment to the breaching party or as expenditures in reliance of the contract, depending upon who receives the benefits of those investments. The analyses of chapter IV avoid this problem by assuming that reliance damages measure only opportunity costs, while restitution measures only the disgorgement of profits obtained from a breach.

[55]Some might argue that the results of this approach are obvious; however, the existing literature relevant to efficient breach theory has yet to remove the discussion of competition from its analysis, indicating the need for the discussion of chapter IV as a progressive step toward the application of the principles of industrial organization to efficient breach theory.

ability to breach efficiently, other assumptions must hold for the theory to operate properly.[56] This premise leads to an elusive conclusion generally unconsidered by the relevant literature: *the theory of efficient breach survives from a transactional perspective, but may fail when viewed from the perspective of alternative market opportunities.*[57] Chapter VII therefore reviews the theory from positive and normative viewpoints, culminating in an appraisal of efficient breach from the contexts of the compensation principle, alternative damage awards and the use and/or abuse of market power.

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[56]For example, the breacher must hold an absolute cost advantage over all other potential market agents (including the breachee) for the breach to generate pareto efficiency through an increased social surplus.

[57]This does not imply that the relevant literature ignored the issue entirely; for example, consider the game theoretic analyses discussed in chapter II, section (B), which considered the possibility of alternative buyers or sellers within their analyses. See also Richard A. Posner, *Economic Analysis of the Law*, 4th ed. (Boston: Little, Brown & Company, 1992), § 4.8; and Cooter and Ulen, 289-292 (note that efficiency equal to that under efficient breach occurs if the would-be breachee can resell the subject matter of the contract to a would-be interloper under conditions of costless transactions). Such perceptions lack the generality contained herein, however, as they fail to simultaneously consider the relevance of all participants in the market to the theory under the realistic assumptions of imperfect competition, imperfect information and costly transactions.

CHAPTER IV

A NON-STATIC ECONOMIC MODEL: BREACH OF AN INSTALLMENT CONTRACT UNDER CONDITIONS OF PERFECT AND PURE COMPETITION

The analyses of this chapter focus upon the results a pre-performance change in the price of some homogenous good "G" will have upon contracting parties' decisions to breach. The chapter assumes that an installment contract of finite length "N" measured over time "t" arises among Buyer and Seller for the sale of "G" within a perfectly or purely competitive market environment. The unit price of "G" is set for the life of the contract at "P_k", an amount equal to the competitive price at the point of contract formation ($t=0$).[1] The contract specifies that Seller will provide and Buyer will purchase "X" units of "G" in each discrete time period covered by the contract ($t \in [0,N]$). Seller pays some constant marginal cost "C" in producing "G", where "C" is inclusive of all accounting costs incurred by Seller.[2] Buyer values

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[1]From a pragmatic standpoint, this assumption mandates that the parties will share the risk of price changes in the market for "G" over the life of the contract.

[2]Since the market for "G" is assumptively competitive, Seller's opportunity costs in period $t=0$ equal $(P_k - C)X_0$; consequently, the profit made under the contract in each period (ceteris paribus) will correspond to this amount.

each unit of "G" at some maximum amount "V" and is party to the contract conditional upon $P_k \le V$.[3] For simplicity, the assumption of a null interest rate persists throughout the life of the contract.[4]

The following equations reflect the benefits of Seller and Buyer for the life of the hypothetical contract:

$$(4.1)\ \text{Seller's Benefits: } \sum_{t=0}^{N}(P_k - C)X_t\,,$$

$$(4.2)\ \text{Buyer's benefits: } \sum_{t=0}^{N}(V - P_k)X_t\,.$$

Absent a change in market conditions during the contract, neither party will have the incentive to breach due to the static nature of the environment. The social surplus from the contract then sums to the value of equation (4.3):

$$\sum_{t=0}^{N}(P_k - C)X_t + \sum_{t=0}^{N}(V - P_k)X_t \Rightarrow \quad (4.3)\ \sum_{t=0}^{N}(V - C)X_t\,.$$

However, relaxation of ceteris paribus with respect to the market price of "G" during the life of the contract may give one of the two parties the incentive to breach if that price

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[3]Buyer's welfare gain in each contractual period "t" (ceteris paribus) therefore equals the value $(V - P_k)X_t$.

[4]This assumption removes the need for discounting the future value of the contract in the calculations performed within this chapter.

deviates from "P_k".[5] The models herein therefore assume that the market price of the good "G" deviates in some period "b" ($b \in (0,T)$) from the initial contractual price "P_k" to some price "P_b".[6] To preserve mathematical simplicity, the models further assume that the new price "P_b" remains constant for the duration of the contractual period.[7]

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[5]Note that increases in the value of "V" or decreases in the value of "C" would increase the social surplus, but would not perpetuate a breach unless accompanied by a change in the price of the good. However, simultaneous variances in "P_k" and "V" or "C" would not obtain results different from those contained herein, for the assumptions of competition mandate that the aggregate social welfare remains unchanged due to the breach. For further analysis, see note 6, *infra*.

[6]By the assumptions of the competitive marketplace, this new price must fall within the range $P_b \in [C,V]$ for the industry to survive (prices below "C" force the sellers in the market to leave the industry, whereas prices above "V" force the buyers out of the market). This constraint points to the incompatibility of competitive markets to the theory of efficient breach, as the social surplus cannot increase under conditions such as those described by the hypothetical contract. The results of this chapter therefore enrich the existing literature by ending the application of competitive market structures to efficient breach theory.

[7]This convention conforms with methods for formulating damages under the Uniform Commercial Code. Specifically, see *Uniform Commercial Code*, §§ 2-723 (damages based upon market price use the price of the good at the time the aggrieved party learns of the breach), 2-708(1) (Seller may generally gain as damages the difference between the market price at the time of tender and the contract price from Buyer in the event of Buyer's breach) and 2-713 (Buyer's damages in the event of Seller's breach generally equal the difference between the market price at the time Buyer learns of the breach and the contract price).

The first two sections of this chapter respectively discuss the effects of a breach of the hypothetical contract under perfectly and purely competitive market conditions, focusing upon the changes in societal welfare generated from a breach and the comparison of contractual remedies to the expectancy interest. Evidence of the equality of general expectancy damages to combined remedies of restitution and reliance removes the discussion of competitive markets from the analysis efficient breach.[8] Further, these analyses show that under non-static conditions, reliance and expectancy damages do not equate while efficient breaches cannot arise due to the preclusion of pareto improvements.[9] The final section develops three corollaries which, when compared to the example of windfall-based breach posed as the outset of this paper, demonstrate the necessity of market power to the successful operation of efficient breach theory.

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[8]Since the contract does not require investments from the parties, joint awards of restitution and reliance are not duplicative (unjust enrichment and investment-based reliance equal zero, mandating that recovery under reliance/ restitution equals disgorgement plus losses based on lost opportunity costs). For this reason, discussions of unjust enrichment are omitted from the analyses of this chapter.

[9]These findings directly contradict the conclusions of many of the authors cited in chapter II. Further discussion of the relevance of the inferences drawn herein to efficient breach theory therefore exists in the positive and normative analyses of chapter VII. See also chapter III, section (C), *supra*.

(A) Price Changes Under Perfect Competition

The assumptions of the perfectly competitive market structure greatly simplify the study of contract damages as applied to breach of the hypothetical installment contract. Costless transactions mandate that breach victims will not incur incidental or consequential damages due to the breach. Perfect information guarantees that the victim will procure substitute performance immediately after the breach and will obtain "X" units of good "G" at the new market price "P_b". Finally, the victim's reliance damages from the breach must equate to zero, as substituted performance mitigates against the entirety of the breachee's reliance interest.[10]

(1) Price-Based Incentive For Breach by Seller

Assume that the market price of good "G" increases in period "b" such that $V \geq P_b > P_k$. Since Seller's control over the price of "G" must adhere to the original contract price "P_k", Seller may have the incentive to breach the contract with Buyer in pursuit of the higher profits attainable by selling to a new buyer at the higher market price. However, this assumes that the profits attained by Seller's breach

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[10]Absent the contract, the breach victim would find a different market participant willing to trade good "G" for the market price at the time of the breach "P_b". Since the victim incurs no transaction costs in finding a new agent to trade with immediately subsequent to the breach, the breach effectively places the victim in the position it would realize absent the existence of the original contract.

offset the damages paid to Buyer for its interests in the remainder of the contract. If Seller's post-breach gains exceed Buyer's damages, Seller will breach the contract and pay sufficient damages to compensate Buyer's rights under the contract; conversely, if Buyer's damages exceed or equal Seller's benefits from the breach, Seller will choose to remain in the contract until its natural termination.[11]

Assume that Seller breaches the contract in period "b" to pursue the higher profits associated with the new price "P_b". Buyer's general expectancy interest in the remainder of the contract is then given by

$$(4.4) \quad \sum_{t=b}^{N}(V-P_k)X_t \,.$$

However, the damages paid to Buyer under general expectancy theory will fall below this amount unless the new market price "P_b" equals Buyer's maximum willingness to pay "V".[12] Buyer's general expectation damages therefore equal equation (4.5), which reflects Buyer's general expectancy interest

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[11]The discussion of this section does not necessarily assume full compensation for the value of Buyer's losses; specifically, if a court undervalues Buyer's damages, Seller may unjustly earn positive profits from the breach after paying damages. See Dobbs at 3:§ 12.1(2). However, this does not change the central conclusion of this chapter that such a breach is never efficient within competitive environments.

[12]If $P_b = V$, equation (4.4) equals equation (4.5).

less the value of substituted performance to Buyer procured at the new market price "P_b".[13]

$$\sum_{t=b}^{N}(V-P_k)X_t \quad - \quad \sum_{t=b}^{N}(V-P_b)X_t \quad \Rightarrow \quad (4.5) \quad \sum_{t=b}^{N}(P_b-P_k)X_t$$

In the alternative, Buyer may seek relief through the combined awards of reliance and restitutive disgorgement.[14] Buyer's interest in disgorgement equals Seller's post-breach profits (above those of the original contract) gained during the period $t \in [b,N]$.

$$\sum_{t=b}^{N}(P_b - C)X_t \quad - \quad \sum_{t=b}^{N}(P_k - C)X_t \quad \Rightarrow \quad (4.6) \quad \sum_{t=b}^{N}(P_b - P_k)X_t$$

Since reliance damages equal zero under perfect competition, Buyer's total award under a combined restitution/reliance theory therefore equates to the value of formula (4.6).

It is essential to note that Buyer's damages equate under the theories of compensation represented by formulas (4.5) and (4.6).[15] Thus, Buyer is indifferent between awards

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[13]Note that equation (4.5) also reflects Buyer's *total* expectancy damage award, as consequential losses equal zero.

[14]See Dobbs, 3:§§ 12.3(1) and 12.7(2); and the analysis of chapter III, section (B)(3), *supra*.

[15]Note that Buyer could also gain equivalent relief from awards of statutory damages under §§ 2-712 and 2-713 of the Uniform Commercial Code, awards of liquidated damages (given perfect information), awards of specific performance (which protect the general expectancy interest) and joint

of expectancy damages and combined awards of restitution and reliance; further, Seller is indifferent between breaching the original contract (thus paying damages to Buyer) and performing according to that contract's terms. Societal welfare therefore remains unchanged by Seller's breach, indicating that seller-induced breaches of contract should never arise in non-static perfectly competitive markets.[16]

(2) Price-Based Incentive For Breach by Buyer

Assume the price of "G" decreases in period "b" such that $P_k > P_b \geq C$. Since the original price "P_K" constrains the price Buyer pays for "G", Buyer may have the incentive to breach the contract with Seller in pursuit of the lower price which exists elsewhere in the marketplace. Buyer will breach only if its savings therefrom offset the damages paid to Seller for its interest in the remainder of the contract. If Buyer's savings from the breach exceed Seller's losses,

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awards of specific performance and consequential damages (due to costless transactions). However, a joint award of specific performance and restitution would overcompensate Buyer in this non-static case, for both forms of relief are equivalent to Buyer's general expectancy interest. For a discussion of these remedial options within the context of static market environments, see chapter III, section (B)(3).

[16]These assertions assume that courts do not err in their assessment of Buyer's damages; if courts undervalue Buyer's interests, Seller benefits from its breach and Buyer pursues the theory which yields the highest return. However, Seller's breach will *never* promote social efficiency, as the net change in post-breach social welfare always equals zero.

Buyer will breach the contract and pay damages to compensate Seller's interests; conversely, if Seller's damages equal or exceed Buyer's savings from the breach, Buyer will remain in the contract until its completion.[17]

Assume Buyer breaches the contract in period "b" to gain the savings associated with the price "P_b". Seller's general expectancy interest then equals

$$(4.7) \quad \sum_{t=b}^{N}(P_k - C)X_t \, .$$

Seller's general expectation damages will fall below this amount unless the new price "P_b" equals Seller's marginal cost "C".[18] Equation (4.8) therefore shows Seller's general expectancy damages to equal its general expectancy interest less the value of its post-breach mitigated profits.[19]

$$\sum_{t=b}^{N}(P_k - C)X_t \; - \; \sum_{t=b}^{N}(P_b - C)X_t \;\Rightarrow\; (4.8) \; \sum_{t=b}^{N}(P_k - P_b)X_t$$

Alternatively, Seller may proceed under the theories of restitutive disgorgement and reliance. Disgorgement will

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[17]The analysis herein does not assume full indemnity to Seller for the value of its losses. As in the prior subsection, this does not change the result that a breach is never efficient under non-static competitive circumstances.

[18]If $P_b = C$, equation (4.7) equals equation (4.8).

[19]Note that equation (4.8) also reflects Seller's total expectancy damages (consequential losses equal zero).

equal Buyer's savings from its breach gained over the time period $t \in [b,N]$. Since reliance damages equal zero, Seller's total award under the combined theories of restitution and reliance equates to formula (4.9).

$$\sum_{t=b}^{N}(V-P_b)X_t \quad - \quad \sum_{t=b}^{N}(V-P_k)X_t \quad \Rightarrow \quad (4.9) \quad \sum_{t=b}^{N}(P_k-P_b)X_t$$

Like the results of the prior sub-section, Seller's damages equate under the expectancy and reliance/restitution measures.[20] Parallel assertions therefore hold, for Seller is indifferent between these awards, Buyer is indifferent between breaching the original contract and performing by its terms, and social welfare is unchanged by the breach.[21] These observations, combined with those of the prior sub-section, establish the basis for adjudging the relevance of perfectly competitive markets to efficient breach theory.

(3) Summary: Breaches Under Non-Static Perfect Competition

The prior sub-sections identified a key characteristic of contractual breaches in non-static perfectly competitive

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[20]Seller may therefore gain equivalent relief from statutory damages under § 2-708(1) of the Uniform Commercial Code or from the other remedies discussed in note 15, *supra.*

[21]Again, these assertions assume that courts do not improperly assess Seller's damages. However, Buyer's breach will never be efficient, as the net change in post-breach social welfare always sums to zero.

environments: given a breach by either contracting agent, both participants are indifferent to that breach if legal compensation is perfect. This indicates that *if contractual remedies are perfectly compensatory, a breach will never arise under non-static perfect competition because the breaching party would not profit from its breach.*[22] Further, in cases where legal compensation is imperfect, *the post-breach societal welfare will equal that created under the original contract, as the effect of the breach represents nothing more than a wealth transfer between the parties.*[23]

Joined with the insights of chapter II, section (D)(5) and chapter III, section (A)(1), the observations of this section support three positive conclusions. First, a breach of contract is never efficient under perfect competition, for no welfare benefits can accrue from that breach. Second, contractual breaches do not occur in perfectly competitive markets unless judicial error is present. Third, the study of perfectly competitive market structures is irrelevant to efficient breach theory. Normatively, it follows that courts

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[22]Recall that the analyses of this chapter seek to demonstrate the inapplicability of efficient breach theory to non-static competitive market conditions; the assertion is otherwise moot, for there is no need to form contracts within perfectly competitive environments due to assumptions of costless transactions and perfect information.

[23]This statement assumes that Buyer's and Seller's marginal utility of income are equal.

should not apply efficient breach theory to cases involving perfectly competitive markets. Courts perceiving a breach to be "efficient" within such environments must recognize their interpretation as error, reflecting an undervaluation of the interests of the breachee by the damage awards formulated.[24]

(B) Price Changes Under Pure Competition

The following sub-sections relax the assumptions of costless transactions and perfect information. Assumptively, information is imperfect only to the extent that the parties encounter difficulty in finding substitute performance after a breach; the breach victim therefore secures alternative performance at the price "P_b" in some period "b+s", where $s \geq 0$ and $b+s \leq N$.[25] Similarly, the presence of transactions costs may cause the parties to incur losses above those perceived by general expectancy measures, creating the need

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[24]The analyses of the preceding sub-sections confirm that the sum of restitution and reliance damages equals expectation damages under perfect competition. Therefore, courts may double-check the accuracy of a damage award in the event of a perceived "efficient" breach under perfect competition. Should both awards be insufficient to correct for the breacher's windfall, the court must question the accuracy of its damage award or, conversely, whether the market in question is truly perfectly competitive.

[25]Given that "s" equals the number of periods Buyer requires to find a new seller, the condition $b+s \leq N$ must hold to limit Buyer's expectancy damages to those arising during the life of the original contract.

for awards of consequential and/or incidental damages to compensate the non-breaching party fully.[26]

(1) Price-Based Incentive For Breach by Seller

Assume that the market price of good "G" increases in period "b" in a manner identical to that described in sub-section (A)(1). If Seller breaches the contract to pursue higher profits through the new market price "P_b", Buyer's general expectancy interest in the remainder of the contract equals that described earlier by equation (4.4). However, computation of Buyer's general expectation damages differs from that of equation (4.5) due to imperfect information and costly transactions. Formula (4.10) therefore shows Buyer's general expectancy damages to equal equation (4.5) less the value of substituted performance secured in period "b+s".

$$\sum_{t=b}^{N}(V-P_k)X_t - \sum_{t=b+s}^{N}(V-P_b)X_t \Rightarrow \quad (4.10) \quad \sum_{t=b}^{t=b+s}(V-P_k)X_t + \sum_{t=b+s}^{N}(P_b-P_k)X_t$$

The addition of Buyer's consequential losses "CL" to this equation yields Buyer's total expectation damages.

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[26]Note that imperfect information may also generate consequential or incidental losses; for example, Seller might incur incidental losses from a breach by Buyer if good "G" is perishable, Seller prepares an order for Buyer before Buyer's breach and Seller is unable to find another buyer prior to the spoilage of the goods. See *Uniform Commercial Code*, §§ 2-710 and 2-715.

$$(4.11)\quad \sum_{t=b}^{t=b+s}(V-P_k)X_t \; + \; \sum_{t=b+s}^{N}(P_b-P_k)X_t \; + \; CL \;\Big|_{CL\geq 0}$$

Buyer's award under reliance/restitution equals its *general* expectancy damages. Buyer's reliance damages equate to the opportunity costs it incurs after the breach up to the period where substitute performance occurs, as measured against the market price at the time of the breach.[27]

$$(4.12)\quad \sum_{t=b}^{t=b+s}(V-P_b)X_t$$

Equation (4.6) reflects Seller's profits from the breach. Thus, Buyer's damages under a combined theory of reliance and restitutive disgorgement equals

$$\sum_{t=b}^{t=b+s}(V-P_b)X_t+\sum_{t=b}^{N}(P_b-P_k)X_t \;=\; \sum_{t=b}^{t=b+s}(V-P_b)X_t+\sum_{t=b}^{t=b+s}(P_b-P_k)X_t+\sum_{t=b+s}^{N}(P_b-P_k)X_t \;\Rightarrow$$

$$\sum_{t=b}^{t=b+s}(V-P_k)X_t+\sum_{t=b+s}^{N}(P_b-P_k)X_t\,.$$

Note that the addition of special expectancy damages to this award equals the value of Buyer's *total* expectancy damages.

The results of this analysis differ significantly from those of section (A)(1). Under pure competition, Buyer is

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[27]Since Buyer relied upon Seller's promise to perform under the terms of the contract, Buyer should recover the welfare loss (presumptively) gained absent the contract.

not indifferent between awards of expectation and reliance/ restitution unless consequential losses attach to the latter valuation of relief.[28] Seller always prefers performance of the original contract to the breach of that contract with full payment of damages to Buyer.[29] Finally, Seller's breach decreases societal welfare by an amount equal to the sum of Buyer's opportunity costs incurred during its search period, Buyer's consequential losses caused by the breach, and the joint transaction costs accrued by Buyer and Seller in

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[28]Buyer clearly prefers expectancy damages to those of reliance/restitution if the latter claim does not include consequential losses of positive value. However, Buyer might pursue alternative remedies which could equal or better total expectancy damages under the common law. Awards of statutory damages could make Buyer better off through the addition of *incidental damages* (awards compensating specific transactions costs incurred from a breach) to Buyer's total expectancy award; see *Uniform Commercial Code*, §§ 2-712 (protects Buyer's general expectancy interest), 2-715(2) (protects Buyer's special expectancy interest) and 2-715(2) (allows Buyer to recover incidental damages). Conversely, an award of specific performance would supply relief equivalent to general expectancy damages; hence, mixtures of specific performance and consequential damages equal Buyer's total expectancy damages under the common law. Note that awards of stipulated damages or combinations of specific performance and restitutive disgorgement may not be available to Buyer (liquidated clauses may overcompensate Buyer given imperfect information, while joint remedies of specific performance and restitution would duplicate general expectancy damages).

[29]Comparison of equation (4.6) to (4.11) reveals that Buyer's losses from the breach will exceed Seller's gains by the value of Buyer's lost opportunity costs plus its special expectancy damages.

obtaining new contracts.[30] These results concur with those of section (A)(1) by supporting the premise that a seller's

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[30] *Proof of observations concerning Seller's preference for performance and society's loss from breach*: Societal welfare under the new contract as measured against the remainder of the initial contract exists on $t \in [b,N]$ as

$$(4.3') \quad \sum_{t=b}^{N}(V-C)X_t .$$

Equation (4.11) reflects damages sufficient to place Buyer in its post-contractual state under pure competition:

$$(4.11) \quad \sum_{t=b}^{t=b+s}(V-P_k)X_t \; + \; \sum_{t=b+s}^{N}(P_b-P_k)X_t \; + \; CL \;\Big|_{CL \geq 0} .$$

From the breach, Seller obtains higher profits (given by equation [4.6]) less its transactions costs incurred in creating a contract with the new buyer. Summing Buyer's and Seller's transactions costs from the breach to "TC" ($TC>0$), the gross post-breach welfare gain equals

$$(4.6') \quad \sum_{t=b}^{N}(P_b-P_k)X_t \; - \; TC .$$

The net post-breach welfare change therefore equals equation (4.3') plus equation (4.6') less equation (4.11):

$$\Big(\sum_{t=b}^{N}(V-C)X_t\Big)+\Big(\sum_{t=b}^{N}(P_b-P_k)X_t-TC\Big)-\Big(\sum_{t=b}^{t=b+s}(V-P_k)X_t+\sum_{t=b+s}^{N}(P_b-P_k)X_t+CL\Big)\Rightarrow$$

$$\sum_{t=b}^{N}(V-C)X_t+\sum_{t=b}^{N}(P_b-P_k)X_t-\sum_{t=b}^{t=b+s}(V-P_b)X_t-\sum_{t=b}^{t=b+s}(P_b-P_k)X_t-\sum_{t=b+s}^{N}(P_b-P_k)X_t-TC-CL\Rightarrow$$

$$\sum_{t=b}^{N}(V-C)X_t+\sum_{t=b}^{N}(P_b-P_k)X_t-\sum_{t=b}^{t=b+s}(V-P_b)X_t-\sum_{t=b}^{N}(P_b-P_k)X_t-TC-CL\Rightarrow$$

contractual breach will never promote efficiency within non-static competitive environments.[31]

(2) Price-Based Incentive For Breach by Buyer

Assume the price of "G" decreases in period "b" in a form identical to that of section (A)(2). If Buyer breaches the contract to pursue savings through the new market price "P_b", Seller's general expectancy interest in the remainder of the contract equates to formula (4.7). Seller's damages under general expectancy therefore equal formula (4.7) less the value of mitigated damages secured in period "b+s".

$$\sum_{t=b}^{N}(P_k - C)X_t - \sum_{t=b+s}^{N}(P_b - C)X_t \quad \Rightarrow \quad (4.13) \quad \sum_{t=b}^{t=b+s}(P_k - C)X_t + \sum_{t=b+s}^{N}(P_k - P_b)X_t$$

Seller may also recover consequential losses "CL" caused by the breach, raising its total expectancy award to

$$(4.14) \quad \sum_{t=b}^{t=b+s}(P_k - C)X_t + \sum_{t=b+s}^{N}(P_k - P_b)X_t + CL \quad |_{CL \geq 0}.$$

$$\sum_{t=b}^{N}(V - C)X_t - \sum_{t=b}^{t=b+s}(V - P_b)X_t - TC - CL,$$

where Seller's post-breach losses under the common law equal $\sum_{t=b}^{t=b+s}(V - P_b)X_t + CL$ and societal losses equal $\sum_{t=b}^{t=b+s}(V - P_b)X_t + CL + TC$.

[31]The nature of the award to Buyer is irrelevant from a welfare standpoint, for a breach of contract under non-static purely competitive conditions will never result in a pareto improvement given Seller's losses from its breach.

Seller's general expectancy damages equal its relief under reliance/restitution. Seller's reliance damages equate to its lost opportunity costs incurred up to the period of substitute performance:[32]

$$(4.15) \qquad \sum_{t=b}^{t=b+s}(P_b - C)X_t \,.$$

Equation (4.9) shows Buyer's profits from its breach; thus, Seller's recovery under reliance and restitution equals

$$\sum_{t=b}^{t=b+s}(P_b - C)X_t + \sum_{t=b}^{N}(P_k - P_b)X_t = \sum_{t=b}^{t=b+s}(P_b - C)X_t + \sum_{t=b}^{t=b+s}(P_k - P_b)X_t + \sum_{t=b+s}^{N}(P_k - P_b)X_t \Rightarrow$$

$$\sum_{t=b}^{t=b+s}(P_k - C)X_t + \sum_{t=b+s}^{N}(P_k - P_b)X_t \,,$$

which, when added to Seller's consequential losses, equals the value of equation (4.14).

The results of a breach by Buyer under non-static pure competition mirror those of section (B)(1). Seller is not indifferent between damage awards under expectation and reliance/restitution, for expectancy damages will exceed the combined awards of reliance and restitutive disgorgement unless consequential damages attach to the latter measure of

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[32]Since Seller relied upon Buyer's promise to perform under the contract's terms, Seller may recover the welfare loss which (presumably) would arise absent the contract.

relief.[33] Buyer prefers performing under the terms of the original contract to breaching that contract and paying damages to Seller.[34] Finally, Buyer's breach reduces social welfare by an amount equal to the sum of Seller's reliance interest during its search plus Seller's consequential losses caused by the breach plus the transaction costs accrued by Seller and Buyer in securing new contracts.[35]

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[33]Under common law, Seller prefers expectancy awards to those of reliance/restitution if the latter claim does not include consequential damages of positive value. Seller might also pursue the joint award of consequential damages and specific performance, since this combination equates to the total expectancy interest. Other awards do not guarantee equivalent compensation. Statutory damages may not provide for Seller's consequential losses (the specific language of the Uniform Commercial Code does not provide consequential damages to sellers, though *Uniform Commercial Code* §§ 2-704 and 2-706 foresee lost profits within a seller's expectancy interest in the event of breach and resale of the goods). Conversely, awards of stipulated damages or combinations of specific performance and restitution may overcompensate Seller under the compensation principle. See note 28, *supra*.

[34]Comparison of equation (4.9) to (4.14) reveals that Seller's losses from the breach exceed Buyer's gains by the value of Seller's lost opportunity costs plus its special expectancy damages.

[35]*Proof of observations concerning Buyer's preference for performance and society's loss from breach*: Equation (4.3') reflects the societal welfare under the new contract as measured against the remainder of the initial contract. Damages sufficient to place Seller in its post-contractual state under pure competition equal equation (4.14):

$$(4.14)\quad \sum_{t=b}^{t=b+s}(P_k - C)X_t + \sum_{t=b+s}^{N}(P_k - P_b)X_t \;+\; CL\;\Big|_{CL\geq 0}.$$

These observations, correlated with those of section (B)(1), establish the basis for assessing the theory of efficient breach in purely competitive markets.

(3) Summary: Breaches Under Non-Static Pure Competition

Sections (B)(1) and (B)(2) identified the key element of non-static contractual breaches under pure competition:

From the breach, Buyer obtains higher profits (given by equation [4.9]) less its transactions costs incurred in creating a contract with a new seller. Summing Buyer's and Seller's transactions costs from the breach to "TC" ($TC>0$), the gross post-breach welfare gain equals

$$(4.9') \qquad \sum_{t=b}^{N}(P_k - P_b)X_t \; - \; TC.$$

The net welfare change due to the breach then equals equation (4.3') plus equation (4.9') less equation (4.14):

$$(\sum_{t=b}^{N}(V-C)X_t)+(\sum_{t=b}^{N}(P_k-P_b)X_t-TC)-(\sum_{t=b}^{t=b+s}(P_k-C)X_t+\sum_{t=b+s}^{N}(P_k-P_b)X_t+CL)\Rightarrow$$

$$\sum_{t=b}^{N}(V-C)X_t+\sum_{t=b}^{N}(P_k-P_b)X_t-\sum_{t=b}^{t=b+s}(P_b-C)X_t-\sum_{t=b}^{t=b+s}(P_k-P_b)X_t-\sum_{t=b+s}^{N}(P_k-P_b)X_t-TC-CL\Rightarrow$$

$$\sum_{t=b}^{N}(V-C)X_t+\sum_{t=b}^{N}(P_k-P_b)X_t-\sum_{t=b}^{t=b+s}(P_b-C)X_t-\sum_{t=b}^{N}(P_k-P_b)X_t-TC-CL\Rightarrow$$

$$\sum_{t=b}^{N}(V-C)X_t-\sum_{t=b}^{t=b+s}(P_b-C)X_t-TC-CL,$$

where Buyer's post-breach losses under the common law equal $\sum_{t=b}^{t=b+s}(P_b-C)X_t+CL$ and societal losses equal $\sum_{t=b}^{t=b+s}(P_b-C)X_t+TC+CL$.

given a breach by either party, the party in breach will be strictly worse off if legal compensation is perfect. Hence, *if contractual remedies are perfectly compensatory, breaches of contract will never arise under pure competition because the breaching party would be worse off from the breach.*[36] Further, in cases where legal compensation is imperfect to a degree sufficient to allow profit from a breach, *post-breach social welfare declines from that created under the original contract by an amount equal to the sum of the breachee's lost reliance during its search period, the breachee's consequential losses, and the transactions costs of the breacher and breachee incurred in securing new contracts.*

Joined with the findings of chapter II, section (D)(5) and chapter III, section (A)(2), the insight of this section yields three positive results. First, contractual breaches are never efficient under pure competition, for their effect putatively reduces societal welfare. Second, neither party has the incentive to breach under such circumstances unless judicial error is present. Third, purely competitive markets are irrelevant to studies of efficient breach. These points mimic those of section (A)(3) regarding perfect competition. A similar normative conclusion therefore arises: courts must

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[36]Under the common law, the breaching party would lose the value of the victim's opportunity costs plus that victim's consequential losses (if applicable).

not apply the theory of efficient breach to cases involving price-based breaches in purely competitive markets. Courts perceiving a breach as "efficient" under such circumstances should recognize their interpretation as error, reflecting that the damages formulated undercompensate the breachee.[37]

(C) Synopsis: Contractual Breaches in Competitive Markets

The analyses of this chapter examined the effects of a contractual breach within non-static perfectly and purely competitive markets. Assuming a breach of the hypothetical installment contract by either Buyer or Seller, mitigated values of the various contractual remedies were calculated within the scrutinized markets. Table four summarizes these values, including those removed from the primary discussion of the text. The motivation for breach arose from a change in the price of the good from that at the time of contract formation to a different price prior to full performance of the contract.[38] The resulting non-static scenarios generated

[37]The analyses of sections (B)(1) and (B)(2) show that the sum of restitution and reliance damages equal general expectancy damages under pure competition. Therefore, courts may double-check the accuracy of a damage award in the event of an "efficient" breach under pure competition. Should both awards prove insufficient to compensate Seller, the court must question the accuracy of its calculations or question whether the market in scrutiny is truly purely competitive.

[38]This chapter ignored price-related factors such as related goods, entry/exit and resource substitution. Clarity dictates the postponement of such issues for a later paper.

Table 4

Mitigated Value of Contractual Remedies Under Non-Static Purely and Perfectly Competitive Market Conditions

Type/Pairing of Award(s)	Perfect Competition		Pure Competition	
	Breach by Seller	Breach by Buyer	Breach by Seller	Breach by Buyer
General Expectancy Damages	$\sum_{t=b}^{N}(P_b - P_k)X_t$	$\sum_{t=b}^{N}(P_k - P_b)X_t$	$\sum_{t=b}^{t=b+s}(V - P_k)X_t + \sum_{t=b+s}^{N}(P_b - P_k)X_t$	$\sum_{t=b}^{t=b+s}(P_k - C)X_t + \sum_{t=b+s}^{N}(P_k - P_b)X_t$
Special Expectancy Damages	Zero	Zero	Equal The Value Of Consequential Losses ($CL \geq 0$)	Equal The Value Of Consequential Losses ($CL \geq 0$)
Total Expectancy Damages (Common Law)	Equal General Expectancy Damages	Equal General Expectancy Damages	Equal General Expectancy Damages Plus CL	Equal General Expectancy Damages Plus CL
Reliance Damages	Zero	Zero	$\sum_{t=b}^{t=b+s}(V - P_b)X_t$	$\sum_{t=b}^{t=b+s}(P_b - C)X_t$
Restitution (Disgorgement)	Equal Total Exp. Damages	Equal Total Exp. Damages	$\sum_{t=b}^{N}(P_b - P_k)X_t$	$\sum_{t=b}^{N}(P_k - P_b)X_t$
Reliance Damages Plus Restitutive Disgorgement	Equal Total Expectancy Damages	Equal Total Expectancy Damages	Equal General Expectancy Damages	Equal General Expectancy Damages
Statutory Damages (U.C.C.)	Equal Total Expectancy Damages	Equal Total Expectancy Damages	Equal Total Exp. Plus Incidental Damages	Equal Gen. Exp. Plus Incidental Damages
Specific Performance	Provides Relief Equal To Total Exp. Damages	Provides Relief Equal To Total Exp. Damages	Provides Relief Equal To General Exp. Damages	Provides Relief Equal To General Exp. Damages
Sp. Performance Plus Special Expectancy Damages	Provides Relief Equivalent To Total Expectancy Damages	Provides Relief Equivalent To Total Expectancy Damages	Provides Relief Equivalent To Total Expectancy Damages	Provides Relief Equivalent To Total Expectancy Damages
Sp. Performance Plus Restitutive Disgorgement	Relief Doubles Total Expectancy Damages	Relief Doubles Total Expectancy Damages	Relief Doubles General Expect. Damages	Relief Doubles General Expect. Damages
Liquidated Damages	Should Equal Total Expectancy Damages (Perfect Information)	Should Equal Total Expectancy Damages (Perfect Information)	May Not Equal Expectancy Due To Imperfect Information	May Not Equal Expectancy Due To Imperfect Information

the bases for comparisons of social and private pre/post-breach welfare. Review of these comparisons yields three corollaries which summarize the analyses of this chapter.

Corollary One: *If compensation is perfect, a breach of contract will never arise within competitive markets.* Under perfect competition, parties are indifferent between breach of the contract and performance of the contract's terms, for the net change in social and private welfare from the breach equals zero.[39] However, under pure competition, the parties will strictly favor performance to breach as the breaching party's post-breach welfare falls below that gained under the original contract.[40] Therefore, the contracting parties will only choose to breach if compensation is imperfect or the breaching party possesses market power.

Corollary Two: *For breaches arising within competitive markets, general expectancy damages equal those under the combined theories of reliance and restitutive disgorgement.* Under perfect competition, the breach victim's reliance damages equal zero, mandating that expectation damages equal the value of disgorgement given costless transactions. The corollary extends to pure competition due to the assumption of price-taking agents, as the breach victim's damages under

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[39]Compare formulas (4.5) to (4.6) and (4.8) to (4.9).
[40]Recall the proofs of notes 30 and 35, *supra*.

general expectancy must equate to the sum of its opportunity costs and the breaching party's profits from the breach.[41]

Corollary Three: *Contractual breach is never efficient within competitive environments*. In a perfectly competitive market, breaches of contract result in no change in societal welfare because the post-breach welfare equals that created by the original contract. Conversely, breaches arising in purely competitive markets create a societal welfare loss equal to the sum of victim's lost reliance during its search period, the victim's consequential losses, and the parties' joint transactions costs incurred in securing new contracts.

Application of these corollaries to the example of windfall-based breach posed at the beginning of this paper removes the discussion of efficient breach theory from the study of competitive markets. In the windfall case, Seller's breach of the contract with Buyer and resale to Interloper makes Seller better off while leaving Buyer (after payment of damages) and Interloper no worse off. Hence, corollary three does not apply as the breach generates a pareto improvement. Corollaries one and two are also inapplicable, as Seller's welfare gains from the breach exceed Buyer's

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[41]This corollary emphasizes that courts may double-check damage awards in cases involving contractual breaches in competitive markets; furthermore, it pays heed to the Holmesian compensation principle by noting that expectancy damages "cap" other forms of relief. Dobbs, 3:§ 12.3(2).

damages under expectancy.[42] The discrepancy of the windfall example and the corollaries is therefore explainable as follows: in the windfall case, Seller's incentive to breach arises from its ability to resell to Interloper *at a profit above the sum of Buyer's and Seller's expectancy interests in the original contract.*[43] This implies that *Seller* has *market power over the price of the good,* indicated by its ability to raise price above Buyer's demand curve.

Parallel to the discussion of chapter III, section (A)(6), the analyses of this section discern three elements necessary to yield efficient breaches of contract. First, the breaching party must possess market power concerning the price of the subject matter of the contract. Second, the societal welfare generated from the post-breach sale must exceed that created by the initial contract. Third, the breaching party must be able to use the initial contract as

[42]Since the concept of a negative reliance interest is logically inconsistent, the sum of Buyer's reliance damages and restitutive disgorgement must exceed Buyer's original expectations from the contract. Therefore, if the expectancy interest implicitly caps damages, Seller has the incentive to breach irrespective of "perfect" compensation to Buyer. See Dobbs, 3:§§ 12.3(2), 12.7(1) and 12.7(3).

[43]In short, where $P_I = V_I$ equals Interloper's maximum willingness to pay, V_B is Buyer's maximum willingness to pay and P_k is the price of the original contract, the value $P_I = V_I > V_B \geq P_k$ describes the windfall case, whereas the term $P_I = V_I \leq P_k \leq V_B$ depicts the analyses of this chapter.

a vehicle for arbitrage.[44] These factors violate assumptions of price-taking agents; the analysis of competitive markets is therefore irrelevant to the theory of efficient breach, indicating the need for a deeper study of the relationship of market power to that theory. Chapters V and VI therefore examine contractual breaches by using non-static models of monopoly, monopsony and bilateral monopoly. These analyses illustrate that "efficient" breaches of contract may promote pareto improvements from transactional perspectives, but are suspect as mechanisms for improving social efficiency due to issues of relative market power, informational asymmetries and relative transactions costs.

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[44]Recall that in the windfall example, Seller buys the good from Buyer (through the payment of damages) to accrue the windfall available from trade with Interloper.

CHAPTER V

NON-STATIC MODELS OF EFFICIENT BREACH UNDER CONDITIONS OF MONOPOLY AND MONOPSONY

The analyses of this chapter assume the creation of a contract between Buyer and Seller for the exchange of a lot of "X_K" units of some homogenous good "G" in markets where one of the contracting agents has power over the price of the good traded. Assumptively, Buyer and Seller transact given the demand and marginal cost conditions respectively shown as formulas (5.1) and (5.2):

$$(5.1)\quad P^B = P^B(X)\left|\ \frac{\partial P^B}{\partial X} < 0\ \forall\, P^B, X > 0,\right. \qquad (5.2)\quad MC^S(X) = \frac{\partial C^S}{\partial X} > 0 \,\middle|\, X > 0.$$ [1]

The unit price of good "G" is contractually set at "P_K", mandating that the total social, consumer and producer surpluses generated by the contract respectively equal

$$(5.3)\ \int_0^{X_K} [P^B(X) - \frac{\partial C^S}{\partial X}]\,dx, \quad (5.4)\ \int_0^{X_K} [P^B(X) - P_K]\,dx, \quad (5.5)\ \int_0^{X_K} [P_K - \frac{\partial C^S}{\partial X}]\,dx.$$ [2]

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[1]These equations respectively assume that the law of demand holds with respect to Buyer and that Seller confronts decreasing returns from the outset of production.

[2]Equation (5.3) equals the sum of (5.4) and (5.5).

The prior chapters reveal the key element of efficient contractual breaches: *for a breach to be efficient, post-breach welfare must exceed that created by the original contract*. Given the contract between Buyer and Seller, the following sections therefore examine *what assumptions must hold to motivate an efficient breach of that contract*. The first section addresses this task from the perspective of monopoly power, wherein Seller has either sole possession or a significant share of the total market for "G". The second section considers the opposite situation wherein Buyer is either a true monopsony or has significant monopsony power. The final section concludes the analysis of the chapter by combining these concepts into a cogent theory of efficient breach based upon the tenets of market power and efficiency considerations.

(A) Monopoly and Monopoly Power

This section assumes that some other buyer (Purchaser) approaches Seller before the completion of performance with Buyer. To induce breach, Purchaser must offer a price "P_P" sufficiently high to bring positive profits to Seller after the payment of damages to Buyer. Assuming that Purchaser is willing to buy the entirety of "X_K" from Seller[3] and that

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[3]Relaxation of this assumption occurs in sub-section (A)(3), *infra*.

Purchaser's demand (shown as equation [5.6]) exceeds that of Buyer at "X_K",[4] this condition mandates that:

$$\text{Given (5.6)}\quad P^P = P^P(X)\left|\ \frac{\partial P^P}{\partial X} < 0\ \forall\, P^P, X > 0,\right.$$

$$\left[\int_0^{X_K} [P^P(X) - \frac{\partial C^S}{\partial X}]\,dx - \int_0^{X_K} [P^B(X) - \frac{\partial C^S}{\partial X}]\,dx\right] > 0 \Rightarrow \quad (5.7)\ \int_0^{X_K} [P^P(X) - P^B(X)]\,dx > 0.$$

Equation (5.7) represents the societal efficiency gain from Seller's breach after the payment of general expectancy damages to Buyer. However, this result depends upon many assumptions, some of which the surveyed literature ignored. This section remedies such omissions by refining efficient breach theory as applied to monopolistic industries. The analyses of the section identify the assumptions needed to support efficient breaches from the transactional and social perspectives of purely and partially monopolized industries. This approach demonstrates that the theory of efficient breach may improve efficiency from the viewpoint of specific transactions, but is less likely to improve societal welfare within the monopolized marketplace due to the availability of alternative opportunities.

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[4]The condition $P^P(X_K) > P^B(X_K)$ must hold for Seller to have the incentive to breach given the threat of expectancy damages to Buyer.

(1) Pure Monopoly

Purchaser's act of approaching Seller indicates its inability to procure substitute performance through Seller by alternative means. This indicates that Seller generates a non-static situation through the creation of a shortage to its market constituency. The following assumption therefore is a necessary element to the operation of efficient breach theory as applied to purely monopolized markets.

Assumption (A-1): *A shortage must exist at the price "P_K" to promote breaches in markets where Seller is a true monopoly and the units traded are homogenous.*[5]

Seller's assumed willingness to breach the original contract *in whole*[6] indicates its inability to use the shortage to price discriminate among Buyer and Purchaser.[7] This serves to validate assertions that the theory of efficient breach encourages seller-based arbitrage in monopolized markets.

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[5]*Explanation*: if Seller is a true monopolist, it must restrict its market output below that corresponding to "P_K" to pique the interest of Purchaser (otherwise, satiation of Purchaser's demand arises through other trade with Seller).

[6]Section (A)(3) considers the case where Purchaser seeks to buy only part of lot "X_K" from Seller; this may result in a *partial breach* of the original contract, giving Buyer damages only for those units undelivered from "X_K".

[7]If Seller were able to practice third-degree price discrimination, it would use the original contract to elicit Purchaser's reservation bid and produce additional units to satiate Purchaser's demand (i.e., the initial contract *would not be breached*). For discussion of the principles of price discrimination, see chapter III, section (A)(6), note 26.

If Seller is a true monopoly, the efficiency gain from its breach equals that described by equation (5.7) only in the presence of zero transactions costs, perfect information and no entitlement interests in the contract.[8] Conversely, Seller's desire to breach reflects imperfect information, as knowledge of Purchaser's willingness to pay would eliminate the need for the original contract as a screening mechanism. Costly transactions must also exist, for Buyer may suffer consequential and incidental losses from the breach while Seller will incur costs due to resolution of the contractual dispute and subsequent resale of the goods to Purchaser.[9] Finally, Buyer may recognize an entitlement loss due to the breach, irrespective of whether contract remedies compensate such interests.

Setting Buyer's per-unit incidental and consequential damages to "CL^B", Buyer's per-unit non-compensable losses to "NC^B", Seller's per-unit total losses to "TC^S" and the per-unit value of Buyer's entitlement interest to "EI^B", the condition for an efficient breach by Seller under the common law equals formula (5.8), while the condition for a net

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[8]For further discussion of the value of entitlements to contractual performance, see the discourse concerning Macneil and Friedmann contained in chapter II, section (C).

[9]For simplicity, this scenario assumes that Seller bears Purchaser's transactions costs within the value "TC^S". Further, note that Seller's costs may include losses outside the scope of the breach (e.g., injuries to its reputation).

social welfare improvement from Seller's monopolistic breach equates to formula (5.9).

$$(5.8) \quad \int_{0}^{X_K}[P^P(X)-P^B(X)]\,dx > [CL^B + TC^S]\cdot X_K\big|_{CL^B, TC^S \geq 0}$$

$$(5.9) \quad \int_{0}^{X_K}[P^P(X)-P^B(X)]\,dx > [CL^B + NC^B + TC^S + EI^B]\cdot X_K\big|_{CL^B, NC^B, TC^S, EI^B \geq 0}$$

Note that Seller's best price to Purchaser under the common law equals $P^B(X_K)+CL^B+TC^S$, which must fall below the value of $P^P(X_K)$ to generate transactional efficiency. From this perspective, a second assumption of the theory of efficient breach under pure monopoly arises.

> **Assumption (A-2):** *As Seller's recognized costs from breach increase, the ability of Seller to generate a transactional improvement in welfare over that of the original contract declines.*

Assumption (A-2) resonates with the ideas presented in chapter II, but ignores the social ramifications of Seller's breach. A contrast of equations (5.8) and (5.9) reveals that Seller can simultaneously induce transactional efficiency and reduce social welfare through its breach if Buyer's non-compensable loss or entitlement interest is positive. The social condition for efficient breach therefore produces a more stringent criterion than its transactional counterpart:

> **Assumption (A-3):** *A pure monopolist's contractual breach is not socially efficient unless the efficiency gain therefrom exceeds the sum of Buyer's incidental, consequential, and non-compensable losses, Seller's total losses, and the value of Buyer's entitlement interest lost due to the breach.*

This perception therefore provides an economic foundation for those who seek to attack efficient breach theory from moralistic standpoints.[10]

To this point, discussions of Seller's breach assumed that Buyer's remedial options equaled damages under legal or statutory measures of relief.[11] However, if the common law is open to alternative awards equal to this result,[12] Buyer may pursue the joint remedies of specific performance, special expectancy and incidental damages as an alternative

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[10]See chapter II, section (C), *infra*.

[11]Specifically, Buyer could assumptively find relief under common law general and special expectancy damages, or under Uniform Commercial Code §§ 2-713 (general expectancy damages), 2-715(2) (consequential damages) and 2-715(1) (incidental damages).

[12]Buyer cannot find equivalent relief through reliance damages due to lack of substitutes for Seller's product; joint awards of reliance and restitution therefore fail due to ambiguity of the relation of disgorgement to Buyer's actual damages. Singular awards of restitutive disgorgement or liquidated damages similarly fail as unreliable measures of Buyer's loss in the face of Seller's monopoly power. Joint awards of specific performance and disgorgement will exceed Buyer's total expectancy interest assuming the social welfare gain from the breach exceeds Buyer's consequential losses. Finally, restitutive measures of unjust enrichment are inapplicable to the scenario, as Buyer makes no welfare transfers to Seller on the basis of the original contract.

cause of action.[13] The merit of such a claim rests in the potential for an efficiency gain over that obtainable from Seller's breach of contract.[14] This requires either the violation of assumption (A-3), the ability of Buyer to act as a vendor of good "G" after its receipt of the lot "X_K" from Seller,[15] or the ability of Buyer and Seller to agree upon a settlement in release of Seller's obligations under the terms of the original contract.[16]

In the case of Buyer resale, Seller's performance of the original contract fulfills Buyer's entitlement interest and reduces total losses to "TL", which equals the per-unit expenses of both parties incurred by the attempted breach.[17]

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[13]Note that the assumption of homogeneity refers only to the *units* sold by Seller. Since Seller is assumed to be a true monopoly, proof of the uniqueness of these units might provide the basis for a claim of specific performance under the common law. See chapter I, section (B), *supra*.

[14]Brief general discussions of this subject exist within the literature. For example, see Posner, *Economic Analysis of the Law*, 4th ed., 119.

[15]By assumption, Buyer must act as a price taker when dealing with Seller. However, since Seller is presumptively unable to deal with Purchaser absent its breach, an award of specific performance gives Buyer the ability to act in the place of Seller in all transactions with Purchaser.

[16]This contingency is a key argument for extension of the availability of specific performance within contractual disputes. See chapter II, section (A); Ulen, "The Efficiency of Specific Performance," 364-366; and chapter VII, *infra*.

[17]$TL < CL^B + NC^B + TC^S + EI^B$, for EI^B equals zero and CL^B, NC^B and TC^S decline given an award of specific performance.

Seller's performance then allows Buyer to seek Purchaser in an attempt to sell the lot "X_K" at a price above $P^B(X_K)+SC^B$, where "SC^B" equals Buyer's costs per-unit incurred from its search for and sale to Purchaser. Buyer will accrue a gain from trade if the condition $P^P(X_K) > P^B(X_K)+SC^B$ holds. This contingency leads to a comparison of the welfare generated by sales from Buyer and Seller. Transactionally, Seller's breach and resale to Purchaser will produce greater welfare gains than Buyer's arbitrage if formula (5.10) applies.

$$\int_0^{X_K}[P^P(X) - P^B(X)]\,dx - [CL^B + TC^S]\cdot X_K > \int_0^{X_K}[P^P(X) - P^B(X)]\,dx - [SC^B + TL]\cdot X_K$$

$$(5.10) \quad CL^B + TC^S < SC^B + TL$$

The social condition for Seller's efficient breach therefore adds Buyer's uncompensated losses and the value of Buyer's entitlement interest to the left side of equation (5.10).

$$(5.11) \quad CL^B + NC^B + TC^S + EI^B < SC^B + TL$$

Conversely, if Buyer and Seller can negotiate for the release of Seller's contractual obligations under the threat of specific performance, different efficiency criteria may arise. Since Buyer (assumptively) holds no market power, it will accept any settlement offer from Seller above the price $P^B(X_K)+EI^B+BL$, where "BL" equals Buyer's per-unit expenses incurred from its agreement to settle the dispute.[18] Setting Seller's bargaining costs to "BC^S",[19] a cooperative outcome therefore arises if $P^P(X_K)-BC^S > P^B(X_K)+EI^B+BL$. A comparison of this result to that of Seller's breach yields equations (5.12) and (5.13), which respectively show the transactional and social criteria necessary to support efficient breach theory given the possibility of settlement with Buyer.

(5.12) $CL^B+TC^S<BC^S+EI^B+BL$ (5.13) $CL^B+TC^S+NC^B<BC^S+BL$

Synthesis of these results leads to a final assumption of efficient breach theory under pure monopoly:

> **Assumption (A-4):** *Under the common law, Seller's breach is transactionally efficient if equation (5.8) holds; however, this result is inferior to arbitrage by Buyer or settlement among Buyer and Seller unless the breach (respectively) satisfies equations (5.10) and (5.12). In any event, Seller's breach does not promote social efficiency unless it adheres to assumption (A-3) and formulas (5.11) and (5.13).*

This assumption reflects that the "efficiency" of a breach is dubious when perceived from the perspectives of aggregate social welfare or alternative contractual awards. However, it does not consider the possibility of market rivals for

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[18] $BL<CL^B+NC^B$, for cooperative negotiation with Seller should minimize Buyer's losses from the contractual dispute.

[19] $BC^S<TC^S$, for cooperation allows Seller to avoid the expenses of litigation.

Seller, nor does it consider situations where Purchaser wishes to buy an amount of good "G" divergent from "X_K". The following sub-sections respectively address these issues.

(2) Monopoly Power

The addition of alternative sellers to the efficient breach mix reduces the potential for a transactional welfare gain from Seller's transgression. Assume that another firm (Vendor) joins the market after the creation of the original contract. Formula (5.14) describes Vendor's marginal costs:

$$(5.14)\quad MC^V(X) = \frac{\partial C^V}{\partial X} > 0 \ \forall \ X > 0.$$ [20]

If Vendor is aware of Purchaser's demand, it will make an offer if the per-unit sum of its marginal and handling costs (HC^V) in supplying Purchaser with "X_K" units is less than $P^P(X_K)$. Furthermore, Vendor may undercut Seller's best price to Purchaser unless equation (5.15) holds.

$$(5.15)\quad P^B(X_K) + CL^B + TC^S < HC^V + MC^V(X_K)$$

The addition of Buyer's uncompensated losses and entitlement interest to the left side of this equation yields the social efficiency condition for Seller's breach.

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[20]This equation assumes that Vendor faces decreasing returns from the outset of production.

(5.16) $P^B(X_K)+CL^B+TC^S+NC^B+EI^B<HC^V+MC^V(X_K)$

From transactional and social perspectives, the conditions for Seller's efficient breach therefore reduce to

> **Assumption (A-5):** *Given Vendor's presence, Seller's breach of contract is transactionally efficient only if equations (5.8), (5.10), (5.12) and (5.15) hold and is socially efficient only if assumption (A-3) applies and formulas (5.11), (5.13) and (5.16) hold.*

Clearly, the entrance of each additional alternative vendor will tend to inhibit Seller's ability to adhere to this assumption. As the number of sellers in the market for "G" grows larger, Seller will have increasing difficulty in exacting a price sufficiently high to satisfy the left sides of equations (5.15) and (5.16), while the likelihood of a vendor able to violate the right sides of those equations increases. Further, Seller's ability to *generate* a contract at a price above $MC^S(X_K)$ declines if Vendor or its rivals engage in bidding against Seller for the sale to Buyer. Since this process may involve strategic bargaining, the paper delays the analysis of this contingency for the game theoretic discussion of chapter VI.[21]

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[21]Note that if Buyer is among many on the demand side without market power, the continual addition of more sellers to this scenario drives the analysis toward that of pure competition. For further discussion, recall the analysis of chapter IV, section (B).

(3) Partial Breaches and Partial Price Discrimination in Monopolized Markets

The preceding analyses assumed that Purchaser wished to buy the amount of "G" specified by the contract between Seller and Buyer (X_K). The discussion of this sub-section therefore completes the examination of monopolistic markets by assuming that the amount of "G" desired by Purchaser "X_P" deviates from that defined by the original contract. This analysis extends the theory of efficient breach beyond the existing literature and solidifies the proposition that the theory exists as a transactional norm, but is suspect as mechanism for improving social welfare.

Assume initially that $X_P < X_K$. If Buyer will accept partial performance of the remaining units, Seller's breach generates transactional efficiency if equation (5.17) holds:

$$(5.17) \quad \int_0^{X_P} [P^P(X) - P^B(X)]\,dx - [CL^B + TC^S] \cdot X_P > 0 .$$

Conversely, if Buyer rejects delivery of the remaining units and Seller is unable to procure substitute performance, the condition for efficient transactional breach becomes

$$(5.18) \quad \int_0^{X_P} [P^P(X) - P^B(X)]\,dx - \int_{X_P}^{X_K} [P^B(X) - \frac{\partial C^S}{\partial X}]\,dx - [CL^B + TC^S] \cdot X_K > 0 .\text{[22]}$$

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[22]This condition reflects that Seller's gains from the units sold to Purchaser must exceed the sum of the welfare

The conditions for social efficiency would further subtract the values "NC^B" and "EI^B" from the left sides of formulas (5.17) and (5.18). However, these would ignore the loss of *allocative* efficiency implied by equation (5.17),[23] the potential for awards of specific performance to Buyer and the possibility of other vendors in the market for "G".[24]

Next, assume that $X_P > X_K$ and that Seller can satisfy Purchaser's demand only through the total breach of Buyer's contract. Under such circumstances, the transactional and societal efficiency criteria respectively equate to

$$(5.19)\quad \int_0^{X_K}[P^P(X)-P^B(X)]\,dx+\int_{X_K}^{X_P}[P^P(X)-MC^S(X)]\,dx-[CL^B+TC^S]\cdot X_K>0,$$

$$(5.20)\quad \int_0^{X_K}[P^P(X)-P^B(X)]\,dx+\int_{X_K}^{X_P}[P^P(X)-MC^S(X)]\,dx-$$

$$[CL^B+TC^S+NC^B+EI^B]\cdot X_K>0.$$

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lost on the unsold units, Buyer's compensable losses, and the transactions costs incurred by Seller due to its breach.

[23]Allocative efficiency suffers due to the decline of output traded in the market. For further discussion, see chapter III, section (A)(6), note 21, *supra*.

[24]Given $X_P < X_K$, the conditions of equations (5.10), (5.11), (5.12), (5.13), (5.15) and (5.16) remain unchanged over the range $X \in [0, X_P]$ if Buyer accepts performance of the lot $X_K - X_P$; however, if Buyer rejects delivery and Seller is unable to sell the surplus, the left sides of these formulas must include the lost social welfare from the unsold units to retain their respective efficiency criteria.

Comparison of these conditions to those of equations (5.17) and (5.18) yields the final assumption relevant to efficient breaches within monopolized industries.

> **Assumption (A-6):** *Given that Purchaser is willing to buy "X_P" units such that "$X_P \neq X_K$", satisfaction of the social and transactional efficiency criteria grows more likely as the differential* $P^P(X)-P^B(X)$ *increases, as the value of "X_P" approaches and surpasses "X_K", or as Seller's recognized costs from breach decrease.*

Note that Purchaser's willingness to buy $X_P > X_K$ units seems to bolster support for efficient breach theory. However, the allocative and social welfare gains made on units $X \in [X_K, X_P]$ reflect that Seller uses the breach to *price discriminate* against Purchaser.[25] The positive and normative analyses of chapter VII therefore attempt to weigh these perceived gains against the social inefficiencies of monopoly power.

(B) Monopsony and Monopsony Power

This section assumes that some other seller (Vendor) approaches Buyer before the completion of performance with Seller. To induce breach, Vendor must offer a price "P_V" sufficiently low to bring welfare gains to Buyer after the payment of damages to Seller. Assuming that Vendor will sell the entirety of "X_K" to Buyer[26] and that Vendor's marginal

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[25]Specifically, the breach allows Seller to practice *third-degree* price discrimination. See Nicholson, 622-625.

[26]Relaxation of this assumption occurs in sub-section (B)(3), *infra*.

costs (equation [5.14]) fall below those of Seller (equation [5.2]) at "X_K",[27] this condition mandates that:

$$\left[\int_0^{X_K}[P^B(X)-\frac{\partial C^V}{\partial X}]\,dx-\int_0^{X_K}[P^B(X)-\frac{\partial C^S}{\partial X}]\,dx\right]>0\Rightarrow \quad (5.21)\int_0^{X_K}\left[\frac{\partial C^S}{\partial X}-\frac{\partial C^V}{\partial X}\right]dx>0.$$

Similar to formula (5.7) of the prior section, formula (5.21) represents the societal efficiency gain from Buyer's breach after the payment of general expectancy damages to Seller given perfect information, no transactions costs and the assumption of no contractual entitlements. Parallel to the logic of section (A), this section therefore seeks to refine efficient breach theory as applied to monopsonistic industries. Contractual symmetry allows for an abbreviated discussion of the elements needed to support transactional and social efficiency from breaches within such markets.[28] However, the conclusions of this section corroborate those of section (A) by demonstrating that efficient breach theory may simultaneously improve transactional efficiency while generating a net social welfare loss.

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[27]The condition $MC^V(X_K)<MC^S(X_K)$ must hold for Buyer to have the incentive to breach given the payment of expectancy damages to Seller.

[28]Some of the analysis of this section is perfunctory, for the conclusions drawn herein often mirror those of the prior section; however, the analyses of chapter VI require the development of the equations and assumptions contained herein for referential purposes.

(1) Pure Monopsony

Vendor's post-contractual offer to Buyer reflects its inability to procure substitute performance through Buyer by alternative means. Buyer must therefore generate a surplus to produce the market conditions necessary to its breach.

> **Assumption (B-1):** *A surplus must exist at the price "P_K" to promote breaches in markets where Buyer is a true monopsony and the units traded are homogenous.*[29]

Buyer's assumed willingness to breach the original contract in whole[30] indicates its inability to use the surplus to *monopsonistically discriminate*[31] among Seller and Vendor.[32] Therefore, efficient breach theory encourages the ability of Buyer to act as an arbitrageur by providing a vehicle for utilizing its monopsonistic market advantage.

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[29]*Explanation*: if Buyer is a true monopsonist, it must restrict its quantity demanded below that corresponding to "P_K" to pique the interest of Vendor (otherwise, satiation of Buyer's demand arises through other trade with Vendor).

[30]Section (B)(3) considers the case where Vendor will sell only part of lot "X_K" to Buyer; the resulting partial breach could therefore give Seller damages only for those units rejected by Buyer from the lot "X_K".

[31]*Price discrimination* refers to the discriminatory behavior of monopolists. For clarity, this paper will use the term *monopsonistic discrimination* to describe situations where a buyer pays different prices for identical goods to different sellers based upon the relative elasticities of those sellers' marginal cost schedules.

[32]If Buyer could practice third-degree monopsonistic discrimination, it would use the original contract to elicit Vendor's reservation bid and buy additional units to the limit of Vendor's supply (i.e., there would be no breach of the initial contract).

Relaxation of the assumptions of perfect information, zero transactions costs, and no contractual entitlements is imperative to the monopsonistic model.[33] Assuming a breach, Seller's per-unit compensable and non-compensable losses are set to "CL^S" and "NC^S", respectively, Buyer's per-unit total costs are set to "TC^B"[34] and the per-unit value of Seller's entitlement interest is set to "EI^S". The conditions for transactional and social efficiency under pure monopsony then equate to formulas (5.22) and (5.23), respectively.

$$(5.22)\quad \int_0^{X_K} [MC^S(X) - MC^V(X)]\,dx > [CL^S + TC^B] \cdot X_K \big|_{CL^S, TC^B \geq 0}$$

$$(5.23)\quad \int_0^{X_K} [MC^S(X) - MC^V(X)]\,dx > [CL^S + NC^S + TC^B + EI^S] \cdot X_K \big|_{CL^S, NC^S, TC^B, EI^S \geq 0}$$

Under the common law (reflected by equation [5.22]), Buyer's best price to Vendor equals $P^B(X_K) - CL^B - TC^S$, which

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[33]Buyer's breach reflects imperfect information, as knowledge of Vendor's willingness to pay would eliminate the need for the original contract. Transactions costs must also exist, for Seller may suffer consequential or incidental losses from the breach and Buyer must incur costs from the contractual dispute and subsequent purchase of the goods from Vendor. Finally, Seller may recognize an entitlement loss due to the breach, irrespective of whether contract law recognizes such interests.

[34]This scenario assumes that Buyer bears Vendor's transactions costs within "TC^B". Further, note that Buyer's costs may include losses outside the scope of the breach (e.g., injuries to its reputation).

must lie above the value $MC^S(X_K)$ to generate transactional efficiency. This observation produces a second assumption of the theory of efficient breach under pure monopsony.

> **Assumption (B-2):** *As Buyer's costs from its breach increase, its ability to generate a transactional improvement in welfare over that of the original contract declines.*

However, a comparison of formulas (5.22) and (5.23) reveals that Buyer's breach can simultaneously promote transactional efficiency and reduce social welfare if "NC^S" or "EI^S" is positive. From the societal perspective of monopsony, the criterion for efficient breach therefore transforms to:

> **Assumption (B-3):** *A pure monopsonist's contractual breach is not socially efficient unless the efficiency gain therefrom exceeds the sum of Seller's incidental, consequential, and non-compensable losses, Buyer's total losses, and the value of Seller's entitlement interest lost due to the breach.*

Assumption (B-3) posits that Seller's remedies equal damages under legal or statutory measures of relief.[35] Yet, if the common law is open to equivalent awards,[36] Seller

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[35]Specifically, Seller could find relief under common law general and special expectancy damages, or under Uniform Commercial Code §§ 2-708(2) (general expectancy damages) and 2-710 (incidental damages).

[36]Seller cannot find equivalent relief in reliance due to lack of alternative opportunity; joint awards of reliance and restitution then fail due to ambiguity of the relation of disgorgement to Seller's actual damages. Singular awards of disgorgement or liquidated damages are unreliable given Buyer's monopsony power. Joint awards of disgorgement and

could pursue an alternative cause of action through joint claims of specific performance and either special expectancy or incidental damages.[37] Such an award would foreclose the potential welfare gain from Buyer's trade with Vendor absent a cooperative solution between Buyer and Seller;[38] however, this outcome may be superior to Buyer's "efficient" breach of contract if that breach violates assumption (B-3).[39]

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specific performance would exceed Seller's total expectancy interest assuming the social welfare gain from the breach exceeds Seller's consequential losses. Finally, restitutive measures of unjust enrichment are inapplicable, as Seller makes no contractual welfare transfers to Buyer.

[37]Recall that Seller may recover *either* consequential damages (under the common law) or incidental damages (under the Uniform Commercial Code). Note also that the assumption of homogeneity implies that Seller may have difficulty in proving the uniqueness of the units sold (i.e., Vendor sells identical units within the marketplace).

[38]If Buyer and Seller can negotiate for the release of Buyer's contractual obligations under the threat of specific performance, Seller will accept any settlement offer above the price $MC^S(X_K)+EI^S+SL$, where "SL" is Seller's per-unit cost incurred from its agreement to settle the dispute. If Buyer's per unit bargaining costs equal "BC^B", a cooperative outcome arises if $MC^S(X_K)-MC^V(X_K) > EI^S+SL+BC^B$. Comparison of this result to equations (5.22) and (5.23) yields (5.24) and (5.25), which respectively depict the transactional and social criteria necessary to support efficient breach theory given the potential settlement with Seller.

(5.24) $CL^S+TC^B < EI^S+SL+BC^B$ (5.25) $CL^S+TC^B+NC^S < SL+BC^B$

[39]Buyer's performance fulfills Seller's entitlement interest and reduces Buyer's and Seller's per-unit losses to "TL", where $TL < CL^S+NC^S+TC^B$ given the award of specific

Summarization of the results of this sub-section leads to the final assumption relevant to the theory of efficient breach under the market conditions of pure monopsony:

> **Assumption (B-4):** *Under the common law, Buyer's breach is transactionally efficient if equation (5.22) holds; however, this result is inferior to cooperative settlement unless the breach satisfies equation (5.24). In either case, a breach by Buyer does not improve social welfare unless it adheres to assumption (B-3) and formulas (5.25) and (5.26).*

This assumption demonstrates that "efficient" breaches are dubious if viewed from the perspectives of aggregate social welfare or alternative contractual remedies. However, it does not consider cases where Buyer faces rivalry or Vendor wishes to buy an amount of good "G" divergent from "X_K". The following sub-sections respectively address these concerns.

(2) Monopsony Power

Addition of alternative buyers to the market reduces the potential for a transactional welfare gain from Buyer's breach. Assume that another buyer (Purchaser) with a demand function equivalent to formula (5.6) enters the market after the formation of the original contract. If Purchaser knows

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performance. Therefore, joint awards of specific performance and special expectancy or incidental damages will be pareto superior to Buyer's breach unless condition (5.26) holds.

$$(5.26)\quad \int_0^{X_K}[MC^S(X)-MC^V(X)]\,dx-[CL^S+NC^S+TC^B+EI^S]\cdot X_K > TL\cdot X_K$$

of Vendor's existence, it may make an offer for "X_K" units of "G" if $P^P(X_K)$ exceeds the sum of $MC^V(X_K)$ and Purchaser's per-unit handling costs (HC^P) incurred in seizing delivery. Given this scenario, Purchaser can outbid Buyer's best price to Vendor unless equation (5.27) holds.

$$(5.27)\quad P^B(X_K) - CL^S - TC^B > P^P(X_K) - HC^P$$

Addition of Seller's uncompensated losses and entitlement interest to the left side of this equation yields (5.28).

$$(5.28)\quad P^B(X_K) - CL^S - TC^B - NC^S - EI^S > P^P(X_K) - HC^P$$

From transactional and social perspectives, the conditions for Buyer's efficient breach therefore reduce to

> **Assumption (B-5):** *Given Purchaser's presence, breach by Buyer is transactionally efficient only if equations (5.22), (5.24) and (5.27) are satisfied and is socially efficient only if assumption (B-3) and formulas (5.25), (5.26) and (5.28) hold.*

The entrance of additional purchasers will diminish Buyer's ability to adhere to assumption (B-5). As the number of alternative purchasers grows, Buyer will have increasing difficulty in finding a price sufficiently low to satisfy the left sides of equations (5.27) and (5.28), while the probability of a purchaser able to violate the right sides of those equations increases. Further, Buyer's ability to contract diminishes if Purchaser or its counterparts bid against Buyer for trade with Seller. Since this process requires strategic bargaining, the discussion of chapter VI analyzes this scenario from a game theoretic perspective.

(3) Partial Breaches and Monopsonistic Discrimination in Monopsonized Markets

The preceding analyses assumed that Vendor wished to sell "X_K" units to Buyer. The discussion herein deviates from this approach by assuming that the amount of good "G" offered by Vendor "X_V" deviates from "X_K". Assume first that $X_V < X_K$. If Seller will deliver the unaffected units to Buyer, Buyer's partial breach generates transactional efficiency if equation (5.29) holds.

$$(5.29) \qquad \int_0^{X_V} [MC^S(X) - MC^V(X)]\,dx - [CL^S + TC^B] \cdot X_V > 0$$

Conversely, if Seller refuses to deliver the remaining units to Buyer and cannot otherwise cover its losses thereon, the condition for efficient transactional breach becomes

$$(5.30) \qquad \int_0^{X_V} \left[\frac{\partial C^S}{\partial X} - \frac{\partial C^V}{\partial X}\right] dx - \int_{X_V}^{X_K} \left[P^B(X) - \frac{\partial C^S}{\partial X}\right] dx - [CL^S + TC^B] \cdot X_K > 0\,.$$[40]

[40]This condition reflects that Seller's gains from the units sold to Purchaser must exceed the sum of the welfare lost on the unsold units, Buyer's compensable losses, and the transactions costs incurred by Seller due to its breach.

Social efficiency would further require subtraction of the values "NC^S" and "EI^S" from the left sides of (5.29) and (5.30). However, this would ignore the loss of allocative efficiency implied by equation (5.29), the potential for awards of specific performance to Seller and the possibility of other purchasers in the market for "G".[41]

Alternatively, assume that $X_V > X_K$ and that Buyer's trade with Vendor may arise only through total breach of the original contract. The transactional and societal efficiency criteria from Buyer's breach then respectively correspond to equations (5.31) and (5.32).

$$(5.31)\quad \int_0^{X_K}\left[\frac{\partial C^S}{\partial X}-\frac{\partial C^V}{\partial X}\right]dx+\int_{X_K}^{X_V}\left[P^B(X)-\frac{\partial C^V}{\partial X}\right]dx-[CL^S+TC^B]\cdot X_K>0,$$

$$(5.32)\quad \int_0^{X_K}\left[\frac{\partial C^S}{\partial X}-\frac{\partial C^V}{\partial X}\right]dx+\int_{X_K}^{X_V}\left[P^B(X)-\frac{\partial C^V}{\partial X}\right]dx-$$
$$[CL^S+TC^B+NC^S+EI^S]\cdot X_K>0.$$

Comparison of these conditions to those of equations (5.29) and (5.30) yields the final assumption relevant to efficient breaches within partially monopsonized industries.

[41]Given $X_V < X_K$, the conditions of equations (5.22) through (5.28) remain unchanged for $X \in [0, X_V]$ if Seller can deliver the remainder of the lot $X_K - X_V$; however, if Seller refuses delivery and is unable to cover its losses, the left sides of these formulas must include the lost social welfare from the unsold units to retain their efficiency criteria.

Assumption (B-6): *Given that Vendor will sell "X_V" units such that "$X_V \neq X_K$", satisfaction of the social and transactional efficiency criteria grows more likely as the differential $MC^S(X) - MC^V(X)$ increases, as the value of "X_V" approaches and surpasses "X_K", or as Buyer's recognized costs from breach decrease.*

Vendor's willingness to sell $X_V > X_K$ units bolsters support for efficient breach theory. However, the allocative and social welfare gains made on units $X \in [X_K, X_V]$ reflect that Buyer may use the breach to monopsonistically discriminate against Vendor. Chapter VII attempts to weigh this perceived gain against the social inefficiencies of monopsony power.

(C) Synopsis: Efficient Breaches Within Monopolized and Monopsonized Industries

Assuming the creation of a contract between Buyer and Seller, the analyses of sections (A) and (B) developed many transactional and social efficiency criteria for contractual breaches within industries characterized by one-sided market power. Given that the breaching party instigates such action in the interest of profit maximization, these conditions synthesize to equations (5.33) and (5.34), which reflect the absolute welfare conditions necessary to support the theory of efficient breach from the perspectives of monopolized and monopsonized markets, respectively.

$$(5.33) \qquad \max \int_0^{\alpha} [P^P(X) - P^B(X)]\,dx - \chi\beta > \delta, \quad \text{where } \alpha = \begin{bmatrix} X_P, \text{if } X_P < X_K \\ X_K \text{ otherwise} \end{bmatrix},$$

$$\beta = \begin{bmatrix} X_P, \text{ if } X_P < X_K \text{ and Buyer accepts partial performance of the remaining units} \\ X_K \text{ otherwise} \end{bmatrix},$$

$$\chi = \begin{bmatrix} \text{zero, if no transactions costs, perfect information and no entitlements} \\ CL^B + TC^S \text{ otherwise, if the criterion is transactional efficiency} \\ CL^B + TC^S + NC^B + EI^B \text{ otherwise, if the criterion is social efficiency} \end{bmatrix} \text{ and}$$

$$\delta = \begin{bmatrix} \int_{X_P}^{X_K} [P^B(X) - MC^S(X)]\, dx, \text{ if } X_P < X_K \text{ and Buyer rejects partial performance} \\ \text{Zero, if } X_P = X_K \\ \int_{X_P}^{X_K} [P^P(X) - MC^S(X)]\, dx, \text{ if } X_P > X_K \text{ and Seller breaches in whole} \end{bmatrix},$$

$$\text{s.t.} \quad \begin{bmatrix} \chi < SC^B + TL, \text{ if Buyer can resell after an award of specific performance} \\ \chi < BC^S + EI^B + BL, \text{ if Buyer and Seller can reach a cooperative solution} \\ \chi < HC^V + MC^V(X_K) - P^B(X_K), \text{ (prevents undercutting by Vendor)} \end{bmatrix}.$$

$$\text{(5.34)} \qquad \max \int_0^{\varepsilon} [MC^S(X) - MC^V(S)\,]\, dx - \gamma\phi > \eta, \quad \text{where } \varepsilon = \begin{bmatrix} X_V, \text{ if } X_V < X_K \\ X_K \text{ otherwise} \end{bmatrix},$$

$$\phi = \begin{bmatrix} X_V, \text{ if } X_V < X_K \text{ and Seller agrees to deliver the remaining units} \\ X_K \text{ otherwise} \end{bmatrix},$$

$$\gamma = \begin{bmatrix} \text{zero, if no transactions costs, perfect information and no entitlements} \\ CL^S + TC^B \text{ otherwise, if the criterion is transactional efficiency} \\ CL^S + TC^B + NC^S + EI^S \text{ otherwise, if the criterion is social efficiency} \end{bmatrix} \text{ and}$$

$$\eta = \begin{bmatrix} \int_{X_V}^{X_K} \left[P^B(X) - MC^S(X)\right] dx, \text{ if } X_V < X_K \text{ and Seller refuses partial performance} \\ \text{Zero, if } X_P = X_K \\ \int_{X_V}^{X_K} \left[P^B(X) - MC^V(X)\right] dx, \text{ if } X_V > X_K \text{ and Buyer breaches in whole} \end{bmatrix},$$

$$\text{s.t.} \quad \begin{bmatrix} \gamma < EI^S + SL + BC^B, \text{ if Buyer and Seller can reach a cooperative solution} \\ \gamma < P^B(X_K) - P^P(X_K) + HC^P \text{ (prevents outbidding by Purchaser)} \end{bmatrix}.$$

The preceding sections utilized these conditions to generate twelve assumptions necessary to and descriptive of efficient breach theory within monopolized and monopsonized markets. These are integrated into the assumptions of table five.

Table 5

Assumptions of Efficient Breach Theory Under Conditions of Monopoly or Monopsony Power

Assumption	Description
(C-1)	Disequilibrium must exist at the contract price "P_K" to effectuate contractual breaches when the units traded are homogenous.
(C-2)	As the costs of breach recognized under the common law increase, the ability of the breaching party to generate a transactional breach declines.
(C-3)	A breach is not socially efficient unless the benefits therefrom exceed the sum of the breachee's compensable losses (CL), non-compensable losses (NC) and entitlement interest (EI) and the breaching party's total losses (TL) arising from that breach.
(C-4)	In addition to assumption (C-2), a breach is not transactionally efficient unless the post-damage welfare exceeds that attainable from negotiation or (in the case of monopoly power) alternative trade given specific performance to Buyer. Further, assumption (C-3) necessitates that all transactional efficiency criteria must account for the non-breaching party's non-compensable losses (NC) and entitlement interest (EI) to satisfy the condition for social efficiency.
(C-5)	If the breaching party faces rivalry, that party's breach is transactionally efficient only if assumptions (C-2) and (C-4) are satisfied and the handling costs of the interloping agent less the non-breaching party's damages and breaching party's transactions costs exceed the absolute value of Buyer's willingness to pay less the willingness to pay/sell of the interloper.* The condition for social efficiency further requires the addition of the non-breaching party's non-compensable losses (NC) and entitlement interest (EI) to that party's damage award.
(C-6)	Given that the interloping agent wishes to trade "X_I" units, satisfaction of the efficient breach criteria becomes more likely as "X_I" approaches and surpasses "X_K", as the post-breach welfare increases or as the costs of the breach decline.

*By equation (5.15), $P^B(X_K)+CL^B+TC^S<HC^V+MC^V(X_K)$, which yields $P^B(X_K)-MC^V(X_K)<HC^V-CL^B-TC^S$. Conversely, by equation (5.27), $P^B(X_K)-CL^S-TC^B>P^P(X_K)-HC^P$, which gives $P^P(X_K)-P^B(X_K)<HC^P-CL^S-TC^B$.

Review of assumptions (C-1) through (C-6) and formulas (5.33) and (5.34) produces five corollaries central to the analysis of this chapter and the discussions which follow:

Corollary One: *To generate a contractual breach in markets where the good traded is homogenous across units, the breaching party must hold significant market power and must use that power to produce a market disequilibrium.*[42]

Corollary Two: *An efficient breach becomes less likely under the common law if cooperative bargaining is possible, if awards of specific performance are obtainable, or as the market power of the party seeking to breach declines.*[43]

Corollary Three: *An efficient breach is more likely as the variables CL, NC, EI and TC decrease or as the variables SC, TL, BC, BL, SL, and HC increase. However, if settlement is possible, a positive correlation exists between EI and the ability to breach under formulas (5.12) and (5.24).*[44]

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[42]Specifically, the output traded through the contract must fall below that of equilibrium at the contractual price to induce the interest of interloping agents.

[43]These conditions represent the various efficiency constraints of equations (5.33) and (5.34).

[44]Decline in the breacher's total costs (TC) or the breachee's compensable losses (CL), non-compensable losses (NC) or entitlement interest (EI) causes the values of χ and γ to decline, thereby aiding the criteria of formulas (5.33) and (5.34). Similarly, given awards of specific performance, the constraints upon these equations relax due to increases in the search costs of arbitrage in the face of such awards (SC), the joint losses of a spurned breach attempt (TL) or the bargaining costs (BC) and other losses (BL, SL) incurred

<u>Corollary Four</u>: *As X_I increases, the potential for an efficient breach becomes more likely.*[45] This reflects the ability of the breaching party to behave as an arbitrageur for all units $X \in [0, X_K]$ and to use discriminatory pricing for units traded with the interloping agent above X_K.

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by negotiation. If the breacher faces rivalry, increases in the rival's handling costs (HC) will decrease the likelihood that it may impede an efficient breach. Finally, equations (5.12) and (5.24) dictate that increases in "EI" will make a breach more efficient from a transactional perspective if cooperative bargaining is possible.

[45]Given equation (5.33), $\int_0^{\alpha}[P^P(X)-P^B(X)]\,dx-\delta-\chi\beta>0$. Since $\bar{\chi}\geq 0$, $\frac{\partial}{\partial X_I}\left[\int_0^{\alpha}[P^P(X)-P^B(X)]\,dx-\delta-\chi\beta\right] = P^P(X_I)-P^B(X_I)-\frac{\partial\delta}{\partial X_I}-\chi\frac{\partial\beta}{\partial X_I}$, which must be positive to support corollary one. If $X_I < X_K$,

$$\frac{\partial\delta}{\partial X_I}=\frac{\partial}{\partial X_I}\left[-\int_{X_K}^{X_I}[P^B(X)-MC^S(X)]\,dx\right]=MC^S(X_I)-P^B(X_I)<0 \text{ and } \chi\frac{\partial\beta}{\partial X_I}=\chi.$$

Hence, the corollary holds for $X_I \in (0, X_K)$, as the criterion $P^P(X_I)-P^B(X_I)-\chi>0$ must hold to generate a breach. If $X_K < X_I$,

$$\frac{\partial\delta}{\partial X_I}=\frac{\partial}{\partial X_I}\left[-\int_{X_K}^{X_I}[P^P(X)-MC^S(X)]\,dx\right]=MC^S(X_I)-P^P(X_I)<0 \text{ and } \chi\frac{\partial\beta}{\partial X_I}=0,$$

whereas if $X_I = X_K$, $\frac{\partial\delta}{\partial X_I}=\chi\frac{\partial\beta}{\partial X_I}=0$.

Therefore, since $P^P(X_I)-P^B(X_I)>0$, corollary four must hold for all $X_I>0$. Parallel analysis would similarly demonstrate the applicability of the corollary to formula (5.34).

Corollary Five: *All circumstances of transactionally efficient breach have the potential to reduce social welfare if the non-breaching party's non-compensable injury from the breach or entitlement interest is positive.* Equations (5.33) and (5.34) reflect this principle in the variables χ and γ; however, it is pertinent to note that entitlement interests are satisfied if a cooperative solution is attainable.

These corollaries define the principles necessary to generate efficient contractual breaches under circumstances where agents on one side of the market possess market power. Viewed collectively, these principles support this paper's thesis by demonstrating that efficient breach theory may simultaneously improve transactional welfare while reducing aggregate social welfare through disregard for contractual entitlements and non-compensable losses and by foreclosure of alternative market opportunities. However, universality dictates that the corollaries developed herein should hold when the contracting agents on *both* sides of the market assumptively hold significant market power; further, models explaining the relevance of market power to the theory of efficient breach are incomplete unless they can account for the strategic bargaining processes engendered by the various alternatives to contractual breach. Chapter VI attempts to address both of these concerns through the application of game theoretic techniques to analyses of bilateral monopoly.

CHAPTER VI

NON-STATIC MODELS OF EFFICIENT BREACH: BILATERAL MONOPOLY

This chapter assumes the existence of Buyer (equation [5.1]), Seller (equation [5.2]), Purchaser (equation [5.6]) and Vendor (equation [5.14]). Furthermore, the conditions $MC^S > MC^V$ and $P^P(X) > P^B(X)$ assumptively exist in the market. If the act of contracting incurs costly transactions, six scenarios may arise. Table six depicts these scenarios and identifies the characteristics of their respective market attributes.

Table 6

Scenarios of Bilateral Monopoly Given the Market Participation of Buyer, Seller, Vendor and Purchaser

Scenario	Condition	Characteristics
One	$MC^S > MC^V > P^P(X) > P^B(X)$	Uninteresting (no trade may occur)
Two	$MC^S > P^P(X) > MC^V > P^B(X)$	Uninteresting (no breach may occur)
Three	$MC^S > P^P(X) > P^B(X) > MC^V$	Equivalent to the scenario of chapter V, section (A)(1)
Four	$P^P(X) > MC^S > MC^V > P^B(X)$	Equivalent to the scenario of chapter V, section (B)(1)
Five	$P^P(X) > MC^S > P^B(X) > MC^V$	Gives rise to either a single contract between Vendor/Purchaser, Vendor/Buyer or Seller/Purchaser, or dual contracts among Purchaser/Seller and Buyer/Vendor
Six	$P^P(X) > P^B(X) > MC^S > MC^V$	Generates six initial situations: single contracts may arise between Purchaser/Seller, Purchaser/Vendor, Buyer/Seller or Buyer/Vendor, or dual contracts may arise between Purchaser/Seller and Buyer/Vendor or between Purchaser/Vendor and Buyer/Seller

The first two sections of this chapter analyze those scenarios relevant to efficient breach theory.[1] For clarity, these sections assume that the pre- and post-breach amounts of the good traded in each contract equals "X_K". Section (A) considers scenarios three and four; although the discussions of chapter V, sections (A)(1) and (B)(1) investigated these situations, section (A) will further analyze the issues of strategic bargaining which may arise if the breaching party tries to negotiate a cooperative settlement. Section (B) then considers scenarios five and six, focusing upon those contractual groupings which generate efficiency and inefficiency under the guise of efficient breach theory.

The chapter's third section relaxes the assumption of equivalent pre- and post-breach quantities traded across all contracts. In the interest of brevity, this examination is incomplete; however, it serves the purposes of this paper by applying corollary four of chapter V to the analysis of efficient breach theory under market conditions of bilateral monopoly.[2] The fourth section then concludes the chapter by linking the analyses performed herein to the remaining corollaries of chapter V.

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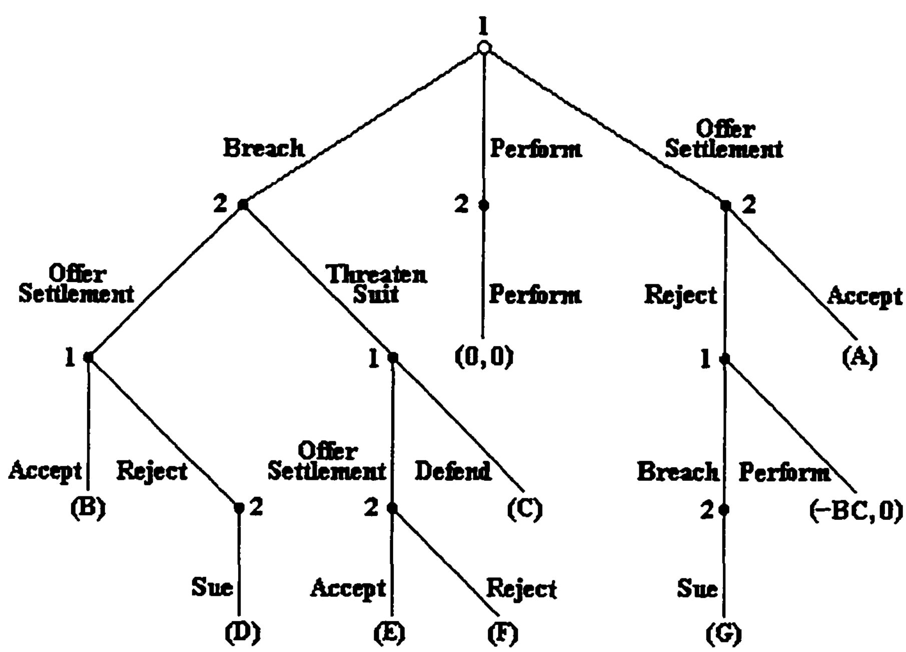
[1]Scenarios one and two fall outside this analysis, for contractual breaches are impossible in either instance.

[2]Specifically, section (C) demonstrates that efficient contractual breaches become more likely as the quantity sought by interloping agents increases.

(A) Bilateral Monopoly With Three Market Participants: Scenarios Three and Four

The discourse of chapter V, sections (A)(1) and (B)(1) assumed that non-breaching parties possess no market power concerning contract formation and breach; contractual prices and settlement awards therefore derived from the willingness to sell or pay of those parties at the output "X_K". Since assumptions of one-sided market power are not necessarily realistic, this section seeks to embellish the findings of chapter V by examining scenarios three and four under market conditions where all agents hold significant market power. The parallel nature of these scenarios allows for analysis through a single game theoretic treatment, illustrated in extensive form by figure two.

Figure 2. Scenarios Three and Four in Extensive Form



Game play assumes contractual formation and proceeds in two stages. Let S_{it} represent the strategy of player "i" in stage "t". In stage one, player one chooses from the set $S_{11} = (\text{breach, perform, offer settlement})$. Player two then chooses from $S_{21} = (\text{offer settlement, sue, perform, reject, accept})$, though its strategies are limited to

$$S_{21}(S^{*}_{11}) = \begin{Bmatrix} \text{(offer settlement, threaten suit) if } S^{*}_{11} = \text{(breach)} \\ \text{(perform) if } S^{*}_{11} = \text{(perform)} \\ \text{(reject, accept) if } S^{*}_{11} = \text{(offer settlement)} \end{Bmatrix}.$$

Payoff values (σ) are given in relation to dual performance by both parties, where $\sigma(S_{11}, S_{21}) = \sigma(\text{perform, perform}) = (0,0)$. Round one may conclude the game with this outcome or with payoff (A), which reflects a potential cooperative solution.

Absent resolution, the game moves to a second stage. Player one views its optimal strategy space according to:

$$S_{12}(S^{*}_{11}, S^{*}_{21}) = \begin{Bmatrix} \text{(accept, reject) if } S^{*}_{21} = \text{(offer settlement)} \\ \text{(offer settlement, defend) if } S^{*}_{21} = \text{(threaten suit)} \\ \text{(breach, perform) if } S^{*}_{21} = \text{(reject)} \end{Bmatrix}.$$

The game may end at this point given a cooperative solution (B), the breaching party's choice to defend against the suit (C),[3] the breaching party's choice to refuse settlement (D),

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[3]This chapter assumes no judicial error in assessing damage awards; thus, the choice to defend the lawsuit adds

or the decision of the would-be breacher to perform by the original contract's terms.[4] Otherwise, player two is left to pursue its own strategies in conclusion of round two:

$$S_{22}(S_{11}^{*},S_{21}^{*},S_{12}^{*})=\begin{Bmatrix}\text{(accept, reject) if } S_{21}^{*}=\text{(offer settlement)}\\ \text{(sue) if } S_{21}^{*}=\text{(breach)}\end{Bmatrix},$$

which give rise to outcomes (E), (F) and (G).

Except for the set $(S_{11},S_{21},S_{11})=(\text{breach,sue,defend})$, possible outcomes allow for a single round of negotiations in search of a cooperative solution. Unless a settlement arises, the party instigating an action bears the costs of that action; however, if the parties reach an accord, the parties divide the benefits and costs of all actions equally through the settlement agreement. If cooperation or performance of the contract does not occur, a lawsuit ensues and results in an award of specific performance or damages; assumptively, the parties are certain about which of these awards apply given the nature of the goods traded. The payoffs of the game are known to the parties and reflect the welfare criteria of chapter V. The following analyses use these values in search of Nash equilibria relevant to efficient breach theory.

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only to the total losses of the breach. However, chapter VII returns to issues of error costs in its positive analysis.

[4] $\sigma(S_{11}^{*},S_{21}^{*},S_{12}^{*})=\sigma(\text{offer settlement, reject, perform})=(-BC,0)$, where the bargaining costs of attempted negotiation assumptively fall upon the party seeking cooperation.

(1) Analysis of Scenario Three

Given that $MC^S > P^P(X) > P^B(X) > MC^V$, the original contract between Buyer and Vendor arises at the price "P_K" such that $P^B(X_K) \geq P_K \geq MC^V(X_K)$.[5] Vendor (player one) may seek to breach the contract with Buyer (player two) given the possibility of alternative trade with Purchaser at the price "$\tilde{P}$", where $P^P(X_K) \geq \tilde{P} \geq P^B(X_K)$.[6] Application of equations (5.4), (5.5) and (5.7) to this scenario therefore reveals the key efficiency criterion of Vendor's breach "Z^V", where $Z^V > 0$:

$$(6.2) \qquad Z^V = \int_0^{X_K} (\tilde{P} - P^B(X))dx .$$

The payoff values for the game descriptive of scenario three include this criterion, as summarized by table seven. Note that these values abide by common law principles concerning

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[5]Payoff $\sigma(S_{11}, S_{21}) = \sigma(\text{perform, perform}) = (0,0)$ perceives that Buyer and Vendor realize their expectancy interests, shown before as equations (5.4) and (5.5), respectively [note that "V" replaces "S" within equation (5.5)]. This sub-section therefore subtracts the values of these formulas from all payoffs described in table seven.

[6]Purchaser will pay "$\tilde{P}$" to any agent able to sell the goods. Thus, if cooperation arises or damages are assessed, Purchaser will buy from Vendor; otherwise (given an award of specific performance) Purchaser transacts with Buyer after Buyer invests search costs "SC^B" in arranging trade. Either contingency allows Purchaser to accrue the gain "Z^P":

$$(6.1) \qquad Z^P = \int_0^{X_K} (P^P(X) - \tilde{P})dx .$$

Table 7

Game Payoffs For Scenario Three

Value	Equational Support	Payoff
(A)	(5.12) and (5.13)	$(\frac{1}{2}[Z^V - BC - EI^B - BL], \frac{1}{2}[Z^V - BC - EI^B - BL])$
(B)	(5.12) and (5.13)	$(\frac{1}{2}[Z^V - BC - EI^B - BL], \frac{1}{2}[Z^V - BC - EI^B - BL])$
(C)	(5.8) - (5.11)	Damages: $([Z^V - CL^B - TC^V], -[NC^B + EI^B])$ Specific Performance: $(-TL, [Z^V - SC^B])$
(D)	(5.8) - (5.13)	Damages: $([Z^V - CL^B - TC^V], -[BC^B + NC^B + EI^B])$ Specific Performance: $(-TL, [Z^V - SC^B - BC])$
(E)	(5.12) and (5.13)	$(\frac{1}{2}[Z^V - BC - EI^B - BL], \frac{1}{2}[Z^V - BC - EI^B - BL])$
(F)	(5.8) - (5.13)	Damages: $([Z^V - CL^B - TC^V] - BC, -[NC^B + EI^B])$ Specific Performance: $([-TL - BC], [Z^V - SC^B])$
(G)	(5.8) - (5.13)	Damages: $([Z^V - CL^B - TC^V] - BC, -[NC^B + EI^B])$ Specific Performance: $([-TL - BC], [Z^V - SC^B])$

damage assessment. Thus, Vendor makes its decision to breach based upon the transactional efficiency criteria of formulas (5.8), (5.10) and (5.12), while Buyer must internalize the uncompensated costs generated by Vendor's breach.

Sub-game perfection requires separate consideration of these payoffs under the threats of specific performance and damages. In the case of damages, two relationships determine the behavior of the parties; for Buyer, the cost $-[NC^B + EI^B]$ in comparison to $\frac{1}{2}[Z^V - BC - EI^B - BL]$ determines its solution space, whereas Vendor makes decisions by comparing values $[Z^V - CL^B - TC^V]$ and $\frac{1}{2}[Z^V - BC - EI^B - BL]$. Conversely, if specific performance is proper, Buyer compares $\frac{1}{2}[Z^V - BC - EI^B - BL]$ to

$[Z^V - SC^B]$ and Vendor compares $\frac{1}{2}[Z^V - BC - EI^B - BL]$ to $[-TL]$. The parties determine whether settlement is feasible under these provisions through the condition $[Z^V - BC - EI^B - BL] > 0$. Table eight illustrates the resulting Nash equilibrium payoffs.

Table 8

Nash Equilibrium Payoffs For Scenario Three

Given Damages:	$\frac{1}{2}[Z^V - BC - EI^B - BL] > -[NC^B + EI^B]$	$\frac{1}{2}[Z^V - BC - EI^B - BL] < -[NC^B + EI^B]$
$[Z^V - CL^B - TC^V] > \frac{1}{2}[Z^V - BC - EI^B - BL]$	(C)	(C)
$[Z^V - CL^B - TC^V] < \frac{1}{2}[Z^V - BC - EI^B - BL]$	If possible, settlement arises through payoffs (A, B, E); elsewise, performance occurs.	(0,0)
Given Specific Performance	$\frac{1}{2}[Z^V - BC - EI^B - BL] > -TL$	$\frac{1}{2}[Z^V - BC - EI^B - BL] < -TL$
$[Z^V - SC^B] > \frac{1}{2}[Z^V - BC - EI^B - BL]$	(A) if settlement is possible; performance otherwise.	(0,0)
$[Z^V - SC^B] < \frac{1}{2}[Z^V - BC - EI^B - BL]$	If possible, settlement arises through payoffs (A, B, E); elsewise, performance occurs.	(0,0)

Given an award of damages, a breach occurs if Vendor's benefits from that breach exceed its share of the settlement agreement; conversely, if $[Z^V - CL^B - TC^V] < \frac{1}{2}[Z^V - BC - EI^B - BL]$, Vendor and Buyer settle the case if $[Z^V - BC - EI^B - BL] > 0$ holds and perform otherwise. Under threat of specific performance, settlement *always* occurs unless $[Z^V - BC - EI^B - BL] < 0$. Hence, three payoffs reflect potential Nash solutions to the game: $\sigma(S^*_{11}, S^*_{21}) = \sigma(\text{perform}, \text{perform}) = (0,0)$, $(C) = ([Z^V - CL^B - TC^V], -[NC^B + EI^B])$, and $(A,B,E) = (\frac{1}{2}[Z^V - BC - EI^B - BL], \frac{1}{2}[Z^V - BC - EI^B - BL])$. Comparison of these payoffs to the efficiency criteria of chapter V, section (A)(1) reveals that the conditions for transactional and societal welfare improvements under bilateral monopoly correspond to those of pure monopoly.[7] The principles needed to generate efficient breaches in scenario three therefore derive from the corollaries of chapter V irrespective of the presence of two-sided market power within that circumstance.

(2) Analysis of Scenario Four

Given that $P^P(X) > MC^S > MC^V > P^B(X)$, the original contract between Purchaser and Seller arises at the price "P_K" such that $P^P(X_K) \geq P_K \geq MC^S(X_K)$.[8] Purchaser (player one) may seek to

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[7]Application of the transactional efficiency criteria to the case of damages shows that equations (5.8) and (5.12) must hold for Vendor to breach. Violation of formula (5.12) results in a settlement of positive value or in performance of the original contract. In cases of specific performance, equation (5.12) alone determines whether Vendor will choose to breach or perform.

Discussions of social efficiency require the addition of Purchaser's gains from a settlement or breach "Z^P" to the relevant payoffs. In this event, the conditions for Vendor's socially efficient breach under damages equate to formulas (5.9) and (5.13), while equation (5.13) alone determines the social efficiency of settlement under either type of award.

Note that equations (5.10) and (5.11) are irrelevant to this analysis, for *Vendor will never breach given the threat of specific performance.*

[8]Payoff $\sigma(S_{11},S_{21}) = \sigma(\text{perform, perform}) = (0,0)$ assumes Purchaser and Seller realize their expectancy interests, shown before as equations (5.4) and (5.5), respectively [note that "P" replaces "B" within equation (5.4)]. Therefore, these values are subtracted from the payoffs defined in table nine.

breach the contract with Seller (player two) if trade with Vendor is possible at price "$\tilde{P}$", where $MC^S(X_K) \geq \tilde{P} \geq MC^V(X_K)$.[9] Equations (5.4), (5.5) and (5.21) then reveal the criterion for Purchaser's efficient breach "Y^P", where $Y^P > 0$:

$$(6.4) \qquad Y^P = \int_0^{X_K} (MC^S(X) - \tilde{P})dx.$$

The payoff values which contemplate a breach or cooperative solution for scenario four include this condition, as shown in table nine. These values presume common law assessment of damages; thus, Purchaser makes its decision to breach based upon the transactional efficiency criteria of equations (5.22) and (5.24), while Vendor must internalize the social costs generated by Purchaser's breach.

Sub-game perfection requires separate consideration of these payoffs under the threats of specific performance and damages. In the case of damages, Purchaser makes decisions by comparing $[Y^P - CL^S - TC^P]$ to $\frac{1}{2}[Y^P - BC - EI^S - SL]$, while Seller defines its solution space by comparing $\frac{1}{2}[Y^P - BC - EI^S - SL]$ to $-[NC^S + EI^S]$. If specific performance is obtainable, Purchaser

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[9]Unless performance of the original contract occurs, Vendor will accrue the welfare gain "Y^V" defined by:

$$(6.3) \qquad Y^V = \int_0^{X_K} (\tilde{P} - MC^V(X))dx.$$

Table 9

Game Payoffs For Scenario Four

Value	Equational Support	Payoff
(A)	(5.24) and (5.25)	$(\frac{1}{2}[Y^P - BC - EI^S - SL], \frac{1}{2}[Y^P - BC - EI^S - SL])$
(B)	(5.24) and (5.25)	$(\frac{1}{2}[Y^P - BC - EI^S - SL], \frac{1}{2}[Y^P - BC - EI^S - SL])$
(C)	(5.22), (5.23) and (5.26)	Damages: $([Y^P - CL^S - TC^P], -[NC^S + EI^S])$ Specific Performance: $(-TL, 0)$
(D)	(5.22) - (5.26)	Damages: $([Y^P - CL^S - TC^P], -[BC + NC^S + EI^S])$ Specific Performance: $(-TL, -BC)$
(E)	(5.24) and (5.25)	$(\frac{1}{2}[Y^P - BC - EI^S - SL], \frac{1}{2}[Y^P - BC - EI^S - SL])$
(F)	(5.22) - (5.26)	Damages: $([Y^P - CL^S - TC^P] - BC, -[NC^S + EI^S])$ Specific Performance: $([-TL - BC], 0)$
(G)	(5.22) - (5.26)	Damages: $([Y^P - CL^S - TC^P] - BC, -[NC^S + EI^S])$ Specific Performance: $([-TL - BC], 0)$

compares $\frac{1}{2}[Y^P - BC - EI^S - SL]$ to $[-TL]$, while Seller defines its solution space by determining whether settlement is feasible $([Y^P - BC - EI^S - SL] > 0)$. Table ten illustrates the payoffs which correspond to the Nash equilibria of this game.

If Seller receives damages, Purchaser will breach the contract if $[Y^P - CL^S - TC^P] > \frac{1}{2}[Y^P - BC - EI^S - SL]$; if this condition fails, Seller and Purchaser settle if $[Y^P - BC - EI^S - SL] > 0$ or perform otherwise. Under the threat of specific performance, performance of the original contract's terms *always* occurs unless $[Y^P - BC - EI^S - SL] < 0$. Like the prior sub-section, three payoffs reflect the possible Nash equilibria for this game: $\sigma(S^*_{11}, S^*_{21}) = \sigma(\text{perform, perform}) = (0,0)$, $(C) = ([Y^P - CL^S - TC^P], -[NC^S + EI^S])$, and $(A,B,E) = (\frac{1}{2}[Y^P - BC - EI^S - SL], \frac{1}{2}[Y^P - BC - EI^S - SL])$. Contrast of these

Table 10

Nash Equilibrium Payoffs For Scenario Four

Given Damages:	$\frac{1}{2}[Y^P - BC - EI^S - SL] > -[NC^S + EI^S]$	$\frac{1}{2}[Y^P - BC - EI^S - SL] < -[NC^S + EI^S]$
$[Y^P - CL^S - TC^P] > \frac{1}{2}[Y^P - BC - EI^S - SL]$	(C)	(C)
$[Y^P - CL^S - TC^P] < \frac{1}{2}[Y^P - BC - EI^S - SL]$	If possible, settlement arises through payoffs (A, B, E); elsewise, performance occurs.	(0,0)
Given Specific Performance	$[Y^P - BC - EI^S - SL] > 0$	$[Y^P - BC - EI^S - SL] < 0$
$\frac{1}{2}[Y^P - BC - EI^S - SL] > [-TL]$	(A, B, E) reflect equilibria, for settlement must be profitable given $[Y^P - BC - EI^S - SL] > 0$.	(0,0)
$\frac{1}{2}[Y^P - BC - EI^S - SL] < [-TL]$	Violates transitivity.	(0,0)

payoffs with the efficiency conditions of chapter V, section (B)(1) demonstrates that the conditions for transactional and societal welfare gains under bilateral monopoly parallel those of pure monopsony.[10] The principles needed to generate

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[10]Comparison of the transactional efficiency criteria of chapter V, section (B)(2) to the payoffs under damages shows that equations (5.22) and (5.24) must hold for Vendor to breach efficiently; violation of formula (5.24) results in a settlement of positive value or in performance of the original contract. Under threat of specific performance, the choice to breach or perform derives only from the criterion of equation (5.24). Analysis of social efficiency criteria requires the addition of Vendor's gains from a settlement or breach "Y^V" to the relevant payoffs; then, the conditions of Purchaser's socially efficient breach under damages equate to formulas (5.23) and (5.25), while equation (5.25) depicts the social efficiency criterion for settlement under either type of award. Equation (5.26) is irrelevant, for *Purchaser will never breach if threatened with specific performance.*

efficient breaches in scenario four therefore derive from the corollaries of chapter V, regardless of the presence of two-sided market power.

(B) Bilateral Monopoly With Four Market Participants: Scenarios Five and Six

Review of table six shows that ten initial contractual groupings are possible under scenarios five and six.

> *Scenario Five:* $P^P(X) > MC^S > P^B(X) > MC^V$. This situation may begin with a single contract between Purchaser and Vendor, Purchaser and Seller or Buyer and Vendor. In the alternative, dual contracts may arise through contracts between Buyer/Vendor and Seller/Purchaser.

> *Scenario Six:* $P^P(X) > P^B(X) > MC^S > MC^V$. This condition initially may generate a single contract between Vendor and Purchaser, Purchaser and Seller, Buyer and Vendor, or Buyer and Seller. Conversely, dual contracts may emerge between Purchaser/Seller and Buyer/Vendor or between Purchaser/Vendor and Buyer/Seller.

Fortunately, efficiency criteria are readily observable from these contingencies; for scenario five, the contract between Purchaser and Vendor maximizes social welfare,[11] while both

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[11]The contract between Purchaser and Vendor reflects the only opportunity to gain the welfare $\int_0^{X_K}\left[MC^S(X) - P^B(X)\right]dx$ within scenario five. Note that the availability of damages mandates that this contract is the only optimal equilibrium possible for the scenario. *Proof:* let "P_K" be the original contract price, "P_K^1" equal the price sought by the breaching party, and "P_K^2" represent the price of the contract obtained by the non-breaching party in mitigation of its damages.

cases of dual contracts maximize welfare for scenario six.[12] The following sub-sections therefore refine these conditions

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If $P^P(X_K) \geq P_K > MC^S(X_K)$, Purchaser may seek to breach if $P_K^1 < P_K$. Assuming a breach, the gains of Purchaser equate to $(P_K - P_K^1) \cdot X_K$, while the mitigated value of Vendor's injury is $\int_0^{X_K}[P_K - MC^V(X)]dx - \int_0^{X_K}[P_K^2 - MC^V(X)]dx = (P_K - P_K^2) \cdot X_K$. Purchaser's net gain then equals $(P_K - P_K^1) \cdot X_K - (P_K - P_K^2) \cdot X_K = (P_K^2 - P_K^1) \cdot X_K$, but since $P_K^1 \geq MC^S(X_K) > P^B(X_K) \geq P_K^2$, $(P_K^2 - P_K^1) \cdot X_K < 0$. Therefore, by equation (5.21), Purchaser will never breach the original contract.

If $P^B(X_K) > P_K \geq MC^V(X_K)$, Vendor may try to breach given $P_K^1 > P_K$. Assuming a breach, the values of Vendor's gains and Purchaser's mitigated damages respectively equal $(P_K^1 - P_K) \cdot X_K$ and $\int_0^{X_K}[P^P(X) - P_K]dx - \int_0^{X_K}[P^P(X) - P_K^2]dx = (P_K^2 - P_K) \cdot X_K$. Vendor's net gain therefore equals $(P_K^1 - P_K) \cdot X_K - (P_K^2 - P_K) \cdot X_K = (P_K^1 - P_K^2) \cdot X_K$, but since $P_K^2 \geq MC^S(X_K) > P^B(X_K) \geq P_K^1$, $(P_K^1 - P_K^2) \cdot X_K < 0$. Therefore, Vendor will never breach the original contract given formula (5.7).

If $MC^S(X_K) \geq P_K > P^B(X_K)$, neither party has the incentive to breach. Hence, the contract between Purchaser and Vendor reflects the equilibrium for scenario five as there is no price $P_K \in [MC^V(X_K), P^P(X_K)]$ which yields incentives to breach.

[12]Contracts between Purchaser/Seller and Buyer/Vendor yield welfare equivalent to that gained through contracts among Purchaser/Vendor and Buyer/Seller:

$$(6.5) \qquad \int_0^{X_K}[P^P(X) + P^B(X) - MC^S(X) - MC^V(X)]dx.$$

Note that the availability of damages dictates that either of these contractual arrangements may serve as a potentially stable equilibrium within scenario six:

Proof for case of Purchaser/Seller and Buyer/Vendor: Assume that the Purchaser/Seller contract arises at a price through analysis of the mechanisms necessary to propel the alternative contingencies toward pareto efficiency.

"P_K^1", while the price of the Buyer/Vendor contract is set to "P_K^2". Breach of these contracts results in the formation of two new contracts between Purchaser and Vendor (at the price "$\tilde{P}_1$") and between Buyer and Seller (at the price "$\tilde{P}_2$").

For Purchaser and Vendor to breach in pursuit of trade with each other, the condition $P_K^1 > \tilde{P}_1 > P_K^2$ must hold. Assuming breaches of the initial contracts, the joint gains of Vendor and Purchaser sum to $(P_K^1 - P_K^2)\cdot X_K$, while mitigated damages are

$$\int_0^{X_K}[P_K^1 - MC^S(X)]dx + \int_0^{X_K}[P^B(X) - P_K^2]dx - \int_0^{X_K}[P^B(X) - MC^S(X)]dx = (P_K^1 - P_K^2)\cdot X_K.$$

For Buyer and Seller to breach, $P_K^1 < \tilde{P}_1 < P_K^2$ must hold. Assuming this condition, the joint gains of Buyer and Seller from breach sum to $(P_K^2 - P_K^1)\cdot X_K$, while mitigated losses equal

$$\int_0^{X_K}[P_K^2 - MC^V(X)]dx + \int_0^{X_K}[P^P(X) - P_K^1]dx - \int_0^{X_K}[P^P(X) - MC^V(X)]dx = (P_K^2 - P_K^1)\cdot X_K.$$

Thus, equilibrium exists as the transacting parties have no incentive to breach if transactions are costless and will never breach if transactions costs are positive.

Proof for case of Purchaser/Vendor and Buyer/Seller: Assume that the prices of the Purchaser/Vendor and Buyer/ Seller contracts respectively equal "P_K^1" and "P_K^2". Breach of these contracts results in two new contracts between Seller and Purchaser (at price "$\tilde{P}_1$") and between Buyer and Vendor (at price "$\tilde{P}_2$"). The condition, gains and mitigated damages for breaches by Purchaser and Seller equal those described for Purchaser and Vendor in the prior proof, except that the value $MC^V(X)$ replaces $MC^S(X)$ within the damage calculation. Likewise, the condition, gains and mitigated damages for breaches by Buyer and Vendor equal those of Buyer and Seller in the prior proof, but $MC^S(X)$ replaces $MC^V(X)$ in damage computations. Therefore, since none of the agents possess the incentive to breach, dual contracts among Buyer/Seller and Purchaser/Vendor reflect an equilibrium to scenario six.

(1) Analysis of Scenario Five

Given that $P^P(X) > MC^S > P^B(X) > MC^V$, three contingencies merit attention: a single contract between Buyer and Vendor, a single contract between Purchaser and Seller, or dual contracts between Buyer/Vendor and Seller/Purchaser. This sub-section examines these cases in a manner consistent with the analysis of chapter V and the game-based discussion of section (A). The sub-section concludes by contrasting the outcomes of these situations to the efficiency criterion set by a contract between Purchaser and Vendor at equilibrium.

If Buyer and Vendor are the only contracting agents, Purchaser and Seller must either be unaware of each other's existence or be unable to agree upon a contractual price. If Seller's presence remains unrecognized, Purchaser and Vendor proceed with game play identical to that defined in section (A)(1). However, if Seller is able to bid against Vendor for trade with Purchaser at the price "$\tilde{P}$", equations (5.15) and (5.16) mandate that $\{\text{lesser of}[P^P(X_K), MC^S(X_K) + HC^S + \xi] \geq \tilde{P} \geq P^B(X_K)\}$ holds, where "HC^S" is Seller's handling costs in meeting Purchaser's demand and $\xi > 0$ due to Seller's market power. If $P^P(X_K) > MC^S(X_K) + HC^S + \xi$, Seller's presence could bid down "$\tilde{P}$" and reduce the value of the criterion for Vendor's efficient breach "Z^V" in formula (6.2). Review of table eight reveals that this event makes performance of the original contract's terms more likely, as reduction in "Z^V" erodes the benefits of Vendor's breach or settlement under awards of damages or specific performance.[13]

Study of the case of a single contract between Seller and Purchaser mirrors the prior examination. If Buyer does not enter the negotiations, game play identical to that of section (A)(2) commences. Conversely, if Buyer bids against Purchaser for trade with Vendor at the price "$\tilde{P}$", condition $\{MC^S(X_K) \geq \tilde{P} \geq \text{greater of}\,[MC^V(X_K), P^B(X_K) - HC^B - \xi]\}$ must hold by formulas (5.27) and (5.28), where "HC^B" is Buyer's handling costs in trading with Vendor and $\xi > 0$ due to Buyer's market power. If $MC^V(X_K) < P^B(X_K) - HC^S - \xi$, Buyer's presence could bid up "$\tilde{P}$" and reduce the value of Purchaser's efficient breach criterion "Y^P" as defined in formula (6.4). Table ten shows that this occurrence promotes performance of the original contract by reducing the benefits of breach or settlement possible under awards of damages or specific performance.[14]

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[13]Given damages, decline in the value of "Z^V" reduces $\frac{1}{2}[Z^V - BC - EI^B - BL]$ in comparison to $-[NC^B + EI^B]$ and reduces $[Z^V - CL^B - TC^V]$ in relation to $\frac{1}{2}[Z^V - BC - EI^B - BL]$, thus driving equilibrium toward $\sigma(S^*_{11}, S^*_{21}) = \sigma(\text{perform}, \text{perform}) = (0,0)$. In the case of specific performance, decline of "Z^V" reduces the values of $\frac{1}{2}[Z^V - BC - EI^B - BL]$ and $[Z^V - SC]$ in comparison to $[-TL]$ and $\frac{1}{2}[Z^V - BC - EI^B - BL]$, respectively; again, the result tends to shift equilibrium toward $\sigma(S^*_{11}, S^*_{21}) = \sigma(\text{perform}, \text{perform}) = (0,0)$.

[14]Given damages, decline in the value of "Y^P" promotes the condition $\frac{1}{2}[Y^P - BC - EI^S - SL] < -[NC^S + EI^S]$ and decreases the value $[Y^P - CL^S - TC^P]$ in respect to $\frac{1}{2}[Y^P - BC - EI^S - SL] - [NC^B + EI^B]$.

Discussion of dual contracts between Seller/Purchaser and Buyer/Vendor does not require game theoretic techniques. Let "P_K^1" and "P_K^2" respectively equal the contractual prices for Seller/Purchaser and Buyer/Vendor. If Seller and Buyer can renegotiate their contracts (incurring bargaining costs equal to "BC"), the condition necessary to trigger breach is $\{\text{lesser of}\,[MC^S(X_K)+BC, P_K^1] > \tilde{P} > \text{greater of}\,[P^B(X_K)-BC, P_K^2]\}$, where "$\tilde{P}$" is the contractual price set by Purchaser and Vendor. Given dual breaches of the original contracts and no transactions costs, societal welfare increases by an amount sufficient to satisfy the efficiency criterion.[15] However, introduction of costly transactions to this circumstance mandates that the net welfare from dual breaches must fall below that possible through an initial contract between Purchaser and Vendor.[16]

Further, given an award of specific performance, decline in "Y^P" promotes $[Y^P-BC-EI^S-SL]<0$ and $\frac{1}{2}[Y^P-BC-EI^S-SL]<[-TL]$. In both cases, the result tends to shift equilibrium toward $\sigma(S_{11}^*,S_{21}^*)=\sigma(\text{perform, perform})=(0,0)$.

[15]Gains made by Purchaser and Vendor equal $(P_K^1-P_K^2)\cdot X_K$, while the aggregate value of damages for Buyer and Seller is

$$\int_0^{X_K}[P_K^1-MC^S(X)]dx+\int_0^{X_K}[P^B(X)-P_K^2]dx=\int_0^{X_K}[P^B(X)-MC^S(X)]dx+(P_K^1-P_K^2)\cdot X_K.$$

The net welfare gain from the dual breaches therefore equals

$$(P_K^1-P_K^2)\cdot X_K-\int_0^{X_K}[P^B(X)-MC^S(X)]dx-(P_K^1-P_K^2)\cdot X_K=\int_0^{X_K}[MC^S(X)-P^B(X)]dx,$$

which is identical to the gain of the efficiency criterion.

[16]Assuming settlements are possible, Purchaser and Vendor perceive a reduction of welfare equal to the lesser of $[(CL^B+NC^B+EI^B+TC^V),(BC^V+EI^B+BL)]$ added to the minimum of

Comparison of the efficiency criterion to the outcomes of the alternative contingencies of scenario five confirms a loss of social welfare from those alternatives. In the case of a contract between Buyer and Vendor, the efficiency loss (by equation [5.13]) equals the lesser of $CL^B+NC^B+EI^B+TC^V$ and $BC+EI^B-BL$ if breach or settlement is possible and is equal to that of the efficiency criterion if Purchaser and Seller otherwise contract given performance of the original contract.[17] For a contract among Seller and Purchaser, lost efficiency (by equation [5.25]) is the lesser of $BC+EI^S-SL$ and $CL^S+NC^S+EI^S+TC^P$ given settlement or breach, but equals the value of the efficiency criterion if Buyer and Vendor contract after performance.[18] Finally, in the case of dual contracts, dual breaches generate welfare below that of the efficiency criterion given positive transactions costs.[19]

$[(CL^S+NC^S+EI^S+TC^P),(BC^P+EI^S+SL)]$ if they choose to breach. This reduction cannot exceed the welfare gain from the dual breaches; otherwise, the breaches become unprofitable and performance of the original contracts must ensue.

[17]This assumes that the act of contracting between Purchaser and Seller is costless; otherwise, the loss must include the transactions costs of that contract. If such costs prevent contract formation, the efficiency loss must include the lost welfare of the Purchaser/Seller contract.

[18]This perceives that contractual formation between Buyer and Vendor is costless; if not, the loss must include the transactions costs of their contract. Further, if these costs preclude contract formation, the efficiency loss must account for the lost welfare of the Buyer/Vendor contract.

[19]See note 16, *supra*.

The efficiency condition of scenario five demonstrates the role of information within efficient breach theory. If the various agents possessed perfect information prior to contracting, the outcome would always result in a contract among Purchaser and Vendor. The emergence of non-equilibrium contingencies therefore suggests that imperfect information must exist for Buyer and Seller to gain any trade within the scenario.[20] The desire of Purchaser and/or Vendor to breach then reflects an improvement in the knowledge base of those parties. Efficient breach therefore relies initially upon imperfect information, corrected by the breaching parties' recognition of alternative market opportunities.

(2) Analysis of Scenario Six

Given $P^P(X) > P^B(X) > MC^S > MC^V$, dual efficiency criteria exist wherein all agents trade through two contracts. Since these yield equivalent welfare gains, this sub-section will

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[20]From the perspective of industrial organization, the case of dual contracts does not reflect a disequilibrium *per se* as the market clears (albeit at different prices) through trade by mutual assent. Moreover, this circumstance may be *allocatively superior* to the efficiency criterion, for the volume of the good traded doubles given two contracts. This perception does not undermine the analysis of this section, which centers upon the pareto superiority of the efficiency criterion; however, it may contradict the principles stated in corollary one of chapter V. For this reason, the paper will analyze the efficiency condition of scenario five further within the discussion of section (D), *infra*.

focus upon the four possible contingencies in which a single contract initially exists between two of the four market participants. The analysis demonstrates that opportunities for breach will never arise within scenario six unless the parties removed from the original contract possess imperfect market information or are otherwise unable to cooperate.

Assume that the initial contract arises among two of the market participants under imperfect information. Next, assume that one of these parties (Breacher) becomes aware of the non-contracted agents and approaches its unbound market counterpart (Interloper) in search of a bid. If Interloper makes an offer, Breacher invests search costs "SC" to find the value of substitute performance between the remaining contracted party (Breachee) and its uncontracted counterpart (Refugee).[21] Breacher then zealously pursues the reservation price of Refugee in an effort to minimize its liability for damages to Breachee under the original contract.[22]

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[21]For simplicity, this section assumes that investment of "SC" guarantees discovery of Refugee's reservation price. Note that contract law does not require Breacher to make this expenditure; however, Breachee must incur "SC" (absent Breacher's action) to mitigate damages and Breacher must compensate Breachee for this expenditure. Thus, the analysis of this sub-section assumes that Breacher invests "SC" as a preemptive measure to eliminate uncertainty concerning the value of its damage liability to Breachee.

[22]Breacher's liability is eliminated if the substitute performance of Refugee leaves Breachee as well or better off than it was under the original contract.

Let "P_K" be the price of the original contract, "P_K^1" be the contractual price between Breacher and Interloper, and "P_K^2" equal the price of the contract between Refugee and Breachee. If Breacher is on the demand side of the market, the condition $P_K^1 < P_K$ must hold for a breach to be efficient; conversely, $P_K^1 > P_K$ is the initial efficiency condition for a breach by a supplier. The following analysis separates the discussion of scenario six according to this condition.

Consider the case where Breacher is on the demand side of the market. Breacher then seeks a gain of $(P_K - P_K^1)\cdot X_K$, but faces losses bounded by a maximum of formula (5.5) (plus all ancillary losses) and a minimum observed through "SC". The criterion for efficient breach is therefore less stringent than that required by equation (5.23); Breacher's minimum damages equal Breachee's total mitigated secondary losses "TL" plus "SC" and $(P_K - P_K^2)\cdot X_K$ if $P_K > P_K^2$, or equal the sum of "TL" and "SC" if $P_K \le P_K^2$.[23] Breach occurs if the transactional efficiency criterion of equation (6.6) holds.

$$(6.6) \qquad (P_K - P_K^1)\cdot X_K > TL + SC + \begin{bmatrix} (P_K - P_K^2)\cdot X_K,\ \text{if}\ P_K > P_K^2 \\ \text{zero, if}\ P_K \le P_K^2 \end{bmatrix}$$

The social efficiency condition for breach subtracts the value $(P_K - P_K^2)\cdot X_K$ from the left side of equation (6.6):

[23]These awards assume that Breachee gains substitute performance at a price above its marginal cost; otherwise, the maximum damage boundary caps Breacher's liability.

$$(6.7) \quad (P_K^2 - P_K^1)\cdot X_K > TL + SC.^{24}$$

Given that "TL" and "SC" are positive, efficient breach may occur only if $P_K^2 > P_K^1$. However, "P_K^1" represents Interloper's willingness to sell and "P_K^2" reflects Refugee's willingness to pay; Interloper and Refugee could therefore find mutual gain by rejecting trade with the original contracting agents and by creating their own contract at the price "$\tilde{P}$", where $P_K^2 > \tilde{P} > P_K^1$.[25] This implies that an "efficient" breach of the original contract is possible only if Interloper and Refugee cannot contract, indicating that they are either unaware of each other's presence (due to imperfect market information) or are otherwise unwilling to cooperate.[26]

Now assume that Breacher is on the supply side of the market. Breacher seeks to gain $(P_K^1 - P_K)\cdot X_K$, but faces losses bounded by a maximum of formula (5.4) (plus all secondary losses) and a minimum observed through the expenditure "SC". Breacher's minimum damage liability equals Breachee's total mitigated secondary losses "TL" plus "SC" and $(P_K^2 - P_K)\cdot X_K$ if

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[24]Given $P_K > P_K^2$, $(P_K - P_K^2)\cdot X_K$ subtracts from the left side of equation (6.6) to reflect Breachee's damages. If $P_K \le P_K^2$, $(P_K^2 - P_K)\cdot X_K = -(P_K - P_K^2)\cdot X_K$ is added to the left side of (6.6) to reflect Breachee's gains from substitute performance.

[25]This occurrence generates an outcome equivalent to and contemplated by the efficiency criteria of scenario six.

[26]Note that a breach of the original contract mandates that total social welfare will fall short of the efficiency criteria by an amount equal to TL+SC.

$P_K < P_K^2$, or equal "$TL+SC$" if $P_K \geq P_K^2$.[27] A breach occurs if the transactional efficiency criterion of equation (6.8) holds.

$$(6.8) \qquad (P_K^1 - P_K)\cdot X_K > TL+SC+\begin{bmatrix}(P_K^2 - P_K)\cdot X_K, \text{ if } P_K < P_K^2 \\ \text{zero, if } P_K \geq P_K^2\end{bmatrix}$$

The social efficiency condition for breach subtracts the value $(P_K^2 - P_K)\cdot X_K$ from the left side of equation (6.8):

$$(6.9) \qquad (P_K^1 - P_K^2)\cdot X_K > TL+SC.^{28}$$

Given $TL+SC>0$, breach occurs only if $P_K^1 > P_K^2$. However, since "P_K^1" and "P_K^2" respectively reflect Interloper's willingness to pay and Refugee's willingness to sell, both parties could gain by rejecting trade with Breacher and Breachee and by contracting at the price "$\tilde{P}$".[29] Hence, "efficient" breach of the original contract occurs only if Interloper and Refugee cannot contract, indicating that they possess imperfect market information or are otherwise unable to cooperate.[30]

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[27]These awards assume that Breachee gains substitute performance at a price below its demand curve; otherwise, the maximum damage boundary caps Breacher's liability.

[28]Given $P_K < P_K^2$, $(P_K^2 - P_K)\cdot X_K$ subtracts from the left side of equation (6.8) to reflect Breachee's damages. If $P_K \geq P_K^2$, $(P_K - P_K^2)\cdot X_K = -(P_K^2 - P_K)\cdot X_K$ is added to the left side of (6.8) to reflect Breachee's gains from substitute performance.

[29]If $P_K^1 > \tilde{P} > P_K^2$, this contract satisfies the efficiency criteria for scenario six.

[30]Breach of the original contract reduces total social welfare below the efficiency criteria by the amount $TL+SC$.

(C) Partial Breaches and Price Discrimination Under Market Conditions of Bilateral Monopoly

The analysis of the prior sections assumed that trade requires the parties to exchange "X_K" units of good "G". The discussion of this section relaxes this assumption, allowing the pre- and post-breach quantities of "G" traded to vary across contracts.[31] The following discourse scrutinizes the equilibria conditions of scenarios three through six given that post-breach trade occurs at some level of output "X_I", where $X_I \neq X_K$. In harmony with corollary four of chapter V, this examination demonstrates that efficient breaches become more likely as the value "X_I" increases.

For scenario three, relevant variables are positively correlated with "X_I" up to "X_K". Assuming first that "X_I" declines below "X_K", the values of formulas (6.1) and (6.2) incrementally decline in greater proportion than the other variables.[32] Therefore, settlement or breach of the original

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[31]To preserve clarity, the analysis of this section assumes that all initial contracts require trade of "X_K" units of "G"; contracts formed subsequent to a breach may then specify amounts divergent from this quantity. This assumption renders the following discourse incomplete from the perspective of universality. However, its inclusion is necessary to retain the efficiency criteria developed in sections (A) and (B), *supra*, thereby focusing the discussion of the section to applying corollary four of chapter V to the study of efficient breach under bilateral monopoly.

[32]All variables other than "Z^V" and "Z^P" assumptively decline by the proportion $(X_K - X_I)/X_K$; however, equations (5.14) and (5.6) mandate that the comparative reduction of

contract becomes less likely under equation (5.17) if Buyer is willing to accept partial performance, or by equation (5.18) if Buyer rejects the remaining units.[33] If $X_I > X_K$, formulas (5.19) and (5.20) dictate that additions to "Z^V" and "Z^P" are in order, indicating that efficient breaches become more likely under damages as "X_I" surpasses "X_K".[34]

Analysis of scenario four parallels that of scenario three. As "X_I" declines (where $X_I < X_K$), formulas (6.3) and (6.4) marginally decrease in greater proportion than other relevant variables.[35] Settlement or breach of the original contract therefore grows less likely by equation (5.29) if Seller accepts partial performance, or by equation (5.30) if Seller refuses to deliver the remaining units.[36] If $X_I > X_K$, formulas (5.31) and (5.32) require additions to the values of "Z^V" and "Z^P", indicating that efficient breaches become more likely as "X_I" approaches and passes beyond "X_K".[37]

Z^V and Z^P must be greater than this amount due to loss of producer and consumer surplus.

[33]Recall the analysis of note 13, *supra*.

[34]Given specific performance, parallel analysis would reveal that settlement becomes more likely as "X_I" rises.

[35]All values but "Y^P" and "Y^V" decline proportionally by the value $(X_K - X_I)/X_K$; however, formulas (5.6) and (5.14) respectively mandate that decline in Y^P and Y^V must exceed this amount through loss of consumer and producer surplus.

[36]For further discussion, see note 14, *supra*.

[37]This is true for awards of damages and of specific performance, for the relationship of "X_I" to "X_K" affects the parties' abilities to breach and settle efficiently.

For scenario five, the effects of variances in "X_I" are observable directly through analysis of the conditions necessary to trigger breaches under the three contingencies. If only Buyer and Vendor are in contract, Vendor's breach requires that $\{\text{lesser of}[P^P(X_I), MC^S(X_I)+HC^S+\xi] \geq \tilde{P} \geq P^B(X_K)\}$ holds; as "X_I" rises, Vendor's ability to breach therefore improves through support of the condition $\{P^P(X_I) < MC^S(X_I)+HC^S+\xi\}$.[38] Likewise, given a lone contract among Purchaser and Seller, the condition $\{MC^S(X_K) \geq \tilde{P} \geq \text{greater of}[MC^V(X_I), P^B(X_I)-HC^B-\xi]\}$ indicates that increases in "X_I" bolster Purchaser's ability to breach efficiently through support of the inequality $\{MC^V(X_I) > P^B(X_I)-HC^S-\xi\}$.[39] Finally, given two contracts between Seller/Purchaser and Buyer/Vendor, the joint breach criterion is $\{\text{lesser of}[MC^S(X_I)+BC, P_K^1] > \tilde{P} > \text{greater of}[P^B(X_I)-BC, P_K^2]\}$; increases in "$X_I$" therefore drive this criterion toward the base requirement for breach by Purchaser and Vendor.[40]

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[38]Equations (5.6) and (5.2) respectively require that $P^P(X_I)$ will decrease and $MC^S(X_I)$ will increase as the level of output traded "X_I" increases. Thus, the ability of Seller to bid against Vendor for trade with Purchaser declines as "X_I" approaches and passes "X_K".

[39]Formulas (5.14) and (5.1) respectively mandate that $MC^V(X_I)$ increases and $P^B(X_I)$ decreases as "X_I" rises. The ability of Buyer to outbid Purchaser for trade with Vendor therefore decreases as "X_I" approaches and passes "X_K".

[40]By equations (5.2) and (5.1), $MC^S(X_I)$ and $P^B(X_I)$ must respectively increase and decrease as "X_I" rises. Further, increases in "X_I" may drive up "BC", thereby pushing the criterion toward the base efficiency condition $\{P_K^1 > \tilde{P} > P_K^2\}$.

Analysis of scenario six is similarly straightforward. If Breacher is on the demand side of the market, growth in "X_I" up to "X_K" increases the left sides of the social and transactional efficiency criteria at a faster rate than the right sides of those formulas, implying that a rise in "X_I" aids Breacher's ability to act as an arbitrageur;[41] as "X_I" surpasses "X_K", the left sides of these criteria continue to increase due to Breacher's price discrimination, indicating a positive correlation between Breacher's ability to breach efficiently and the value of "X_I".[42] Parallel analysis when Breacher is a supplier also supports this relationship,[43] confirming adherence of the scenario to corollary four.

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[41]In the transactional efficiency criterion (equation [6.6]), rise in "X_I" directly increases Breacher's gains from breach $\{(P_K - P_K^1)\cdot X_I\}$ and (if $P_K > P_K^2$) damage liability to Breachee $\{(P_K - P_K^2)\cdot X_I\}$. However, the values of "TL" and "SC" increase by the factor $^{X_I}/_{X_K}$, indicating that satisfaction of equation (6.6) grows more likely as "X_I" approaches "X_K". Similarly, the social efficiency criterion (formula [6.7]) demonstrates that the welfare gain from breach $\{(P_K^2 - P_K^1)\cdot X_I\}$ rises directly with "X_I", while "TL" and "SC" proportionally increase by the ratio $^{X_I}/_{X_K}$. Hence, satisfaction of equation (6.7) also grows more likely as "X_I" approaches "X_K".

[42]Note that Breacher's gains from breach $\{(P_K - P_K^1)\cdot X_I\}$ in equation (6.6) and the social welfare gain $(P_K^2 - P_K^1)\cdot X_I$ in formula (6.7) continue to rise as "X_I" surpasses "X_K", while the right sides of these criteria reach a maximum at $X_I = X_K$.

[43]As "X_I" nears "X_K", the right sides of the social and transactional efficiency criteria (formulas [6.9] and [6.8], respectively) increase more slowly than the left sides of those equations due to proportional increases in "TL" and

(D) Synopsis: Efficient Breaches Under Bilateral Monopoly

The sections of this chapter sought to add an element of universality to the corollaries of chapter V through the analysis of efficient breach theory under market conditions of bilateral monopoly. The framework for achieving this end assumed four market participants: two buyers with asymmetric demand functions, and two sellers with dissimilar marginal costs. Given costly transactions, six scenarios emerged from the possible relationships between these buyers and sellers, four of which could lead to a contractual breach. Sections (A) and (B) developed the criteria of transactionally and socially efficient breach for these scenarios, as summarized within table eleven. Section (C) demonstrated the adherence of the criteria to corollary four of chapter V. This section therefore concludes the analysis of this chapter by linking the criteria to the remaining corollaries of chapter V.

Corollary one of chapter V posited that agents seeking to breach contracts for homogenous goods must possess market power and use that power to generate market disequilibrium. By assumption, all scenarios meet the requirement of market power given the market structure considered. Further, all

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"SC" by the ratio X_I/X_K. As "X_I" passes "X_K", the left sides of (6.8) and (6.9) continue to increase while the right sides of those equations remain static. Hence, satisfaction of these criteria grows more likely as "X_I" increases up to and beyond the value of "X_K".

Table 11

Efficient Breach Criteria for Scenarios Three Through Six

Scenario	Transactional Criteria	Social Criteria
Three (Breach/Damages)	$[Z^V - CL^B - TC^V] > \frac{1}{2}[Z^V - BC - EI^B - BL]$	$\frac{1}{2}[Z^V + Z^P] - CL^B - TC^V - NC^B > \frac{1}{2}[EI^B - BC - BL]$
Four (Breach/Damages)	$[Y^P - CL^S - TC^P] > \frac{1}{2}[Y^P - BC - EI^S - SL]$	$\frac{1}{2}[Y^P + Y^V] - CL^S - TC^P - NC^S > \frac{1}{2}[EI^S - BC - SL]$
Five (Buyer/Vendor)	$P^P(X_K) < MC^S(X_K) + HC^S + \xi$	$P^P(X_K) + (NC^B + EI^B)/X_K < MC^S(X_K) + HC^S + \xi$
Five (Purchaser/Seller)	$MC^V(X_K) > P^B(X_K) - HC^S - \xi$	$MC^V(X_K) - (NC^S + EI^S)/X_K > P^B(X_K) - HC^S - \xi$
Five (Dual Contracts)	lesser of $[MC^S(X_K) + BC, P_K^1]$ $> \tilde{P} >$ greater of $[P^B(X_K) - BC, P_K^2]$	lesser of $[MC^S(X_K) + BC, P_K^1]$ $> \bar{P} + (NC^S + EI^S + NC^B + EI^B)/X_K >$ greater of $[P^B(X_K) - BC, P_K^2]$
Six (Breacher on Demand Side)	$(P_K - P_K^1) \cdot X_K >$ $TL + SC + \begin{bmatrix} (P_K - P_K^2) \cdot X_K, \text{ if } P_K > P_K^2 \\ \text{zero, if } P_K \le P_K^2 \end{bmatrix}$	$(P_K^2 - P_K^1) \cdot X_K > TL + SC$
Six (Breacher on Supply Side)	$(P_K - P_K^1) \cdot X_K >$ $TL + SC + \begin{bmatrix} (P_K^2 - P_K) \cdot X_K, \text{ if } P_K < P_K^2 \\ \text{zero, if } P_K \ge P_K^2 \end{bmatrix}$	$(P_K^1 - P_K^2) \cdot X_K > TL + SC$

scenarios and contingencies reflect a disequilibrium-based motivation for breach, except for the case of dual contracts under scenario five. This anomaly arises due to differing perceptions of the equilibrium concept; although the case of dual contracts represents a potential *market* equilibrium for scenario five, it fails to generate a *Nash* equilibrium as evidenced by instability within the contingency once market information improves. Hence, the case of dual contracts in scenario five also follows the principle of corollary one, albeit through refinement of the equilibrium concept under imperfect information.

Inspection of table eleven reveals that all scenarios conform to corollary two. As settlement becomes more likely or as relief tends toward specific performance, the criteria of scenarios three and four reflect diminished likelihood of welfare gains through a non-cooperative breach; scenarios five and six implicitly follow the same process by reliance upon the mechanism generating the equilibria of scenarios three and four. Furthermore, all scenarios show a positive relationship between market power and the ability to breach efficiently, either through the gains made from breach or the comparative market power of potential rivals.[44]

Corollary three predicts unique relationships between the secondary variables of the criteria and the likelihood of efficient breach. Comparison of the efficiency conditions of table eleven to the corollary reveals that all variables except "SC" and "TL" adhere to expected relationships.[45] The deviation of "SC" and "TL" is explainable through comparison of the analyses generating equations (6.6) through (6.9) and formulas (5.10) and (5.11). Scenario six requires Breacher

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[44]As market power declines, the values of "Z^V", "Z^P", "Y^P" and "Y^V" decline in scenarios three and four, while the gains made by Breacher fall in scenario six. Similarly, loss of comparative market power diminishes the Breacher's ability to satisfy the efficiency criteria of scenario five.

[45]In all applicable scenarios, efficient breaches grow more likely as the variables "CL", "NC" and "TC" decrease or as the variables "BC", "BL", "SL" and "HC" increase. Under all social efficiency criteria, the value of "EI" negatively correlates to the ability to breach; however, the conditions for transactional efficiency reveal that increases in "EI" will increase the likelihood of breach in scenarios three and four due to the parties' ability to settle.

to compare the loss "SC+TL" under damages to the benefits of trade with Interloper; conversely, equations (5.10) and (5.11) require a comparison of the costs of breach to the costs incurred by Breachee through its trade with Interloper after an award of specific performance. Thus, scenario six does not violate corollary three, as the analytic basis for its criteria falls outside the purview of the corollary.

Scenario six also seems to present a lone exception to the principle of corollary five. Comparison of the criteria for scenarios three, four and five verifies that the social efficiency conditions for those scenarios are more stringent than their transactional counterparts.[46] However, comparison of the conditions for breach within scenario six indicates that the transactional criteria are more stringent that the social criteria under its contingencies. This circumstance arises from Breacher's efforts to minimize its liability to Breachee given imperfect information;[47] however, it does not violate corollary five, as Breacher's actions indemnify the entitlement interest and non-compensable losses of Breachee.

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[46]The social efficiency conditions of scenarios three and four respectively require that "Z^P" and "Y^V" exceed the sum of "EI" and "NC", while the criteria of scenario five reflect potential reductions in social welfare if the values of "EI" and "NC" are positive.

[47]Specifically, Breacher must first determine the size of the net social surplus, then decide whether its share of that surplus is sufficient to warrant a breach.

Furthermore, the efficiency criteria of scenario six depict the conditions necessary for breach only if the efforts of Breacher reduce its damage liability below legal maximums; otherwise, the conditions for breach within the scenario strictly adhere to the postulate of corollary five.[48]

The anomalous nature of the efficiency conditions for scenarios five and six indicates that the corollaries of chapter V inadequately describe the behavior of contracting agents given imperfect information and the opportunity for substitute performance. The following corollary therefore seeks to account for these aberrations:

Corollary: *Efficient breach relies on imperfect market information, corrected by the recognition of the breaching agent of alternative market opportunities.*[49] *Furthermore, if substitute performance is possible, that agent will invest search costs to reduce uncertainty concerning its liability; this event guarantees that all instances of transactionally efficient breach must be socially efficient as well.*

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[48]When Breacher is on the demand side, formulas (5.22) and (5.23) indicate that the social efficiency criterion requires that $(P_K - P_K^2) \cdot X_K > NC + EI$. If Breacher is a supplier, formulas (5.8) and (5.9) require that $(P_K^2 - P_K) \cdot X_K > NC + EI$ must hold to retain social efficiency.

[49]This observation serves to embellish corollary one of chapter V, for every instance of efficient breach cited within this paper implicitly assumed imperfect information at the time of initial contract formation (otherwise, the breacher would bypass the original contract altogether).

Joined with the discussions of chapters four and five, the analyses of this chapter provide a universal perspective of the role of industrial organization within the theory of efficient breach. Issues of market power, arbitrage, price and monopsonistic discrimination, transactional and social welfare maximization, imperfect information, informational asymmetries, substitute performance, relative transactions costs, alternative damage awards and cooperative bargaining emerge as critical elements in the assessment of whether a breach is "efficient" from economic and legal perspectives. However, the examination avoided several other questions to attain this end, including concerns relating to the welfare of society given possible imperfections in the legal system or potential abuses of market power deriving from current caps on contractual damages. The final chapter of this paper addresses these issues through an assessment of efficient breach theory on positive and normative economic grounds.

CHAPTER VII

THE THEORY OF EFFICIENT BREACH: POSITIVE AND NORMATIVE PERSPECTIVES

The analyses of chapters IV, V and VI established the foundation for study of the social consequences of breaches of contract. The nine corollaries developed therein defined the principles of industrial organization needed to produce "efficient" breaches under the common law. Table twelve compiles those corollaries. Examination of the table reveals that the prior discussions shelved several issues relevant to efficient breach theory, including concerns of improper behavior by breaching agents with market power and flawed assessment of damages due to judicial error. Analysis of these problems fosters deeper questions concerning the wisdom of the Holmesian compensation principle and the value of alternative damage awards to social welfare maximization.

This chapter analyzes positive and normative issues of efficient breach unexplored in the prior discussions of this paper. Section (A) focuses upon positive economic concerns, including the topics of abusive market behavior and judicial error. Section (B) pursues a normative course by assessing the value of the Holmesian compensation principle given the

Table 12

The Corollaries of Chapters VI, V and VI

Chapter IV-Corollary One	If compensation is perfect, a breach of contract will never arise within competitive markets.
Chapter IV-Corollary Two	For breaches arising within competitive markets, general expectancy damages equal those under the combined theories of reliance and restitutive disgorgement.
Chapter IV-Corollary Three	Contractual breach is never efficient within competitive environments.
Chapter V-Corollary One	To generate a contractual breach in markets where the good traded is homogenous across units, the breaching party must hold significant market power and use that power to produce a market disequilibrium.
Chapter V-Corollary Two	An efficient breach becomes less likely if cooperative bargaining is possible, if awards of specific performance are obtainable, or as the market power of the party seeking to breach declines.
Chapter V-Corollary Three	An efficient breach is more likely as the variables CL, NC, EI and TC decrease or as the variables SC, TL, BC, BL, SL, and HC increase. However, if settlement is possible, a positive correlation exists between EI and the ability to breach under formulas (5.12) and (5.24).
Chapter V-Corollary Four	As X_I increases, the potential for an efficient breach becomes more likely. This reflects the ability of the breaching party to behave as an arbitrageur for all units $X \in [0, X_K]$ and to use discriminatory pricing for units traded with the interloping agent above X_K.
Chapter V-Corollary Five	All circumstances of transactionally efficient breach have the potential to reduce social welfare if the non-breaching party's non-compensable injury from the breach or entitlement interest is positive.
Chapter VI	Efficient breach relies on imperfect market information, corrected by the recognition of the breaching agent of alternative market opportunities. Further, if substitute performance is possible, that agent will invest search costs to reduce uncertainty concerning its liability; this event guarantees that all instances of transactionally efficient breach must be socially efficient as well.

availability of alternative forms of relief. These analyses distinguish this paper from the surveyed literature, for the precepts of industrial organization simultaneously describe the inefficiency of the Holmesian compensation principle as applied to windfall-based breaches and suggest the expanded use of specific performance as an alternative for improving the efficiency of the current system.

(A) Positive Perspectives of Efficient Breach

The first four corollaries of table twelve stress the significance of market power to efficient breach. However, the analysis of chapter III, section (A)(6) showed that such power creates productive, allocative and pareto inefficiency within the marketplace. As gauged by pareto-based standards, "efficient" contractual breach then reflects an improvement in transactional welfare within non-competitive industries. This perception leads to a question central to further study of efficient breach theory: given economic and legislative contempt for abusive behavior by firms with market power, and given that the welfare benefits of a breach are reserved to the breaching party with market power, does the current system of contractual damages promote efficient markets?

The analyses of this paper and the existing literature suggest a negative response to the posed query. Chapters V and VI and the authors discussed in chapter II, section (C) describe breaches which are transactionally efficient, but defy societal efficiency through lack of recognition for the losses of a non-breaching party's non-compensable interests. The current system provides contracting agents in possession of market power with the ability to ignore such concerns in the interest of profit maximization; therefore, this system rewards market power by allowing breaching parties to avoid some of the costs generated by the negative externalities of their transgressions. Furthermore, the transactional welfare gains from "efficient" breaches may not offset the losses in social welfare inherent to the current system, as indicated by corollary five of chapter V. These factors suggest a flaw in efficient breach theory under the Holmesian compensation principle, for that theory forsakes societal and market-wide efficiency for the transactional gains made from a breach.

Corollary four of chapter V provides further evidence of this defect. Given a breach of contract for the lot "X_K", the post-breach amount traded "X_I" determines the value of the breach to society. If $X_I \leq X_K$, social welfare accrues by the arbitrage of the breaching party. If $X_I > X_K$, units above "X_K" yield additional welfare through price or monopsonistic discrimination. The latter case seems to support efficient breach theory, as the allocative efficiency of the industry improves from post-breach trade.[1] However, if $X_I < X_K$ in the former case, an "efficient" breach would reduce allocative efficiency in the marketplace and could decrease net social welfare given entitlements or other non-compensated losses.[2]

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[1]However, a breach when $X_I > X_K$ does not guarantee an increase in social welfare unless the aggregate welfare gain from that breach exceeds the entitlement interest and other non-compensable losses of the non-breaching party.

[2]This outcome is similar to that perceived by studies concerning third-degree price discrimination in monopolized markets. For further discussion, see Nicholson (chapter III, note 1, *supra*), 622-625. See also the analyses of scenario five contained in chapter VI, sections (B)(1) and (D).

The presence of judicial error further constrains the possibility of efficient contractual breaches. Two sources of uncertainty arise given erroneous rulings: uncertainty in the assessment of damages and uncertainty regarding the type of remedy available. The analyses of chapter IV demonstrated that inadequate awards of damages increase the likelihood of inefficient breaches,[3] while chapters V and VI suggest that overcompensatory damage awards would inhibit transactionally efficient breaches and could obstruct some cases of socially efficient breach.[4] Therefore, uncertainty concerning damage estimates casts further doubt concerning the efficiency of the Holmesian compensation principle. Uncertainty regarding the type of remedy available also reduces the probability of breach, but does not inhibit the ability of the contracting agents to settle if cooperative bargaining is possible.[5]

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[3]Undervaluation of damage awards allows price-taking agents to benefit from breach, resulting in a loss of social welfare given costly transactions and imperfect information. This is also true for agents with market power, as reduction of damages below "CL+TC" allows those agents further refuge from the social consequences of their transgressions.

[4]Damage awards above "CL+TC" reduce the transactional incentive to breach; however, overcompensatory awards would increase the likelihood of socially efficient breach unless they exceeded "CL+TC+NC+EI". Awards above this value would diminish the number of truly efficient breaches, as damages then exceed those necessary to compensate injured parties.

[5]Tables eight and ten of chapter VI, section (A) show that breach will never occur if specific performance is the known remedy; it therefore follows that the likelihood of a

In summary, awards of expectancy damages as directed by the Holmesian compensation principle do not encourage the positive efficiency goals sought by industrial organization. Efficient breach theory, as an arm of Holmesian philosophy, therefore sacrifices traditional efficiency concerns for the pursuit of transactional welfare gains. This approach fails due to its reluctance to force a breacher to internalize the costs of its negative externality; further, the theory fails to account for potential losses of allocative and/or social efficiency from breach, and loses potency due to the error inherent to an imperfect judicial system. The ensuing query therefore arises: is a more efficient system available under current contract law and, if so, what changes in the current system should arise? The next section seeks to answer this question by addressing the normative issues surrounding the theory of efficient breach.

(B) Normative Perspectives of Efficient Breach

This section makes a Coasian assumption concerning the law of contracts: *the system of contractual damages ought to minimize the transactions costs associated with resolution*

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breach will decline as the threat of specific performance increases under uncertainty. The efficiency criteria of the tables further divulge that the choice of remedy does not affect the conditions for settlement, though the probability of settlement (if settlement is possible) varies inversely with the likelihood of breach, ceteris paribus.

of contractual disputes.[6] Given that compensation under the Holmesian principle may fail to generate efficiency gains by positive economic standards, this section seeks alternatives to traditional expectancy damages which may simultaneously foster social, market and transactional welfare improvements while minimizing the transactions costs of the system. The analysis shows that several types or combinations of relief could preserve the interests unprotected by efficient breach theory, but that awards of specific performance best fulfill the objectives of the normative Coase theorem.

Assume first that a "corridor of compensation" exists, bounded on the lower end by the welfare of the non-breaching party gained through the original contract and on the upper end by that amount plus the welfare accrued by an efficient contractual breach. Remedial measures outside this range encourage inefficiency; awards below the corridor promote inefficient breaches, while compensation above the corridor prevents all breach.[7] Therefore, single awards of general or special expectancy damages, restitutive unjust enrichment, or reliance damages fail given positive transactions costs,[8]

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[6]This assumption depicts an extension of the normative Coase theorem presented by Cooter and Ulen, 101.

[7]Note that awards above the corridor do not foreclose the potential welfare gain if settlement is possible.

[8]Given a welfare-based breach, reliance damages must equal or fall below general expectancy damages. See Dobbs (introduction, note 6), 3:§ 12.1. Further, unjust enrichment

as would awards of special expectancy damages combined with these other types of relief.[9] Other forms or combinations of remedies could fall within the corridor, although all but specific performance may prove to over-compensate or under-compensate the victim of breach.[10]

Consider first the singular awards of disgorgement or liquidated damages. Setting the level of welfare produced at the upper and lower bounds of the corridor to "UB" and "LB", respectively, awards of disgorgement compensate the victims of breach with "UB-LB", which may lie below or within the corridor. Conversely, stipulated damage clauses could award relief lying below, within or above the corridor, depending upon the bargaining positions of the original contracting parties. Either case could therefore produce inefficiency, necessitating further search for an alternative system.

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must also equal or fall below general expectancy measures as it exists as a percentage of reliance. Therefore, since the sum of special and general expectancy damages fall below the corridor (under Holmesian compensation), singular awards of general expectancy, special expectancy or reliance damages or unjust enrichment must also promote inefficient breaches.

[9]Since the (undercompensatory) Holmesian compensation principle requires payment of general and special expectancy damages, combinations of special expectancy with reliance or unjust enrichment must also lie beneath the corridor for the reasons discussed in note 8, *supra*.

[10]Note that awards of specific performance guarantee a breach victim welfare equal to the corridor's lower bound if adjudication is costless. Discussion of this remedy under costly litigation arises later in this section.

Table 13

Comparison of Combined Awards to the Compensation Corridor

	General Expect.	Special Expect.	Reliance Damgs	Unjust Enrich.	Disgorgement	Specific Perform.	Liquid. Damgs	Statut. Damgs
General Expect.	?	Below LB	?	?	Below UB	Above LB	?	?
Special Expect.		?	Below LB	Below LB	Below UB	Above LB	?	Below LB
Reliance Damgs			?	?	Below UB	Above LB	?	?
Unjust Enrich.				?	Below UB	Above LB	?	?
Disgorgement					?		?	Below UB
Specific Perform.							Above LB	Above LB
Liquid. Damgs							?	?
Statutory Damgs								?

Table thirteen summarizes the possible combinations of damage awards available under the current system. This table depicts all awards in relation to the corridor by the labels "Below LB", "Below UB", "Above LB" and "?", which represents awards which could lie within, above or below the corridor. Prior discussion disposed of the remedies in the "Below LB" range; further, remedies described by a question mark fail to provide certainty regarding the social value of the joint award.[11] This indicates that awards of specific performance

[11]For example, consider a joint award of statutory and general expectancy damages. This award is duplicative under the law, and could therefore exceed "UB". However, if the

or of restitutive disgorgement provide for the only possible bases for an improvement upon the current system.

Disgorgement and specific performance eliminate all incentives for welfare-based contractual breach; therefore, combinations of these awards with other types of relief will serve no useful purpose. However, awards of disgorgement may fail in the presence of judicial error, for undervaluations of the award would encourage breaches. This contingency may generate inefficiencies beyond those of the present system if "UB–LB" lies below the expectancy interest of the non-breaching party. Hence, specific performance represents the

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uncompensated losses of the non-breaching party are severe, such an award could be undercompensatory in that it does not fulfill "LB". Thus, this remedy fails to fulfill the goals of the normative Coase theorem as inefficiency will result if the award falls outside the corridor.

Next, consider the case of a joint award of statutory damages and specific performance. By assumption, an award of specific performance allows the breachee to attain "LB". The addition of statutory damages to this remedy may propel the award above "UB" if the non-breaching party's expectation damages exceed "UB-LB". Hence, such awards should not be allowed, for they will prevent efficient breaches otherwise generated through cooperative negotiation. Note that costly adjudication may affect this award; see note 14, *infra*.

Finally, consider a joint award of unjust enrichment and reliance damages. Since both of these remedies exist as part of the expectancy interest, their fusion may result in an award above "UB" or below "LB", depending on the nature of the breachee's opportunity costs and investments within the contract. Thus, this award is potentially inefficient as directed by the Coase theorem and the compensation corridor.

only possible alternative to Holmesian compensation which guarantees relief within the compensation corridor.

Institutional acceptance of specific performance as the standard contractual remedy offers several advantages over the present system. The welfare gains from alternative trade would arise through cooperative settlement, conserving scarce judicial resources and (if formulas [5.12] and [5.24] hold) reducing the costs of contractual dispute resolution. Non-breaching parties would therefore receive compensation for their entitlement and other non-compensable interests as a precondition for settlement. Concerns regarding judicial error become irrelevant, for the remedy does not require any subjective interpretation. Finally, fears concerning abusive market behavior diminish, as the award mitigates against the market power of the breaching party.[12]

However, institutional reform faces several obstacles. Accrual of possible welfare gains under specific performance requires the mutual cooperation of the original contracting agents.[13] Absent settlement, awards of specific performance foreclose the welfare obtainable through socially efficient

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[12]Thomas Ulen (introduction, note 7) raised many of these issues in "The Efficiency of Specific Performance." See Ulen, 364-396.

[13]An exception arises if the non-breaching party is a buyer and can resell the good after the grant of specific performance. See equations (5.10) and (5.11), *supra*.

breach; furthermore, the award then fails to compensate the non-breaching party fully due to the costs of litigation.[14] Lack of cooperation also forces courts to determine whether the breach in question is windfall-based or loss-based,[15] thus reviving concerns of judicial error. Finally, issues of institutional resistance may surface, as proposed changes within a century-old system may draw criticism and disdain from legislators, judicial authorities and attorneys.

In summary, awards of specific performance may reflect the best alternative to the traditional expectancy remedies sanctioned under the Holmesian compensation principle. From a normative economic perspective, the analysis of this paper therefore indicates that courts should abandon common law prejudices against specific performance and seek to extend the remedy to all situations of windfall-based breach. This strategy may produce economic inefficiencies in cases where cooperation is impossible; however, the present system also generates welfare losses due to failure to recognize certain non-compensable interests. Thus, institutional acceptance of

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[14]Under the "American Rule," parties must bear their own litigation expenses. Therefore, a lone award of specific performance will undercompensate the non-breaching party. Note, however, that the current system provides even less compensation due to its failure to recognize entitlements.

[15]Recall that the corollaries of this paper apply only to cases of windfall-based breach; analysis of the value of the remedy to loss-based breaches may arise by the extension of the corollaries in a later paper.

specific performance may simultaneously breed transactional, social, and market efficiency and reduce transactions costs under the normative Coase theorem if the welfare losses from non-cooperation lie below those of the current system.

CONCLUSION

This paper analyzed windfall-based contractual breach from the perspective of industrial organization. The paper consisted of seven chapters. Chapters one through three provided background information to the reader concerning the available remedies for breach of contract (chapter one), the perspectives of the existing literature (chapter two) and the relevance of industrial organization (chapter three). Chapters four through six challenged the relevant literature based on the irrelevance of competitive markets to efficient breach theory (chapter four) and the restrictive assumptions needed to generate efficient breaches when the contracting agents have market power (chapters five and six). Chapter seven aggregated the analysis of the paper by establishing positive and normative conclusions concerning the value of efficient breach theory under the Holmesian compensation principle, deducing that the current system (based upon expectancy losses) is inefficient, but that the extension of specific performance to all cases of welfare-based breach could improve pareto and market efficiency.

The discussion of this paper sought to provide a sense of universality in its analysis of the theory of efficient breach. However, this discussion avoided several issues that relate to efficient breach theory. From a broad perspective, the paper generally ignored issues of loss-based contractual breaches, although efficient breach theory partially exists upon such foundations. The paper also ignored environmental issues, such as the underlying motivation for price changes and the possibility of non-homogenous products. A narrower viewpoint reveals that the paper failed to consider less conspicuous issues, including the specific arguments raised by articles cited within the surveyed literature, involved perspectives of the search/breach criterion, relaxation of the assumption that all contracts initially require trade of "X_K" units and analyses of oligopolistic models in relation to efficient breach theory.

These omissions do not diminish the conclusions drawn from this paper: efficient breach theory, as an offshoot of the Holmesian compensation principle, cannot automatically survive the scrutiny of industrial organization. Contractual breaches based upon transactional gain may forfeit societal welfare in favor of private wealth-shifting incentives. This results from the failure of Holmesian compensation to award remedies for speculative losses, which innately include the entitlement and other non-compensable interests of the non-breaching party. Therefore, industrial organization theory suggests that welfare-based contractual breaches may cause losses in social welfare under the current system, for such transgressions allow the breaching party with significant power to practice arbitrage without internalizing the total costs imposed upon the non-breaching party.

The results of this paper reflect an improvement over many of those suggested in the surveyed literature. By using an interdisciplinary approach, the paper sought to combine economic and legal analyses in a manner consistent with the principles of both institutions. Hence, the findings of the paper should survive realistic scrutiny from the members of either discipline, as constrained by the assumptions used to generate those findings. The analysis regarding the value of specific performance to efficient breach theory also depicts an improvement over the literature, for the inferences drawn herein receive support from industrial organization theory. Further research is clearly necessary to widen the scope of this paper to the overlooked issues, especially in relation to loss-based efficient breach. Extensions of this paper may address such concerns in the near future.

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