

Item # 11

SEMINAR IN LAW AND ECONOMICS
Professors Louis Kaplow & Steven Shavell

Tuesday, April 21, 2009
Griswold 110, 5:00 p.m.

**STRATEGIC VAGUENESS IN CONTRACT DESIGN:
THE CASE OF CORPORATE ACQUISITIONS**

George Triantis and Albert Choi

Work in progress: Do not circulate or cite without permission

Strategic Vagueness in Contract Design: The Case of Corporate Acquisitions^{*}

Albert Choi^{**}

and

George Triantis^{***}

Abstract

The unprecedented and unanticipated economic and financial shocks of the past couple of years have led parties to look for contractual escapes from deals. Some parties exercise options embedded in their contracts by paying liquidated damages or cancellation fees. Others invoke excuse provisions such as force majeure, material adverse change or market-out clauses, to terminate at no cost. Under either set of circumstances, disputes arise, are litigated and typically settled either by a termination of the deals or adjustments to their terms. The increased attention paid to these provisions has illuminated the vague language with which these options and excuses are framed, and their uncertain interpretation. One instance in which this has been noted is the common use of material adverse event or change (MAE/MAC) conditions in corporate acquisition contracts.

As the current crisis works its way through our economic system, attention will be shifted from the collapsed deals to the design of future transactions. The vague language of past agreements has fueled disputes and threatened costly and uncertain litigation. Should future parties, in corporate acquisition deals and other commercial contracts, inject greater precision in their agreements? There are many proponents of this advice. However, we lack a theoretical framework for setting out the costs and benefits of vague and precise provisions. In this paper, we provide such a framework in order to improve awareness of the strategic use of vagueness in contracting.

The conventional rules-standards analysis suggests that vague terms are justified when the expected larger litigation costs in enforcing standards are outweighed by the lower costs of drafting. In acquisition agreements, this would suggest that vague MAC clauses yield benefits only by reducing front-end drafting costs. Yet, some proxies for material adverse change, such as quantitative thresholds in stock price, revenues or accounting earnings, are easy to draft and can be verified at low cost. They are usually noisy proxies, however, and therefore are not perfect.

^{*} Last revised on April 3, 2009. We thank Henry Hansmann, Roberta Romano, Alan Schwartz, and Eric Talley for very helpful discussions. Earlier versions of this paper were presented in workshops at Virginia and Yale. Triantis thanks the John M. Olin Center for Law, Economics and Business at Harvard for research support.

^{**} Professor of Law, University of Virginia School of Law. Visiting Professor, Yale Law School.

^{***} Eli Goldston Professor of Law, Harvard Law School.

We demonstrate that litigation costs, when properly harnessed, can in fact improve contracting by operating as a screen on the seller's decision to sue. We review three possible goals of MAC clauses: (a) to provide efficient incentives for investment and precautions against future contingencies by the seller between the time of the agreement and closing; (b) to allow the seller to better signal its private information to the acquirer at the time of contracting; and (c) to enable the seller to better signal private information at the time of closing, in order to promote ex post efficiency in terminating or executing the acquisition. We show that, in achieving these goals, vague provisions may work better than precise and even less noisy proxies.

TABLE OF CONTENTS

Introduction

- I.** Contract design and vagueness
 - A. Contract Goals and Optionality
 - B. Contingent Optionality in Corporate Acquisitions
 - 1. Closing conditions
 - a. Representations and warranties
 - b. MAC conditions
 - c. Covenants
 - d. Exogenous conditions
 - 2. Termination fees
 - C. Vagueness
- II.** The Efficiency of Contract Vagueness
 - A. Front-end Transaction Cost Saving
 - B. Agency Conflicts
 - C. Ex Ante Signals
 - D. Ex Post Renegotiation
 - E. The Upside of Litigation Costs: An Information Screen
 - F. Efficient Investment
 - G. Ex Ante Signaling Revisited
 - H. Ex Post Renegotiation Revisited
- III.** Numerical Example of Strategic Vagueness
 - A. Efficient Investment
 - 1. Unconditional contract
 - 2. Precise contract
 - 3. Vague contract
 - B. Ex Ante Signal
 - 1. Unconditional contract
 - 2. Precise contract
 - 3. Vague contract
 - C. Ex Post Renegotiation
 - 1. Unconditional contract
 - 2. Precise contract
 - 3. Vague contract
- IV.** Controlling Litigation Stakes and Costs by Contract

Conclusion

INTRODUCTION

The unprecedented and unanticipated economic and financial shocks of the past couple of years have profoundly altered expected payoffs from executory contracts. Credit markets have frozen, common stock prices have plummeted, and commodities prices have swung wildly. A variety of excuse, or walk-away, provisions such as closing conditions, force majeure clauses and termination or cancellation rights are being triggered either to cancel the deal at a fee set by liquidated damages or even at no cost. The current economic conditions provide plausible grounds for excuse in a wide range of contracts, so these provisions are currently being actively tested, in court and in renegotiations. The invocation of material adverse event (MAE) or material adverse change (MAC) clauses in corporate acquisition agreements and lending commitments have received particular attention in the media, as a number of multi-billion dollar deals have fallen through. The parties in these deals have been engaged in litigation over the interpretation of these terms and in renegotiation of their agreements. The outcomes should be of great interest to contract scholars and are likely to lead to significant revision or redrafting of these provisions in the next generation of contracts.

Although the interpretation of these provisions has a significant financial effect on the parties to these broken deals, it has an even greater *ex ante* impact on the contract design of future deals. The contractual allocation of risks plays a role well beyond the simple transfer of risk to the superior risk bearer. It is an essential tool in addressing the goals of contract in a world of asymmetric information. First, it provides incentives for that party to take measures to minimize the risk (*efficient investment*). Second, a party's agreement to assume a risk signals private information about the probability and severity of the risk, and thereby promotes efficient decisions to contract (*efficient decision to contract*). Third, the parties may be asymmetrically informed as to whether the risk in fact materialized, and that information can be elicited through the assignment of risk to the party who is likely to be better informed *ex post*. This promotes efficient decisions whether to execute the transaction (*efficient trade*). Thus, much more is at stake in the design of contract terms that allocate risks than simply exploiting differential risk preferences.

The optimal allocation of risks is complicated further by the presence of transaction costs, both at the drafting and enforcement stages of the contractual relationship. Transaction costs explain why contracts are incomplete and fail to specify fully the optimal obligations in each possible future state of the world. One cause of incompleteness is the cost of litigating and enforcing contracts. Contract theorists focus on the costs of verifying facts and typically posit that parties avoid terms that are costly to verify. Vague contract provisions fall in this category because of the cost and uncertainty of judicial interpretation. Yet, drawing on the line of scholarship that analyzes the rules-standards dichotomy in the design of legal rules, recent work frames the choice between vague and precise contract terms as a tradeoff in information costs: precise contract provisions raise contracting costs on the front-end, but reduce enforcement costs at the

back-end.¹ If a provision matters only in remote contingencies, for instance, then the back-end costs should be discounted by that remote probability, and it may be correspondingly efficient to save front-end costs by using a standard (or vague term) rather than a rule. In some cases, however, this benefit can be outweighed by the cost of protracted adversarial litigation, even if discounted by the low probabilities of the remote contingencies. The choice of precise rules over standards may also be driven by the fact that courts (the back-end decision makers) are usually less informed than the parties themselves (the front-end deciders). This raises the prospect of costly judicial error on the back end.

In a recent article, we departed from this tradeoff between drafting and enforcement costs, and focused on the effect of differing litigation costs on performance incentives under precise and vague performance obligations.² In the analysis, the prospect of verification or litigation costs may be beneficial to contracting, in addition to the front-end contracting cost savings. We thereby offered a distinct explanation for the use of vague terms and a different approach to incomplete contracting. A contract will very rarely be able to include terms that invoke perfect and costless signals of desired performance. A challenge of contract design is to choose among signals that vary in their information content and litigation costs. We suggested that parties may choose a vague standard (such as “best efforts”) that invites costly and error-prone judicial proceedings over a precise proxy that is both less noisy³ and less costly to litigate.⁴ We demonstrated that litigation costs may be beneficial as a screen on the promisee’s incentive to sue and as an effective sanction against the breaching promisor.⁵ Without the benefit of this screen, a noisy proxy that is costless to verify raises the possibilities of false positives and false negatives which, in turn, undermine incentives. So long as the court’s judgment is correlated with the promisor’s actual behavior, the parties can combine a vague term, such as best efforts, with a set of prices (including liquidated damages), so as to provide additional incentive to the promisor through an off-the-equilibrium, credible litigation threat. Indeed, litigation costs may in fact never be incurred when either they encourage settlement or when they are harnessed through appropriate contract design to assure contractual performance.

¹ Richard A. Posner, *The Law and Economics of Contract Interpretation*, 83 TEX. L. REV. 1581 (2005); Robert E. Scott and George G. Triantis, *Anticipating Litigation in Contract Design*, 115 YALE L.J. 814 (2006); Steven Shavell, *On the Writing and Interpretation of Contracts*, 22 J. LAW, ECON. & ORGAN. 289 (2006).

² Albert Choi & George Triantis, *Completing Contracts in the Shadow of Costly Verification*, 37 J. LEGAL STUD. 503 (2008).

³ When a proxy is noisy, it does not perfectly correlate with the true state of the world. For instance, quarterly accounting net income of a corporation is positively but not perfectly correlated with the long-term profitability of the corporation. Less noise means that the degree of correlation is higher and that the proxy is more accurate in predicting (or representing) the true state of the world.

⁴ The same benefit would follow from a precise rule that calls for extensive fact finding and evidence that is both costly and subject to judicial error.

⁵ Litigation costs can arise either from the task of interpreting a vague provision or from the presentation and weighing of evidence proving whether a contingency occurred or a promisor performed as promised. To illustrate the difference, consider that a confidentiality promise can be phrased precisely, but verifying the disclosure of confidential information may be very costly, in terms both of evidence costs and the risk of error.

This paper applies and extends significantly our analysis of litigation costs to show that they contribute broadly to the three contracting goals listed above: efficient investment, efficient decisions to contract, and efficient trade under conditions of imperfect information. In other words, we look at problems of adverse selection as well as the moral hazard analyzed in our previous work. Our analysis applies to a wide range of commercial contracts and contexts, but we adopt as our application the design of corporate acquisition agreements, for several reasons. First, these contracts involve sophisticated parties and large financial stakes. Vague clauses, such as MAC conditions, are among the most heavily negotiated non-price terms and appear to have a significant effect on the level of acquisition premiums.⁶ Second, signaling and efficient investment incentives are likely to be important in these transactions because the seller has significant private information. Third, the collapse of financial markets and of corporate earnings over the past two years has put considerable stress on acquisitions: deals are breaking up and buyers (and their lenders) are invoking termination rights and contract conditions, particularly MACs, as the basis for walking away.⁷

MAC conditions permit the buyer to avoid the closing of the deal if a material change has occurred in the financial condition, assets, liabilities, business or operations of the target firm. We choose to focus on MACs in particular because, at least since the economic shock following 9/11, commentators have urged greater precision in the language of MACs, including the use of quantitative thresholds. Yet, the typical MAC provision is not quantitative and remains remarkably vague. Vague contract terms invite self-interested and conflicting interpretations. As a result, they fuel disputes, as well as costly and uncertain litigation. Even where MAC provisions have some precision, they nevertheless give rise to substantial litigation costs if the pertinent factors are costly to verify. The uncertainty in MAC application, as well as the considerable resources that are invested in these disputes, prompts commentators to predict that future MAC provisions will be much more precise and simple. In particular, they suggest that future MAC clauses will adopt thresholds in readily proven quantitative measures (which we call “proxies”), such as revenues, customer or employee retention, earnings and stock price.

These sentiments are understandable as ex post reactions to the dissolution of deals in the current environment. We argue, however, that the ex ante case for vague provisions is underappreciated and parties should be cautious in substituting precise quantitative thresholds. The conventional analysis posits that vague terms are justified only when the expected larger litigation costs are outweighed by savings on the front end, in lower drafting costs. In acquisition agreements, this would suggest that vague MAC clauses yield benefits only by reducing the ex ante cost of providing for excuse

⁶ Antonio J. Macias, *Risk Pricing and Flexibility in Acquisitions: The Economic Impact of Material-Adverse-Change (MACs) Clauses* (draft, Oct. 27, 2008).

⁷ The effect of the credit crunch is particularly significant with respect to private equity purchasers, as opposed to strategic purchases by other corporations. See, e.g., the survey of senior Fortune 500 executives and private equity practitioners by Nixon Peabody LLP. *Nixon Peabody Survey Examines M&A Activity During the Credit Crunch*, http://www.nixonpeabody.com/publications_detail3.asp?ID=2266.

conditions based on easily verifiable proxies. In contrast, our analysis demonstrates that the existence of litigation costs may in fact improve contracting by operating as a screen on the seller's decision to sue. This facilitates the allocation of risk and thereby improves the signaling and incentive attributes of the acquisition agreement. Thus, when faced with a choice among noisy indicators, a vaguely phrased MAC may be valuable, whether in combination with verifiable proxies or on its own.

In Part I, we describe the goals, structure and drafting of corporate acquisition agreements, such as asset purchases, stock purchases, and mergers. We note the important role played by the set of embedded options held by the buyer and observe the mix of precise and vague language. In Part II, we set out various explanations for vague provisions, and provide the intuition for our thesis that conditioning excuse on vaguely defined contingencies can be more efficient than on precise quantitative proxies in pursuing three contracting objectives: (a) efficient pre-closing investment, (b) efficient ex ante signaling and decisions to contract, and (c) efficient ex post renegotiation and trade decisions under information asymmetry. In Part III, we make our claims more precise using a series of numerical models that rely on game theoretic analyses.⁸ Part IV introduces the complementary role of other contract provisions that control the litigation stakes and costs, in order to enhance the screening effect of vague provisions. The last section concludes.

I. CONTRACT DESIGN AND VAGUENESS

A. Contract Goals and Optionality

This paper's objective is to demonstrate how vague terms may do a better job than precise terms in promoting the goals of contract design. Accordingly, we begin with a brief introduction to contracting goals before turning to our application, the corporate acquisition agreement. In describing the acquisition agreement, we focus on the critical contract provisions that provide the buyer with options to terminate the agreement, with or without the payment of a fee.

The challenge of contract design is largely the management of information problems. In particular, each party has some private information that is not known by the other (the problem of *observability*). Each party knows its vulnerability to the information advantage of the other, and this impedes efficient exchange. Moreover, as the enforcer of contracts and future arbiter of disputes, the judiciary is even less informed than either party (the problem of *verifiability*). Of course, in litigation, the parties present legal arguments and evidence to inform the court, but this process is costly, adversarial and prone to error in judicial fact finding. At the time of litigation, the parties have conflicting interests and, particularly in complex matters, a court may not be able to sift accurately through the self-interested claims of each side.

These informational problems impede efficient exchange in several ways. Consider, for example, a contract for the sale of a widget, and assume for now that that

⁸ A more general economic model is available from the authors.

the sale produces a surplus in that the widget is in fact worth more to the buyer than the seller. First, when the buyer has less information about the quality of the widget than the seller, she may discount the price to a level below the consideration for which the seller is prepared to deal. Contract design can bridge the information asymmetry by including screens and signals that enable the buyer to distinguish high-quality from low-quality deals. For example, the seller of the high-quality widget might give a warranty that a low-quality seller would find infeasible to mimic.⁹ Such warranties, however, are sometimes challenging to design because of the verifiability problem identified above. When a dispute arises, the buyer might argue that the warranty has been breached even if there has been no violation, or the seller might claim that the warranty has been satisfied even if it has not. The parties would present self-interested, conflicting and costly evidence before the court, and the court's determination may be in error.

Second, if the widget needs to be manufactured or tailored to the buyer's needs, the seller may not have the incentives to make the necessary investment of capital or effort. This investment, which increases the value of the good to the buyer, is known as cooperative investment.¹⁰ A contract that binds the buyer to purchase the widget must be designed to encourage the seller to produce the intended quality. This is a challenge because of the cost and error of judicial fact finding outlined above: simply imposing on the seller the obligation to produce a high-quality widget invites costly and uncertain litigation.¹¹

Third, contract design is complicated by uncertainty in exogenous conditions: market forces, political developments, consumer tastes, and so on. A transaction that appears to produce a surplus at the time of contracting may cease to be efficient by the time performance is due. The parties in our simple example may anticipate such uncertainty by preserving the flexibility to terminate the contract if input costs rise to the point that the cost of manufacturing the widget declines below the value to the buyer. The flexibility to adjust to exogenous changes threatens to undermine the commitment needed to protect the signaling and assurance of quality mentioned above, as well as other contracting goals we do not discuss here, such as risk transfers or insurance. This tension would be trivial and all objectives could be easily met, even under uncertainty, but for the fact that information is imperfect. In fact, even in the presence of information

⁹ For a general discussion of how warranties can function as a signal of quality, see Grossman [cite]; George Priest, *A Theory of the Consumer Product Warranty*, 90 *YALE L.J.* 1297 (1981).

¹⁰ Contract theory distinguishes cooperative from "selfish" investment, where the latter refers to the seller's specialized investment that reduces the future cost of producing the widget. Consider, for example, that the seller may need to adjust its manufacturing process to prepare to serve the buyer's needs. Once the seller makes this investment, the buyer may engage in "hold-up" strategy to lower the price of the widget. By committing the buyer to a specified price that compensates the seller for this specific investment, the contract addresses the hold-up problem. However, it impedes the flexibility of the parties to adjust their deal to changes in the environment. Selfish specific investment does not play an important role in our analysis of corporate acquisition contracts in this paper.

¹¹ See Yeon-Koo Che and Donald B. Hausch, *Cooperative Investments and the Value of Contracting*, 89 *AM. ECON. REV.* 125 (1991). When investment is cooperative, it has a direct effect on the trading partner's willingness (valuation) to trade. Under theoretical analysis, cooperative investments are problematic when valuations are non-verifiable because the conventional solutions, such as unconditional option contracts, function poorly in providing the requisite investment incentive.

asymmetry between the parties, contracting would nevertheless be relatively easy if the court were clairvoyant, which is not the case in reality.

In light of the foregoing objectives of contracting and the tension between the needs for commitment and flexibility, an important feature of modern contracts is the right of one party or another to walk away from the contract: to terminate, cancel or be excused from its obligations. Practitioners sometimes refer to this as the characteristic of “optionality”. The fact that contracts embed options of this type is important to the pursuit of the goals listed above under conditions of imperfect information. The range of such options in contract design is wide and can be categorized by two parameters: first, the exercise price of the termination option, and second, the contingencies under which the option can be exercised. Commercial contracts can be fairly nuanced in combining various options, with different contingencies and different exercise prices.

To see the connection between embedded options and contract objectives, consider the simple sales contract described above. Suppose that the buyer agrees to purchase a widget for \$10, but has the option to terminate her obligation by paying \$1.¹² The buyer will exercise the option if, at the time that performance is due, the widget is worth less than \$9 to the buyer. By allocating this risk to the seller, the option allows the seller to signal its confidence that the widget will be of a quality worth at least \$9 to the buyer, thereby assuaging the buyer’s concerns about widget quality. It also gives the seller the incentive to invest in the widget’s quality (“cooperative” investment) to ensure it is sufficiently attractive to induce the buyer to go through with the purchase. Finally, the buyer can terminate the deal unilaterally if the surplus expected at the time of contracting fails to materialize *ex post* because of an exogenous change in the environment: for example, the buyer’s intended use of the widget ceases to be feasible because of a shift in consumer demand.

Granting such an unconditional option to the buyer, however, may allow the buyer to walk away from the deal for reasons having nothing to do with the seller’s private information or the seller’s investment in the widget manufacture. The materialization of exogenous risks, such as the market price for widgets or for the buyer’s product, may cause the widget’s value to fall below \$9. The seller’s exposure to these exogenous risks undermines the seller’s signal of private information as to widget quality and the seller’s incentive to make cooperative investments. This is due to the fact that the realized value of the widget is a noisy indicator of both the seller’s private information and the seller’s investment in its quality: the widget’s value to the buyer may fall because of either its inferior quality or adverse changes in the external environment. For this reason, the parties may wish to condition the buyer’s option on some other indicator or contingency.

If widget quality could be verified by a court perfectly and without cost, then the parties might condition the option simply on quality. The contract could oblige the seller to deliver a widget of a specified quality. However, perfect and costless signals of

¹² We assume in this example that the parties cannot subsequently renegotiate the terms of their contract, but consider the impact of contract design on renegotiation later in the paper. *Infra* Part II.H and III.C.

quality are rarely available.¹³ More realistically, the challenge of contract design is to choose among signals that vary in their information content and verification costs. We analyze in Parts II and III the choice between a noisy signal that is virtually costless to verify, and one that is quite costly to verify (that is, at a large cost of litigation). For ease of exposition, we think of the former as an easily measured quantitative threshold (for example, the market price of a readily-available replacement widget) and the latter as a vague standard (for example, “high quality”). Litigation costs are higher in the latter case because the court must resolve the dispute between competing and self-serving interpretations of quality. The contractual provisions embodying the quantitative threshold or the standard may either set performance obligations (for example, the seller promises to deliver a widget of a specified tensile strength or of a high quality) or may define contingencies (for example, the buyer may terminate the contract if the widget fails to meet the tensile or quality threshold).

Our principal thesis is that a costly and noisy contract provision, such as a vague standard, can play an important role in facilitating the provision of efficient incentives and the signaling of private information, at the time of contracting and of renegotiation. Indeed, we show that parties may rationally prefer to adopt a costly signal over a costless signal, even if the former is more noisy. The key to our analysis is a closer investigation of the impact of litigation costs on the incentives of each party to instigate litigation and, in turn, to perform efficiently *ex ante*. Through such backward induction, we illuminate the parties’ ability to design their contract in anticipation of the likely litigation path.

B. Contingent Optionality in Corporate Acquisitions

To lend real-world concreteness to our analysis, we apply it to transactions governing corporate acquisitions, such as asset purchases, stock purchases or mergers. These contracts fit very well the paradigmatic agreements of contract theory because of the theory’s focus on information asymmetry. Three information problems are particularly salient. First, depending on the nature of the acquisition, the seller’s shareholders may be required to ratify the agreement,¹⁴ and regulatory agencies may need to approve of it as well, before the deal can close. During this period, the seller retains its day-to-day control over the company’s assets and operations. It decides whether to expend resources to maintain the proper working conditions of its physical assets, retain its valued employees and customers, and invest to secure the necessary regulatory approval for a successful closing. Yet, once the buyer has committed to close the deal at a given price, the seller loses much of her incentive to invest in these precautions. This is an instance of the general problem of “cooperative investment” referred to earlier and we refer to it hereafter simply as *efficient investment*.

¹³ This is the problem of verifiability introduced *supra*...

¹⁴ Shareholder ratification is usually required by state law in cases of statutory mergers and assets sales. *See, e.g.*, DEL. GEN. CORP. L §251, 271. Ratification is not required in case of a stock sale, since in those cases the target shareholders are “voting” by submitting their shares to the tender offeror. In negotiated stock acquisitions, however, stock acquisition agreements play an important, comparable function as asset acquisition or merger agreements.

Second, notwithstanding the due diligence investigations of the buyer, the seller usually knows more about its assets, liabilities and prospects than the buyer. Bearing in mind the risk of adverse selection, the buyer might decline to contract or demand a steep discount on the price. Therefore, the prospect of an efficient sale improves if the seller can credibly signal its value to the buyer. We refer to this problem as the *efficient decision to contract* because, without an effective signal of quality, an agreement might not be reached.

Third, asymmetry of information between the parties often persists at the time of the date set for closing the sale. This asymmetry can distort decisions at this stage to close, renegotiate or walk away. A seller who knows its assets are no longer more valuable to the buyer than to the seller, may nevertheless prefer to close the deal if the contract price is still favorable, rather than agree to release the buyer for a negotiated payment. Conversely, even where the assets are worth more to the buyer than the seller, the seller may try to induce the buyer to walk away if the value of the assets has risen above the contract price. In either case, renegotiation is impaired by the awareness of the asymmetry, and might lead to the inefficient transfer, or non-transfer, of assets. We refer to this as the problem of *efficient trade*. Despite the importance of renegotiation to contract design, contract theory scholarship has paid relatively little attention to the efficiency implications when parties are asymmetrically informed at the time performance is due. Most contract theoretical scholarship assumes that the parties are symmetrically informed ex post and focuses instead on the information available to the court.

A range of contract terms are available to address these challenges. For example, the contract may expressly oblige the seller to make efficient investments. Our discussion below addresses the challenge of how to phrase such obligation when the court has imperfect information. The contract may also, or alternatively, set a price contingent on future performance—such as an earn-out provision—that both provides investment incentives and bridges the information asymmetry between the parties. The ultimate payment from the buyer would depend on the earnings of the acquired company in a specified period after the closing of the transaction. This is far from a perfect solution, however, because the post-closing earnings will be a function of the efforts and investment of the new managers, and the externality caused by the earn-out will induce them to invest less than the efficient amount.¹⁵

Courts have indicated that they are willing to specifically enforce acquisition agreements, particularly if parties indicate their preference for injunctive remedies in

¹⁵ In a recent letter outlining important issues in merger and acquisition deals, a partner at a leading firm wrote that the key pitfalls of earn-outs include: “lack of alignment of goals post deal; employee morale issues if earn out not paid...hard to anticipate all interpretation issues that will arise later; slows deal negotiations and drafting; payment milestones can become outdated... revenue milestone may cease to be achievable due to cost cuts; milestones can be impacted by employee attrition; milestones can be impacted by consolidation or sale of buyer’s divisions; difficult to anticipate all ways in which buyer can ‘game’ the milestone” In case of revenue milestone: change in revenue recognition... earnings milestone: change in reserves or effective tax rate...” David W. Healy, *M&A Deals: Key Issues, Tips and Tactics* (Fenwick & West letter, March 15, 2005 at 5-6.

their contract. Whether or not contracts provide expressly for specific performance, they usually provide for termination rights (sometimes referred to as “walk away rights”). We describe them here as buyer options that are embedded in the contract. As noted in the previous section, embedded options may be described by two parameters: the exercise price and the contingencies in which they may be exercised. Although the parties may choose from a continuum of exercise prices, we follow the convention of contract doctrine by distinguishing between options with a positive exercise price and those that are free (zero exercise price). Contract doctrine tends to classify the former as damages for breach and the latter as contract conditions. Acquisition agreements typically refer to the former as reverse termination or reverse break-up fees, and to the latter as closing conditions.

Contracting parties do not choose between conditions and termination rights, but rather design a package of these terms. In the case of corporate acquisitions, the composition of these packages has depended on whether the acquisition was financial (by a private equity firm, for example) or strategic (by another firm in the target’s industry). It has also depended on the nature of the proposed financing of the acquisition and the contract between the buyer and its financier. As noted in the discussion below, the patterns of embedded options have developed significantly over the past decade. In particular, the terms of financial and strategic agreements have been converging. They vary depending on market conditions and the relative bargaining power of the parties. Practitioners refer to low-optionality as “seller friendly”, and to broader, cheaper optionality as “buyer friendly”. Finally, we observe the development of a more sophisticated understanding of the potential for embedded options and the emergence of multi-tiered, contingent optionality: a variety of options available within the same agreement, under different contingencies and different exercise prices. After describing these packages, we turn to our principal focus, the vagueness of the language with which the contingencies are defined.

1. Closing Conditions

By their terms, acquisition agreements are not binding on the parties unless the closing conditions are satisfied or waived. In essence, therefore, they define the contingencies under which the parties are free to walk away from the deal. The closing conditions fall largely into four categories: (a) representations and warranties, (b) material adverse change conditions, (c) covenants, (d) exogenous conditions. We describe these in turn, using as our illustration the terms of the most recent, post-credit-crisis mega-deal: the agreement under which Pfizer agreed to purchase Wyeth for approximately \$68 billion, dated January 25, 2009.¹⁶ Pfizer’s proposed purchase is financed by \$22.5 billion in cash funds, \$22.5 billion in debt financing, and the balance in Pfizer stock. The reverse break up fee drew attention because of its size: at \$4.5 billion, it was over 6% of the transaction value. It was also much higher than the \$2.5 billion break-up fee that Wyeth would pay under the agreement if, for example, its shareholders

¹⁶ Agreement and Plan of Merger among Pfizer Inc., Wagner Acquisition Corp., and Wyeth, dated as of January 25, 2009, (hereafter Pfizer-Wyeth Agreement) is available at <http://idea.sec.gov/Archives/edgar/data/5187/000119312509014288/dex21.htm>.

did not approve of the deal.¹⁷ The terms of the deal illustrate the combination of conditions and termination fees, as well as the persistent use of vague language even after the lessons from the broken deals of the past two years.

The Pfizer-Wyeth agreement provides that “the parties shall be entitled to seek an injunction or injunctions to prevent breaches of this Agreement or to enforce specifically the performance of the terms and provisions hereof.”¹⁸ However, the agreement may be terminated upon failure of a range of conditions including that: (a) each of the representations and warranties “shall be true and correct...as of the date of this Agreement and as of the Closing Date, as if made as of such date”; (b) there be no MAC up to the closing¹⁹; and (c) Wyeth “shall have performed or complied in all material respects with all material agreements and covenants required to be performed or complied with by it under this Agreement at or prior to the Closing Date”.²⁰ The agreement also included a financing-out clause that terminated the agreement if Pfizer’s lenders declined to finance the purchase (and alternative financing were unavailable), but only if they did so “primarily by reason of” (i) Pfizer’s failure to maintain minimum levels of credit rating with Moody’s and Standard & Poor’s, or (ii) “any event, occurrence, development or state of circumstances or facts or condition that has had or would reasonably be expected to have, individually or in aggregate, a material adverse effect”.²¹

a. Representations and Warranties

To address the substantial gap between the seller’s and buyer’s information concerning the target company, the seller typically makes a set of contractual representations and warranties. It represents that these facts are true both at the time of the agreement and at closing. The Pfizer-Wyeth agreement contains the typical provisions in this respect, including representations that Wyeth holds good title to assets, knows of no infringement on its intellectual property, is not in default on its contractual obligations, and is not a defendant in a civil or regulatory enforcement action.²² These representations or warranties are not violated if a failure to satisfy any of them “has not and would not reasonably be expected to have, individually or in the aggregate, a Company Material Adverse Effect”. The agreement defines Company Material Adverse Effect as “an effect, event, development, change, state of facts, condition, circumstance or occurrence that is or would be reasonably expected to be materially adverse to the financial condition, assets, liabilities, business or results of operations of the Company

¹⁷ Reverse break-up fees were usually set at the same level as break-up fees (fee payable by the seller to terminate), between 2-4% of the deal price. Our colleague, Professor Guhan Subramanian suggested to us that this may have been a legacy from the historically more common merger between equals.

¹⁸ Pfizer-Wyeth Agreement, section 9.10. The provision begins by stating that “The parties hereto agree that irreparable damages would occur if any provision of this Agreement were not performed in accordance with the terms hereof” in order to support the case for specific performance.

¹⁹ Pfizer-Wyeth Agreement, section 3.6(b).

²⁰ Pfizer-Wyeth Agreement, sections 7.2(a), (b), 8.1.

²¹ Pfizer-Wyeth Agreement, section 7.2(c).

²² Wyeth also represents and warrants that it “has taken reasonable steps to protect the confidentiality and value of all trade secrets and any other confidential information”. *Id.*, section --.

and its Subsidiaries, taken as a whole.”²³ The use of materiality to exclude minor inaccuracies is one application of the concept of material adverse event. The other is the material adverse event or change condition described immediately below. We can distinguish the two uses by referring to the former as MAE exception and the latter as MAC condition.

b. MAC Conditions

Most large acquisitions include a condition that allows the buyer to avoid closing upon the occurrence of a material adverse event or change (a MAC). The Pfizer-Wyeth agreement includes a closing condition that Wyeth’s business will have been conducted in the ordinary course in all material respects and that nothing will have happened since the end of 2007 “that has or would reasonably be expected to have, individually or in the aggregate, a Company Material Adverse Effect.”²⁴ The definition for Company Material Adverse Effect is the one reproduced above.²⁵ MAC definitions vary among agreements and, as described below, almost all are subject to carveouts for excluded categories of events.²⁶

Many acquisition contracts are governed by Delaware law. The leading cases interpreting MACs in Delaware are *IBP Shareholders Litigation* and *Frontier Oil v. Holly*.²⁷ They interpret the core of MAC clauses narrowly, to encompass only *unanticipated* events or changes that materially and adversely affect the *longer term* value of the target. The first case concerned an attempt by Tyson Foods to avoid its contract to acquire IBP in 2001. Tyson invoked the provision partly on the grounds of a significant drop in the IBP’s quarterly earnings (by 64% year-over-year). The Chancery court, however, held that IBP had not suffered a MAC and ordered the consummation of the transaction:

“[W]here a Material Adverse Effect condition is as broadly written as the one in the Merger Agreement, that provision is best read as a backstop protecting the acquirer from the occurrence of unknown events that substantially threaten the overall earnings potential of the target in a durationally significant manner. A short-term hiccup in earnings should

²³ Pfizer-Wyeth Agreement, section 9.13(f).

²⁴ Pfizer-Wyeth Agreement, section 3.6.

²⁵ Supra note --.

²⁶ Since 2001, the law firm of Nixon Peabody has conducted an annual survey of MAC terms in M&A transactions. The Seventh Annual Survey examined 528 asset purchase, stock purchase and merger agreements dated between June 1, 2007 and May 31, 2008. http://www.nixonpeabody.com/linked_media/publications/MAC_survey_2008.pdf. Variations in the MAC elements are summarized id., at 4. See generally Kenneth A. Adams, *A Legal-Usage Analysis of ‘Material Adverse Change’ Provisions*, 10 Fordham J. Corp. & Fin. L. 9 (2004) (reviewing and recommending variations in MAC/MAE language).

²⁷ *In re IBP, Inc.*, 789 A.2d 14 (Del. Ch. June 18, 2001); *Frontier Oil Corp. v. Holly Corp.*, 2005 WL 1039027 (Del Ch. April 29, 2005). The first is Delaware court applying NY law chosen in contract and the second applies the IBP test under Delaware law.

not suffice; rather the [MAC] should be material when viewed from the long-term perspective of a reasonable acquirer.”²⁸

This interpretation was adopted by Vice Chancellor Lamb in the recent case of *Hexion Specialty Chemicals v. Huntsman Corp.*²⁹ Judge Lamb was inclined not to find a MAC arising from changes in projections, but focused instead on year-to-year changes in earnings. The EBITDA³⁰ of the target, Huntsman Corp., fell only 3% from 2006 to 2007 and projected 2008 EBITDA was only a further 7% below 2007.

The principal purpose of carveouts from the definition of material adverse events or changes, seems to be to remove systemic or industry risk from the MAC condition, as well as risks that are known at the time of the agreement. These are contingencies over which the seller has little control and is unlikely to have significant private information. By excluding these risks, the MAC definition reduces the noise and sharpens the effectiveness of the MAC condition as a signal of the seller’s information and as a discipline on the seller’s incentives.³¹ The most common carve-outs remove from the MAC definition changes in the general economic, legal or political environment, and conditions in the target’s industry, except to extent that they have “disproportionate” effect on target.³² These carveouts are found in over three quarters of the large deals.³³

²⁸Id. at 68. The second Delaware Chancery opinion, *Frontier Oil v. Holly*, was decided in 2005, and concerned a strategic merger between two petroleum refiners. The interpretation of what constitutes material and adverse came up in the context of a MAE exception. The seller, Frontier, represented in the contract that there was no pending or threatened litigation against it “other than those that would not have or reasonably be expected to have, individually or in the aggregate, a Frontier Material Adverse Effect.” The purchaser claimed that an environmental action lawsuit violated this representation but, consistent with *IBP v Tyson*, the court held that the litigation was insufficiently material from the longer-term perspective of a reasonable acquirer.

The Delaware Chancery applied the *IBP* test again recently in *Hexion Specialty Chemicals et al. v. Huntsman Corp.* (Del. Ch. C.A. No. 3841-VCL)(Sept. 29, 2008). The court placed the burden of proving the occurrence of a MAC on the buyer, despite the fact that the absence of a MAC was a condition precedent to closing under the agreement. The court held that “absent clear language to the contrary, the burden of proof with respect to a material adverse effect rests on the party seeking to excuse its performance under the contract”, particularly because Hexion was also the plaintiff seeking declaratory judgment that the MAE had occurred. Id., at 41-2.

²⁹ *Hexion Specialty Chemicals et al. v. Huntsman Corp.* (Del. Ch. C.A. No. 3841-VCL)(Sept. 29, 2008).

³⁰ EBITDA is earnings before interest, taxes, depreciation and amortization.

³¹ See Gilson and Schwartz, *supra* note -- (that carve-outs support the investment theory of MAC clauses).

³² The carve-out in the MAE definition of section 9.13(f) in the Pfizer-Wyeth agreement is representative:

“[A] Company Material Adverse Effect shall not be deemed to include effects, events, developments, changes, states of facts, conditions, circumstances of occurrences arising out of, relating to or resulting from: (A) changes generally affecting the economy, financial or securities markets or political or regulatory conditions, to the extent such changes do not adversely affect the Company and its Subsidiaries in a disproportionate manner relative to other participants in the pharmaceutical or biotechnology industry; (B) changes in the pharmaceutical or biotechnology industry, to the extent such changes do not adversely affect the Company and its Subsidiaries in a disproportionate manner relative to other participants in such industry...”

³³ Since 2001, the law firm of Nixon Peabody conducts an annual survey of MAC terms in M&A transactions. http://www.nixonpeabody.com/linked_media/publications/MAC_survey_2008.pdf. In its survey of 528 asset purchase, stock purchase and merger agreements dated between June 1, 2007 and May 31, 2008, the survey found that the carve-out for general economic and financial conditions was included in 75% (and in 89% of the 100 largest deals in the sample). The carve-out for changes in the general

In an interesting contrast with typical force majeure clauses in commercial contracts, most large acquisition agreements exclude from MACs acts of terrorism, war and hostilities.³⁴ With similar objectives in mind, a majority of deals also have a carveout for changes in laws or regulations, leaving it to the buyer's due diligence to assess the legal risks.³⁵ A more limited exclusion appeared in the agreement to acquire SLM Corporation (Sallie Mae), the MAC definition excluded federal legislation affecting student loans, except legislative changes that were "in the aggregate more adverse to the Company" than the legislation anticipated in the Company's pre-deal 10K securities filing.³⁶

As described more fully in our discussion of termination fees, the breadth of the MAC condition and the scope of the carve-outs seem to vary (in opposite directions to each other) with market conditions. Practitioners refer to "seller-friendly" (narrow MAC and broad exceptions) and "buyer-friendly" (broad MAC and narrow exceptions). Over the past decade, the market has moved from relatively buyer-friendly to seller friendly, and back to buyer-friendly deals, because of the oscillating expansion and contraction of credit available to finance large deals.³⁷

conditions of the industry was included in 70% of the sample (and 84% of the 100 largest deals). *Id.*, at 7. Much less frequent carve-outs are: change in securities markets (45% and 64%, respectively); change in trading price or trading volume of the target's stock (33% and 54%, respectively); change in exchange rates (12% and 17%, respectively); change in interest rates (16% and 22%, respectively). *Id.*

³⁴ The Pfizer-Wyeth agreement provides for the following carve-out: "(D) acts of war, armed hostility or terrorism to the extent such changes do not adversely affect the Company and its Subsidiaries in a disproportionate manner relative to other participants in the pharmaceuticals or biotechnology industry". The Nixon Peabody Seventh Annual MAC Survey found acts of terrorism were carved out in 59% of the sample and 75% of the largest deals; and acts of war or major hostilities carved out in 60% and 74%, respectively. Nixon Peabody 2008 Survey, *supra* note --, at 9.

³⁵ See Pfizer-Wyeth Agreement, section 9.13(f)(C) (excludes legal changes to the extent such changes do not adversely affect Wyeth in a disproportionate manner). The Nixon Peabody Seventh Annual MAC Survey found this carve-out in 63% of its sample, and 78% of the 100 largest deals. Nixon Peabody 2008 Survey, *supra* note --, at 8.

³⁶ "A 'Material Adverse Effect' means a material adverse effect on the financial condition, business, or results of operations of the Company and its Subsidiaries, taken as a whole, except to the extent any such effect results from... (b) changes in Applicable Law (provided that, for purposes of this definition, "changes in Applicable Law" shall not include any changes in Applicable Law relating specifically to the education finance industry that are in the aggregate more adverse to the Company and its Subsidiaries, taken as a whole, than the legislative and budget proposals described under the heading "Recent Developments" in the Company 10-K, in each case in the form proposed publicly as of the date of the Company 10-K or interpretations thereof in any Governmental Authority. Agreement and Plan of Merger, April 15, 2007, available at http://www.sec.gov/Archives/edgar/data/1032033/000095010307000954/dp05308_ex0201.htm. When Sallie Mae brought suit to enforce the \$900 million reverse termination fee, the parties disagreed as to whether this carve-out also determined the threshold for materiality in the MAC: Sallie Mae read the provision as requiring that the effect of the legislation must be in fact materially more adverse than the effect of the anticipated legislation (not the status quo). In a scheduling conference on October 22, 2007, the Court found SLM's interpretation to be intuitive, but commented that the parties could have easily stated this expressly in the MAC definition. The parties then reached a settlement under which the buyers agreed to refinance \$30 billion of Sallie Mae debt.

³⁷ Nixon Peabody's report on the agreements dated June 1, 2007 to June 1, 2008, stated: "[W]hile the MAC definitional elements were slightly narrower than in the prior years, we noted a decrease in the number of MAC exceptions..., indicating the advancement of buyers' bargaining power during this period...due at

As the Delaware Chancery noted in *Hexion Specialty Chemicals et al. v. Huntsman Corp*, buyers have yet to succeed in persuading the Delaware courts that a MAC has occurred. The low odds of litigation success do not mean that the MAC clause has no effect or value. The anecdotal evidence is that its presence is a major factor in the renegotiation of agreements, leading to the re-pricing, restructuring or termination of deals. Several buyers have invoked the MAC to terminate deals or restructure them along different lines. For example, USA Networks agreed to buy National Leisure Group Inc., a travel business company, for \$1.5 billion in 2001. The attacks of 9/11 followed, and USA Networks brought action in Delaware Chancery Court to terminate the deal, on the grounds that the attacks constituted a material adverse effect that would cause a substantial decline in travel. The parties settled by agreeing that, instead of acquiring National Leisure, USA Networks would invest \$20 million in that travel company and would designate it as the preferred provider of cruise and vacation packages to USA Network's new travel cable channel. In 2007, the MAC clause led to a reduction in the sale price for the real estate lender Accredited Home Lenders to Lone Star. The original contract price was approximately \$400 million (or \$15.10 per share). Before the closing date, the buyer claimed that a MAC had occurred when the seller filed a 10-K statement that revealed a much more desperate financial condition, including cautionary statements by its auditors that AHL might not "continue to operate as a going concern" and its "financial and operational viability is uncertain."³⁸ The ensuing litigation was settled by the parties, and Lone Star agreed to purchase AHL for \$295 million (or \$11.75 per share), plus an investment of \$49 million in working capital.³⁹

c. Covenants

The satisfaction or waiver of the seller's covenants is also a closing condition and, conversely, a covenant violation triggers the buyer's option to terminate. In the Pfizer-Wyeth agreement, for example, Wyeth agreed to a general covenant of good behavior that is supplemented by a series of more specific covenants. Wyeth promised to conduct business

"in the ordinary course and usual course consistent with the Company's best practice and, to the extent consistent therewith, the Company and its Subsidiaries shall use their *reasonable best efforts* to (i) preserve their assets, (ii) keep available the services of current officers, key employees and consultants of the Company and each of its Subsidiaries, (iii) preserve the Company's business organization intact and maintain its existing relations and goodwill with customers, suppliers, distributors, creditors,

least in part to the lack of credit available to finance transactions". Nixon Peabody 2008 survey, *supra* note --, at 4.

³⁸ See Steven M. Davidoff and Kristen Baiardi, *Accredited Home Lenders v. Lone Star Funds: A MAC Case Study* (Manuscript, Wayne State Law School, Mergers & Acquisitions Course, February 11, 2008). Another example is the renegotiation of the purchase of Home Depot Supply in late August 2007: the price was lowered from 10.3 billion to 8.5 billion.

³⁹ [cite report of renegotiated deal]

lessors...and (iv) comply in all material respects with all applicable Laws.”⁴⁰ (emphasis added)

The agreement then proceeds to list a number of specific covenants, “[w]ithout limiting the generality of the foregoing, and as an extension thereof”.⁴¹ In contrast with the vagueness of the “reasonable best efforts” language quoted above, the specific items are more precise and frequently contain numerical thresholds. For example, Wyeth promises not to acquire any ownership interest in any other business “for consideration valued in excess of \$50 million individually or \$200 million in the aggregate”.⁴² Similar quantitative thresholds cap Wyeth’s ability to enter into agreements for strategic licensing, joint venture, collaboration, alliance,⁴³ to sell material property of assets outside the ordinary course of business,⁴⁴ to declare common or convertible preferred stock dividend,⁴⁵ to make loans, capital contributions or investment in any other business,⁴⁶ to make or agree to make capital expenditures,⁴⁷ or to enter into new employment agreements.⁴⁸

d. Exogenous Conditions

This last category of conditions relates to neither the representations nor the covenants of the seller, but rather matters largely outside the private knowledge and control of the seller. The two most common conditions in this category concern the financing and regulatory approval of the sale. In the past, the availability of financing to the buyer was a common condition of closing, particularly when the buyer was a private equity firm as opposed to a strategic purchaser. This financing-out condition protected the buyer from the risk of losing its financing because of adverse changes in capital markets, especially for debt syndication or securitization. As described in greater detail below, financing conditions have been increasingly replaced by reverse break-up fees as a mechanism for protecting the buyer’s exposure to these risks. As a complement to either of these provisions, the buyer often promises to use its “best efforts” to obtain the financing. The Pfizer-Wyeth deal, for example, contains the following covenant:

“[Pfizer] shall use its *reasonable best efforts* to take... all actions and to do... all things necessary, proper or advisable to consummate and obtain

⁴⁰ Pfizer-Wyeth Agreement, section 5.1.

⁴¹ Id.

⁴² Pfizer-Wyeth Agreement, 5.1(c).

⁴³ Id., at 5.1(d) (capped at \$50 million individually and \$200 million in aggregate).

⁴⁴ Id., at (capped at \$120 million).

⁴⁵ Id., at 5.1(j) (capped at 0.30 per share of common stock, or 0.50 of convertible preferred stock).

⁴⁶ Id., at 5.1(m) (capped at \$50 million in aggregate, other than cash management or investment portfolio activities in the ordinary course of business or permitted elsewhere in the section).

⁴⁷ Id., at 5.1(n) (capped at 1.2 billion in the aggregate, and Wyeth covenants not to engage in any new capital projects in excess of \$50 million individually and \$100 million in the aggregate).

⁴⁸ Id., at 5.1(p)(ii) (no new employment relationship with any Person who earns an annual rate of base salary of more than or equal to \$215,000). Wyeth also agreed not to waive release, assign, settle or compromise any claim, other than product or tax claim, if the resolution would be material to the company and subsidiaries taken as a whole or would involve payment in excess of \$25 million individually and \$100 million in aggregate. Id., at 5.1(u).

the Financing on the terms and conditions described in the Commitment Letter, including using reasonable best efforts to... (iii) satisfy on a timely basis all conditions ... in the Commitment Letter that are within its control and comply with its obligations thereunder."⁴⁹(emphasis added)

The second example of a condition in this category concerns regulatory approvals (such as antitrust review) that are desirable or required for the transaction to take place. As with the financing condition, the actions of the parties can bear on the likelihood of successful approval. Not surprisingly, therefore, agreements call for the best efforts of both parties in securing the necessary regulatory action. The Pfizer-Wyeth provision in this regard reads as follows:

“Subject to the terms and conditions of this Agreement, each party will use its *reasonable best efforts* to take, or cause to be taken, all actions and to do, or cause to be done, all things necessary, proper or advisable under this Agreement and applicable Laws and regulations to consummate the Merger and the other transactions contemplated by this Agreement as soon as practicable after the date hereof, including... (ii) taking all reasonable steps as may be necessary to obtain all such material consents, clearances, waivers, licenses, registrations, permits, authorizations...”⁵⁰(emphasis added)

2. Termination Fees

In a space between specific performance and free options created by conditions, lie termination fees. They give the buyer the right to terminate by paying a fee, often called a reverse break-up or reverse termination fee (to distinguish them from break-up or termination fees payable by the seller who seeks to walk away from the deal). As with free options, reverse break-up fees may be unconditional, in which case they are in essence the exercise price of an unconditional option to walk away. In most cases, however, the options can only be exercised upon the materialization of defined contingencies. Although we focus on the vagueness in MAC definitions in subsequent parts of the paper, we should note that the various termination options work as a package. To varying degrees, they act as substitutes and complements.

Reverse break-up fees became more common in private equity deals in the middle years of this decade, as a substitute for financing-out conditions.⁵¹ More generally, the “free” options under contract conditions were narrowed and supplemented by options

⁴⁹ Pfizer-Wyeth Agreement, section 6.13.

⁵⁰ *Id.*, at 6.3(a).

⁵¹ Empirical investigation found reverse break-up fees in only 1% of deals in 1989, but 13% in 1998. Thomas W. Bates and Michael L. Lemmon, *Breaking Up is Hard To Do? An Analysis of Termination Fee Provisions and Merger Outcomes*, 69 J. Fin. Econ. 469, 470 (2003); Mikah Office, *Termination Fees in Mergers and Acquisitions*, 69 J. Fin. Econ. 431 (2003). In 2005-06, over 60% of all private equity buy-outs had RBFs. Franci J. Blassberg and Kyle A. Pasewark, *Trendwatch: Deal Terms, The Debevoise & Plimpton Private Equity Report*, Vol 6, No. 2 (Winter 2006), at 11; Doug Warner and Alison Hampton (eds.), *Weil Gotschal Survey of Sponsor-Backed Going Private Transactions* (2006), at 15.

with positive exercise prices, typically in the form of reverse break-up fees. Financing-out conditions disappeared, representations and warranties were thinned by materiality qualifications or otherwise, and MAC conditions became subject to broader carve-outs, leaving all but the most target-specific risks to the buyer. Instead, the buyer could terminate the contract only by paying a reverse termination fee that was typically between 2 and 4 percent of the deal price. Commentators attribute these developments to shifts in market power: the market for buyout opportunities became more competitive, leading to more “seller-friendly” contracts. Until several years ago, transactions involving strategic acquirers rarely included reverse break-up fees, because those buyers would rely on their own assets to secure the leverage or paid by stock to finance the deal. However, the terms of financial and strategic acquisitions have begun to converge and reverse break-up fees have become more common in strategic deals.⁵²

The relationship between termination fees and conditions, including MACs, can be quite complex. An option to terminate by paying a fee can be absolute or contingent.⁵³ An example of an absolute option is found in the 2007 agreement under which Cerberus Capital (a private equity firm) agreed to purchase United Rentals, Inc. Cerberus subsequently tendered the termination fee of \$100 million provided in the agreement to escape the deal. Despite some ambiguity in the contract language, the Delaware Chancery held that the parties had capped Cerberus’ damages, and that the target had relinquished its right to any equitable remedy.⁵⁴

In contrast, other agreements layer contingent options and fees.⁵⁵ Under one instance of this structure, the buyer pays a lower fee if its financing falls through, and a higher fee if it otherwise wishes to terminate the deal without establishing that a condition was violated. The Pfizer buyout of Wyeth illustrates contingent options. Pfizer can avoid the transaction if its lenders refuse to finance the transaction primarily because Pfizer lacks (i) an unsecured long-term obligations ratings of at least A2 from Moody’s Investors Services and (ii) a long-term issuer credit rating of at least A and short-term

⁵² For example, the acquisition of Wm. Wrigley Jr. Co. by Mars, Inc., under an agreement dated April 2008. The agreement allowed Mars to walk away for any reason upon payment of the reverse breakup fee and it explicitly barred specific performance. <http://www.sec.gov/Archives/edgar/data/108601/000134100408000796/form8-k.htm>.

⁵³ In 2005-06, Weil report found that 79% of transactions linked RBF to failure to obtain financing, particularly in private equity transactions, and 24% to failure to obtain regulatory approval (especially antitrust approval in strategic mergers). E.g., *Are Private Equity and Strategic Deal Terms Converging*, The Debevoise & Plimpton Private Equity Report, Summer 2005, at 13-14 (in 2004, majority of sample of 25 going private transactions had financing conditions); *Acquisition Agreements: After the Credit Crunch: What Next?* Debevoise & Plimpton Private Equity Report, Fall 2007, at 3-4. The authors observe that “The Sungard, Neiman Marcus and Hertz buyouts of 2005 ushered in a new market practice [replacing the financing condition with a reverse break-up fee of 1-3% of transaction value]”. Id. At 3. “[T]he disappearance of the financing condition and the reverse termination fee went hand-in-hand”. Id. At 4.

⁵⁴ *United Rentals, Inc. v. RAM Holdings, Inc.*, (Del Ch. 2007). Cerberus did not attempt to avoid the termination fee by pleading a MAC under the contract (Id at n202). United Rentals, challenged the acquirer’s (a subsidiary of Cerberus) right to pay a \$100 million termination fee. The contract was ambiguous as to remedies and there was no clear evidence of a common understanding between the parties. Nevertheless, the court applied the forthright negotiator principle, and found that target knew or should have known that acquirer believed that its only obligation on termination would be the payment of the fee.

⁵⁵ This is said to have started with the Neiman Marcus buyout [cite].

credit rating of at least A-1 from Standard & Poor's Ratings Group.⁵⁶ If lenders refuse to finance for other reasons, Wyeth can force Pfizer to put pressure on its lenders to carry out the financing or to search for alternative financing until the closing date. At that time, Pfizer can terminate by paying the reverse termination fee of \$4.5 billion, even if all the conditions have been satisfied, provided that Pfizer is not otherwise in breach of any obligation under the Agreement.⁵⁷ Otherwise, Pfizer is liable for damages or any equitable remedy awarded by the court.

In another recent example, Hexion Special Chemicals (which is owned by the private investment firm, Apollo Management) agreed to purchase Huntsman Corporation for \$10.6 billion. Hexion later tried to back out of the deal, arguing that Huntsman's disappointing results in the first quarter of 2008 and its probably insolvent state, violated the MAC condition in the agreement. Huntsman sued to enforce the agreement and claimed that Hexion knowingly and intentionally breached its obligations under the contract, so as to justify the award of full damages, rather than the reverse break-up fee. In the Delaware Chancery's opinion enforcing the contract, the court describes the agreement as follows:

“[T]he merger agreement is more than usually favorable to Huntsman. For example, it contains no financing contingency and requires Hexion to use its ‘reasonable best efforts’ to consummate the financing. In addition, the agreement expressly provides for uncapped damages in the case of a ‘knowing and intentional breach of any covenant’ by Hexion and for liquidated damages of \$325 million in cases of other enumerated breaches. The narrowly tailored MAE clause is one of the few ways the merger agreement allows Hexion to walk away from the deal without paying Huntsman at least \$325 million in liquidated damages.”

The structure of MAC clauses and other contingent options sets litigation incentives in the event of future disputes. Simply put, when a buyer has the option of paying a modest reverse break-up fee, it is unlikely to be tempted to litigate the interpretation of a MAC condition. Where the reverse termination option is expensive or unavailable, the buyer is more likely to invoke the MAC to avoid the fee. The MAC definition is accordingly more significant in the latter case.⁵⁸ For example, the deal to purchase Sallie Mae described earlier, included a MAC condition as well as an unconditional reverse termination fee of \$900 million. The private buyer, J.C. Flowers, claimed in litigation that a MAC had occurred in order to avoid payment of the fee.⁵⁹

⁵⁶ Pfizer-Wyeth Agreement, section 7.2(c).

⁵⁷ Pfizer-Wyeth Agreement, sections 8.1(b), 8.2(e).

⁵⁸ Steven Davidoff suggests that invoking a MAC gives the buyer cover against reputational harm from backing out, even if the buyer paid the termination fee. Davidoff also suggests that it may play a role in negotiations, where the contract fee in fact sets a maximum. “Given the continued use of the reverse termination fee structure in private equity deals, the inclusion of a MAC clause provides the private equity firm cover to invoke the MAC clause to ‘completely’ walk from the transaction. Given the damages a MAC claim inflicts on a company, the company will be heavily incentivized in such circumstances to settle out at a lower figure, setting the reverse termination fee as an upper bound of payment.”

⁵⁹ *SLM corporation v. J.C. Flowers II*, C.A. 3279-VCS.

Similarly, in the fall of 2007, Kohlberg Kravis Roberts and Goldman Sachs cited reduced earnings projections and invoked a MAC clause to avoid the cancellation penalty of \$225 million and walk away from their agreement to purchase audio equipment maker Harman International for \$8 billion. Eventually, they agreed instead to purchase \$400 million of convertible notes of Harman (convertible at a price of \$104 per share as opposed to the merger agreement's \$120).

C. Vagueness

In the foregoing discussion of corporate acquisition agreements, we have noted in passing the vague language that frames the various termination options. The definition of material adverse event and the related material adverse change condition leave broad interpretive discretion to the court. For example, the definitions leave open the scope of changes that affect “business” or “operations”.⁶⁰ More significantly, the concept of materiality remains inherently vague, despite its invocation in many areas of law. The case law in these various contexts suggests that materiality should be defined from the perspective of the relevant decision maker in each case: in corporate acquisitions, the buyer. Accordingly, in the strategic purchases in the *IBP* and *Hexion* cases, the Delaware Chancery required an unanticipated event that was “durationally significant”. This holding narrows the range of interpretation somewhat, but leaves plenty of room for dispute at trial and makes summary judgment unlikely.⁶¹ Moreover, the requirement of durational significance may not apply when the buyer is a financial investor with an eye to a short-term gain.⁶² In *IBP*, the Delaware Chancery expressly encouraged parties to be more precise in their language.⁶³ Yet, rarely do agreements base closing conditions on relatively easily verified quantitative threshold, such as a minimum EBITDA.⁶⁴ Many other quantitative proxies are available from easily accessible sources, such as the seller's public stock price, the seller's accounting statements or filings with the SEC. Moreover,

⁶⁰ See, e.g., *Great Lakes Chemical Corp. v. Pharmacia Corp.*, 788 A.2d 544 (Del. Ch. 2001) (a reasonable inference from broad words ‘business of the Company’ in a MAC includes ‘price cutting in the market, patent infringement by a competitor, diminished sales that resulted from these events, and the loss of a major customer due to market forces).

⁶¹ The parties in *Hexion v. Huntsman*, supra note --, disagreed on whether the better measure of material adverse effect should be the change in EBITDA or earnings per share, whether the change should be measured between quarters or year-to-year, and whether the target's failure to meet projections is relevant.

⁶² There remains a question as to whether the *IBP v. Tyson* test would apply in situations where the buyer was a short-term investor (e.g. a private equity firm) rather than a strategic buyer like Tysons in this case. A later Tennessee opinion *Genesco v Finish Line*, infra at note --, suggested that the MAC ought to be interpreted in light of the purposes and goals of the merger. In this case, the court noted that the buyer expected that its debt service costs and working capital would come from Genesco's operations earnings, and the drop in earnings would have jeopardized its ability to effectuate that plan.

⁶³ In *IBP v. Tyson*, the target argued that their earnings drop was caused by a general economic slowdown. However, the Delaware Chancery Court declined to read into the MAC provision an exclusion for such general change. It required that the parties provide so explicitly. The MAC in that contract had no carve-out. Agreement and Plan of Merger, January 1, 2001, available at <http://www.sec.gov/Archives/edgar/data/52477/000095013001000056/0000950130-01-000056-0006.txt>. In a footnote, the court suggested somewhat confusingly that a “contrary rule will encourage the negotiation of extremely detailed ‘MAC’ clauses with numerous carve-outs or qualifiers.” Id. at 68 n155.

⁶⁴ The acquisition of Goodman-International for \$2.65 billion had a condition requiring a specified minimum EBITDA for the second half of 2007. [cite]

many macroeconomic variables are available to correct for the effect of exogenous factors, including indices of industry stock prices or commodity prices.

Carve-outs—such as exclusions for general economic, legal or political changes—have become more common since the *IBP* decision, and they narrow the significance of vague language in the core of MAC definitions. In *Genesco v. Finish Line*, the Tennessee Chancery Court did not reach a holding as to materiality because it found that the change in question was caught by the carve-out: the decline in Genesco’s financial condition, even if material and adverse, was the result of general economic conditions and the target had not suffered a disproportionate impact compared to its industry peers.⁶⁵ Yet, the carve-outs themselves invoke vague thresholds that can invite conflicting interpretation and elaborate fact finding. The disproportionality requirement for finding a MAC—that the effect on the target is disproportionate to that borne by other firms—is vague and could be framed more precisely by using quantitative thresholds.⁶⁶

Finally, we note that closing conditions calling for best efforts (or reasonable best efforts) are vague. Our earlier description of the Pfizer-Wyeth agreement revealed that Wyeth was bound to use its reasonable best efforts to preserve its value and that the parties agreed to use reasonable best efforts to obtain necessary regulatory approvals and financing to consummate the transaction. The vagueness of best efforts is known in various different contexts.⁶⁷

Some practitioners have suggested that acquisition agreements should adopt much more precise language. Parties should prefer language that refers specifically to categories of events that would constitute an adverse change instead of categories such as “operations” or “business”. The parties, for example, could define more precisely a decrease in a particular market or line of business, a loss of specific customers or employees, the closing of certain markets. Commentators also recommend the use of quantitative thresholds, relating to revenues, earnings, market share price, in lieu of the court’s assessment of what is material.⁶⁸ One lawyer, for instance, writes:

“Parties wishing to avoid the uncertainty of a court’s interpretation of ‘materiality’ or ‘durational significance’ may do so by opting for greater specificity in MAC clauses. For example, parties could define ‘materiality’ according to specific financial criteria. Or, just as many

⁶⁵ *Genesco, Inc. v. The Finish Line, Inc.*, Memorandum and Order, Case No. 07-2137-II (III)(Tenn. Ch. Dec 27, 2007), at http://www.genesco.com/images/litigation_library/genesco-pdf.pdf. Chancellor Hobbs held that the material adverse change, if any, was caught by the carve-out. In contrast, the Delaware Chancery in *Hexion v. Huntsman* did not need to apply a similar carve-out for changes in general industry conditions because it found that insufficiently material change had occurred to trigger the general MAC condition. *Hexion Specialty Chemicals et al. v. Huntsman Corp.* (Del. Ch. C.A. No. 3841-VCL)(Sept. 29, 2008).

⁶⁶ In the Sallie Mae litigation, the purchasers argued, inter alia, that the tightening of credit markets had a disproportionate impact on Sallie Mae because of its size and the corresponding magnitude of its credit needs each year. For more on the Sallie Mae case, see *infra* note --.

⁶⁷ E.g., Scott and Triantis, *supra* note --; Ken Adams [cite].

⁶⁸ In their paper, Davidoff and Baiardi note that “MAC clauses are typically defined in qualitative terms and do not describe a MAC in quantitative terms”. Davidoff and Baiardi, *supra* note --, at --.

MAC clauses referenced terrorism in the aftermath of Sept. 11, many MAC clauses could now explicitly reference a credit crunch. As a benchmark, parties could specify that a MAC has occurred if the spread between the federal funds rate and the federal discount rate exceeds a specified threshold... [However,] parties should be aware that such bright-line tests unfortunately cause anything below the threshold—regardless of how close it may be—to fail.”⁶⁹

In a recent study of acquisition agreements, however, the M&A Market Trends Subcommittee of the ABA Committee on Negotiated Acquisitions found that only 8% of the MAC/MAE clauses in the sample contained quantitative thresholds.

The call for more precision has been particularly strong after the occurrence of a severe economic shock. The economic impact of the terrorist attack of 9/11 led lawyers to predict greater certainty and specificity. The recent credit crisis yielded a similar prediction.⁷⁰ In the current economic environment, adverse risks are more salient to deal partners and there is less competition among buyers for targets. Commentators suggest, that carve-outs may narrow as a result and that conditions (such as the financing out) may be reinstated and expanded. In February this year, an article by Fried Frank partners in *The M&A Lawyer* claimed that future acquisition agreements are likely to reflect the following developments: “First...any ambiguity in the drafting of the MAC definition, which facilitated quick negotiation of an agreement, may give way to greater precision and specificity...Second, principals may attempt to quantify a MAC by specifying changes in agreed-upon metrics, such as EBITDA, revenues or margins. For example, whether the loss of a customer accounting for 20% of sales constitutes a MAC would be explicit under a quantitative standard but unclear under current MAC definitions.”⁷¹

Despite these predictions over the past decade, parties to corporate acquisitions show few signs of reducing their use vague standards.⁷² The merger agreement between Pfizer and Wyeth, described above, is representative of the current state of agreements. In the next Part, we seek an explanation for the persistence of vague language in MACs and their carve-outs. In particular, we suggest that the vague standards may perform better than precise thresholds in achieving the three contract goals listed earlier, precisely because of the presence of significant litigation costs. First, giving the buyer the

⁶⁹ David Sands, *The global credit crunch: A MAC?* *The Deal.com* (November 14, 2007).

⁷⁰ David Marcus, *Desperately seeking certainty*, *The Deal Magazine*, July 18, 2008, at http://www.thedeal.com/newsweekly/2008/07/desperately_seeking_certainty (“The run of collapsed deal has led some observers to predict that sellers would demand greater contractual certainty from PE shops in merger agreements, but so far that hasn’t happened.”)

⁷¹ Peter S. Golden, Arthur Fleischer Jr., and David N. Shine, *Negotiated Cash Acquisitions of Public Companies in Uncertain Times*, 13(2) *The M&A Lawyer* 1, 7 (February 2009).

⁷² The Seventh Annual Nixon Peabody Survey did observe, however, that the MAC language “would reasonably be expected to have a Material Adverse Effect” did become less frequent. “Although we saw the pendulum swing back to the buyer, interestingly, the ‘would reasonably be expected to’ formulation showed up in only 15% of the agreements as compared to 52% in the prior year. One possible reason for this result is sellers’ desire for increased deal certainty by eliminating this forward-looking language.” *Nixon Peabody 2008 Survey*, *supra* note --, at 5. In contrast, however, the survey found a slight increase in the proportion of deals that left “material adverse change” undefined: from 1% to 7%. *Id.* At 6.

conditional legal right to cancel when the value of the target's assets decline provides the seller the incentive to make efficient investments and take precautions against adverse shocks. Second, the buyer's conditional right to cancel also allows the seller to signal private information that the asset values are high or that they are less vulnerable than average to adverse shocks. Finally, if the seller has private information concerning changes in asset value occurring between the agreement and closing, the conditional right to cancel promotes efficient renegotiation.

II. THE EFFICIENCY OF CONTRACT VAGUENESS

As the Pfizer-Wyeth merger agreement illustrates, heavily negotiated deals contain a combination of precise and vague provisions. How the mix is arrived at in any given deal is not clear. As we noted in Part I, commentators call for and predict greater precision in contract language during periods of unusual uncertainty and deal failure, when litigation and renegotiation consume greater resources than usual. In the few deals that have emerged since the dramatic shock to financial markets and the global economy, however, we have not seen a significant shift toward greater precision. In particular, the key definition of material adverse effect and the highly contested material adverse change condition are framed in remarkably vague terms. As attention shifts from failed to future deals, this is an appropriate juncture to consider the costs and benefits of vagueness.

The costs of vagueness are relatively well known. Vague contract provisions increase the resources expended in litigation and the uncertainty of judicial outcomes. The court must choose among competing interpretations offered by the parties. The court may not be able to dispose of the claim at the summary judgment stage but may have to conduct an extensive evidentiary hearing to determine what the parties might have meant by "material adverse change" and whether such change has occurred. Because the meaning of the clause is ambiguous, the parties can introduce any relevant extrinsic evidence in support of their claims.⁷³ Moreover, as observed earlier, the parties are likely to present self-serving and conflicting interpretive canons to address combinations of vague and precise language. In light of the uncertainty in interpretation, parties will be tempted to prepare a broader range of evidence. The parties may also make such investments well before the trial. For example, in anticipation of its attempt to walk away from its agreement to purchase Huntsman, Hexion Specialty Chemicals retained Duff & Phelps and Merrill Lynch to value the target and assess its solvency.⁷⁴

⁷³ Although almost all merger or acquisition agreements are fully or partially integrated (see, e.g., Pfizer-Wyeth Agreement section 9.5(a)), courts will often refer to extrinsic evidence to clarify unclear, vague or ambiguous provisions. The use of both an integration clause and vague language may therefore seem inconsistent. Our analysis suggests that in fact this combination may be deliberate.

⁷⁴ *Hexion Specialty Chemicals et al. v. Huntsman Corp.* (Del. Ch. C.A. No. 3841-VCL)(Sept. 29, 2008). Judge Lamb reprimanded Hexion for opportunistically selecting and influencing its experts in order to produce a solvency opinion that would provide grounds for termination. Whether vague or precise contract terms are more likely to encourage wasteful expenditures in anticipation of litigation is a complicated question. See George G. Triantis, *The Efficiency of Vague Contract Terms*, 62 *La. L. Rev.* 1065 (2002)(suggesting reasons why, in fact, precise terms may create more incentive to invest in evidence production).

Uncertainty is generally regarded as being antithetical to efficient business decision making. To many observers, uncertain judicial interpretation creates incentives for wasteful game-playing by each party.⁷⁵ Buyers are emboldened to threaten to walk from deals in circumstances in which the alternative precise provision would have foreclosed such an option. The prospect of this type of buyer opportunism, in turn, undermines the incentive of the seller to contract and to make investments specific to the acquisition.

In the discussion that follows, we review first some of the explanations for vagueness that have been suggested in either practitioner or scholarly commentary. We then proceed to the principal contribution of this paper, a demonstration of the virtues of the litigation costs raised by vagueness, when there is significant information asymmetry between the contracting parties. We focus on the MAC condition to enhance our exposition, but our analysis can apply to other vague provisions (such as “reasonable best efforts”) in acquisition agreements, as well as other commercial contracts. We present the intuition behind the theory in this part and then provide a set of simple numerical examples in Part III.⁷⁶

A. Front-end Transaction Cost Savings

Vague terms reduce the front-end costs of negotiation and drafting contracts. They also reduce the risk of errors of over- and under-inclusiveness stemming from precise terms, due to bounded rationality. From this perspective, the presence of vague terms alongside more precise ones—as in the Pfizer-Wyeth covenants—suggests that the vague language serves as a catch-all for contingencies, particularly unforeseen, that are not encompassed by the precise terms. This explanation falls in the same family as the conventional wisdom about the choice between standards and rules in the drafting of statutes or regulation.⁷⁷ From this perspective, MAC definitions may be intended to provide for a set of contingencies that are too costly to specify *ex ante*. The MAC and carve-outs define a space within which the court has discretion to find that particular changes in circumstances excuse the buyer from closing the deal. The *ex ante* cost of drafting more precise contract language may be greater than the expected litigation cost entailed in enforcing the standard. Venue selection and other provisions relating to the mechanism of dispute resolution, are aimed at reducing enforcement costs and making standards correspondingly more attractive.⁷⁸

The potential for front-end transaction cost saving may suggest why vague terms are used, but it does not explain the reluctance of merging parties to adopt more precise terms in their mix of provisions. Given the size of the deal, and the potential litigation

⁷⁵ See, e.g., Alan Schwartz and Robert E. Scott, *Contract Theory and the Limits of Contract Law*, 113 Yale L.J. 541, 602-3 (2003).

⁷⁶ A more general economic model is available from the authors.

⁷⁷ E.g., Ehrlich and Posner, *Economic Analysis of Legal Rulemaking*, 3 J. Legal Stud. 257 (1974); Louis Kaplow, *Rules versus Standards: An Economic Analysis*, 42 Duke L.J. 557 (1993);

⁷⁸ Scott and Triantis, *supra* note --. See Henry S. Noyes, *If You re(Build) It They Will Come: Contracts to Remake the Rules of Litigation in Arbitration's Image*, 30 Harv. J. Law & P. Policy 579 (2007).

cost ex post, one would imagine that the parties would be more inclined to complete the contract (and eliminate vagueness) as much as is feasible. In Part I, we identified several quantitative proxies that are readily available and have been recommended by commentators. Quantitative thresholds are used more in some contexts, such as in the covenants of the Pfizer-Wyeth Agreement. Yet, they tend not to be in MAC definitions. In fact, as we noted earlier, some agreements expressly reject stock price changes in the MAC carve-outs in favor of vague language. In light of this puzzle concerning the mix of precise and vague terms in contracts, we suggest below a different explanation: because of the screening properties of litigation costs, vague terms can avoid the noise that undermines even more accurate (but imperfect) quantitative proxies.

B. Agency Conflicts

Many employees, advisers and other agents are engaged in acquisition deals and no one fully internalizes the benefits and costs of contract design. This gives rise to conflicts that economists label as agency problems. Even if the expected back-end costs of a vague provision are higher than the front-end cost savings, and even if it is in the interest of both contracting parties to increase precision, there are agents on the front-end who do not fully internalize the back-end costs. Managers, for example, who face some probability of moving to another firm before a dispute arises, will further discount the cost of future litigation. They are correspondingly likely to discourage their transaction lawyers from spending time to refine contractual language.

Uncertainty in contractual language is likely to promote differences in each party's understanding of the contract. Although this raises problems at a later date, it promotes deal making because each side can see what it wants to see in vague language.⁷⁹ Alternatively, vague language can conceal difficult issues that might scuttle the deal if raised between the parties. The compensation of some agents, such as the investment bankers and management consultants, is contingent on agreements being signed, and they may have to surrender some or all of this compensation if the deal later falls through.

Agency explanations such as the foregoing are often difficult to assess and need to be fleshed out with more institutional detail. Vague provisions are found in the largest, highly visible, multi-billion dollar deals, like Pfizer's acquisition of Wyeth. One would think that the agents in such cases are subject to significant monitoring and discipline by their principals. Managerial compensation is often performance-based and, in any event, managers seek to keep their positions and good reputations in labor markets. Outside professionals, such as lawyers, investment bankers and consultants, might have similar concerns about their future dealings with their clients and their reputations. In particular, the reputation of a lawyer might suffer if a vague provision gives rise to costly litigation and an adverse outcome for its client. On the other hand, if similar vagueness exists across agreements, a lawyer who injects greater precision faces various risks of moving

⁷⁹ A similar phenomenon may explain some vagueness in the language of legislation. [cite]

away from the pack.⁸⁰ The costs of unconventional language are borne immediately by raising the burden on the merging parties (and perhaps third parties as well) to draft and understand the implications of new provisions. In contrast, the benefits are reaped primarily on the back end, in the event of a dispute. The benefits of lower enforcement costs and less uncertainty are arguably less likely to be recognized at the time and credited to the lawyer responsible for the precision.

C. Adverse Signaling

In light of the tradeoff described above between front-end and back-end costs, a party who proposes greater precision in contract language describing contingencies that trigger termination may send an adverse signal that it believes divergence of interests and litigation to be more likely. This may be viewed as revealing the seller's private information about the economic prospects of the deal: whether the deal will continue to appear favorable to both parties. Or, it may signal greater litigiousness by the proponent of precision.⁸¹ As a result, each party may hesitate to suggest more precise language, out of a concern that the deal price may be adjusted or that the deal may be called off.

This explanation raises the prospect of inefficient signaling. When a party avoids precise language in order to signal a low estimate of the likelihood of litigation, the parties will jointly bear the higher expected cost of litigation from vague contracting. In addition, there is a chance that most or all sellers may shy from proposing precise terms. This pooling removes any informational benefit from the vague terms and saddles the parties with higher expected litigation costs. Therefore, the seller should be tempted to use alternative signals of quality in order to facilitate the incorporation of more precise language.

While plausible, this story does not fully explain the mix of vague and precise terms in acquisition agreements. In particular, it is interesting that the parties seem to focus a great deal on the consequences of termination—such as the level of the reverse break-up fee or indemnification—and delineate them precisely in the contracts. Rather, it is the contingencies that trigger termination that remain vague. Their willingness to discuss and draft precisely the consequences of termination would seem to belie the claim that they are reluctant to send an adverse signal of their concern that the deal might fail. This leaves an open question as to why they are not equally precise on the conditions of termination. In some circumstances, explicit discussion of why a deal might fail may be more harmful than bargaining over what happens if it does fail. In this light, we refine the signaling story in section G below to show how vague provisions—and higher litigation costs—can facilitate signaling of quality.

⁸⁰ See, e.g., Marcel Kahan and Michael Klausner, *Standardization and Innovation in Corporate Contracting (Or 'The Economics of Boilerplate')*, 83 Va. L. Rev. (1997). The lawyer who proposes a more precise language, in a departure from convention, might face an adverse signaling problem outlined in the next paragraph.

⁸¹ The signal of litigiousness is suggested in different contexts (e.g. prenuptial agreements) by Spier in *Rand Journal of Economics* (1992).

D. Ex post Renegotiation

As noted earlier, the presence and breadth of MAC clauses (and the associated carve-outs) are often said to hinge on bargaining power. Although puzzling,⁸² we often hear that MAC clauses are more common and broader when economic conditions give buyers more bargaining power, and that carve-outs become more prominent when sellers hold more power. Commentators link MAC vagueness to bargaining power as well, but in a different manner: vague clauses improve the bargaining power of each party in future renegotiation, and facilitate settlement of disputes. For example, *The New York Times*' "Deal Professor", Steven Davidoff, writes:

"The reason the parties don't use dollar figures is bargaining leverage. A buyer can invoke a MAC to drive the price of an acquisition down by taking advantage of either changed market conditions or adverse events affecting the company to be purchased. Conversely, even though the buyer may utilize a MAC clause in this manner, a seller may also prefer a qualitative MAC clause to provide it with leeway to argue that an adverse event does not constitute a MAC. In both cases, the MAC clause works for the parties to settle typically at a lower price. The impetus towards settlement is compounded by the lack of substantial case-law on what constitutes a MAC. This is a self-fulfilling loop."⁸³

Professor Davidoff reiterates this point in a case study on the Accredited Home Lenders acquisition, and adds: "Contrast this with a MAC where an adverse event is defined in dollar terms—the bargaining incentives described above are absent as the determination of a MAC can be ascertained numerically."⁸⁴

This reference to bargaining power is somewhat confused. At the time of the initial agreement, provisions that influence bargaining power in prospective renegotiations are zero-sum exercises. Professor Davidoff suggests that both parties may erroneously believe that their bargaining power is improved by vague terms. This is somewhat surprising in large deals with highly sophisticated, repeat players.

Instead, the parties should be concerned about the obstacles to efficient renegotiation. Renegotiation improves the parties' welfare when it terminates a deal that has become inefficient and preserves an efficient transaction that is threatened by one party's termination option. As we discuss in section H, below, efficient renegotiation is likely when the parties are symmetrically informed. The risk of failure comes when one or the other party has private information.

⁸² This claim runs counter to a common theoretical claim that bargaining power does not manifest itself in non-price terms. [cite]

⁸³ Steven M. Davidoff, *The Big MAC* (March 10, 2008) at <http://dealbook.blogs.nytimes.com/2008/03/10/the-big-mac/>.

⁸⁴ Steven M. Davidoff and Kristen Baiardi, *Accredited Home Lenders v. Lone Star Funds: A MAC Case Study* (Wayne State Law School, Mergers & Acquisition Course, Wayne State Law School, Feb 11, 2008). They cite Jeffrey Thomas Cicarella, *Wake of Death: How the Current MAC Standard Circumvents the Purpose of the MAC Clause*, 57 Case W. Res. L. Rev. 423, 430 (2007).

E. The Upside of Litigation Cost: An Information Screen

In the conventional explanation for standards, back-end litigation costs are weighed against front-end drafting costs. If steps can be taken to reduce litigation costs, this provides opportunity for further savings by substituting standards for precise rules.⁸⁵ In contrast, we demonstrate in this paper that litigation costs themselves may serve a positive role in promoting the MAC goals listed above, even if the judicial determination is subject to considerable error. The (high) cost of litigation can weed out bad cases from good cases, provided that the court's judgment is correlated with the true state of nature. This point can be demonstrated by comparing an easily verified (precise) but noisy proxy—such as the quantitative thresholds described earlier⁸⁶—with a vague MAC condition that invites costly litigation.

The comparison of the precise proxy with the vague MAC depends to some degree on the relevant objective to which the buyer's termination right is directed. If the parties wish that the buyer's termination right be triggered by the failure of the seller to invest, then they would care whether the proxy tracks fluctuations in value that are within the seller's control. If they intend that the buyer's termination right support the seller's signal, then they would like the proxy to reflect the seller's private information about the value of the firm at the time of contracting or at the time of renegotiation. As noted earlier, a number of easily verified quantitative proxies for the value of the target are available (accounting results, stock price, industry stock indices, and so on). The important feature is that a court can establish at minimal cost the realized value of the proxy: that the seller's stock price has dropped below a contract threshold, or that the seller's revenues or reported quarterly net income based on GAAP is a given percentage lower than a year earlier.

If a proxy both tracks the fluctuations in value with which the parties are concerned and is costless to verify, the contracting task is easy and the proxy should be adopted. Most proxies, however, are noisy and do not correlate perfectly with the fluctuations in the value that the parties wish to track. For instance, a significant drop in the seller's stock price can result from an event that makes the deal unattractive, such as an impending drop in demand for the seller's products, but also from a general worsening of the market conditions that has nothing to do with the inherent attractiveness of the deal. Similarly, accounting measures produce only a snap-shot of the condition of the business and may not accurately reflect the business' future, long-term potential. Even if the seller's quarterly net income has dropped by 30%, such a drop may not necessarily mean that the seller's long-term profitability has similarly been undermined. As we observed earlier, courts struggle with these implications when they apply MAC clauses. If the parties agree to a quantitative threshold, the court has less discretion in the matter and, in this sense, the parties are stuck with the false positives or false negatives of the proxy outcome.

⁸⁵ Scott and Triantis, *supra* note --.

⁸⁶ Text accompanying note --, *supra*.

The consequences of the noise in a costlessly verifiable proxy can be summarized here briefly before elaborating below. If the proxy is imperfect, it will yield false positives and false negatives in indicating adverse shocks that the parties would like to excuse the buyer. By false positives, we refer to circumstances in which the proxy condition is violated but the parties would not intend to excuse the buyer. By false negatives, we mean circumstances in which the condition is not violated, but the parties would want to excuse in order to achieve the contracting goals of efficient investment or signaling. In the event of false negatives, the seller can costlessly enforce the contract. The buyer is forced to close or to renegotiate from a poor bargaining position. To the degree that the seller can thereby externalize to the buyer the cost of the adverse risk that is affected by her investment, she will under-invest ex ante in precautions against it. The prospect of false positives and negatives also undermines the effectiveness of the proxy-based condition as an ex ante signal of quality. It is correspondingly cheaper for the low-quality seller to mimic the signal because the seller will be able to force the buyer to close (or to renegotiate from a poor bargaining position) when a false negative is obtained. Finally, once a proxy value is realized, there is no way for the buyer to distinguish between the high-quality and the low-quality sellers: buyer's right (or obligation) against either type can be enforced at no additional cost. If ex post separation among the seller types is important to achieve ex post efficiency, imperfect proxies can also undermine that goal.

We turn now to the alternative vague MAC condition. The vague language invites costly litigation over interpretation of the standard. Even if the parties agree on the meaning of "material adverse change" at the time of the agreement, they will be whistling a different tune at litigation. In contrast, there could be little, if any, dispute over the "meaning" of a high or low realization in the proxy; whether the stock price is above \$100 or below \$100 or whether the latest quarterly net income of the seller, as reported by the seller's auditor or otherwise measured under GAAP, is above or below a certain threshold. In our analysis, the key virtue of vague language is that it is costly to enforce. In this sense, the same benefit may be created by a precise term, as long as it calls for costly fact finding. We set this alternative aside in our analysis by adopting the simple assumption that vague terms are more costly to enforce than precise ones.

The court's determination of whether or not there was a material adverse change is more prone to depart from the parties' ex ante intentions, because the court may not have the necessary expertise in determining what constitutes a material change in a particular industry or to a particular firm. At trial, the parties, who are better informed, present conflicting evidence to maximize their respective returns from litigation. The proxy contract, in contrast, is chosen by the parties, who are much more knowledgeable about the underlying business, at a time when their interests converge in attempting to maximize the expected surplus from a successful deal. As a result, it is possible—even likely—that the court's determination under a vague term is noisier than the quantitative proxy that may be chosen by the parties in their contract. However, as we explain below, the selection of cases that in fact go to trial can dramatically reduce the false positives and false negatives to which judicial determinations are susceptible.

Although the court's enforcement of a vague MAC condition may be noisier than the quantitative proxy, the litigation process as a whole may be significantly less noisy. In particular, litigation costs constrain the seller's incentive to enforce the contract in the face of a MAC. Indeed, if the court gets it right more often than not (e.g., its judgment is better than a coin toss), and if the litigation costs fall within the appropriate range,⁸⁷ the seller will sue only when she knows that the adverse shock is of the type that the parties intended to excuse the buyer. In other words, although the court's determination itself might be very noisy, the MAC elicits the seller's information by the screening effect of the litigation costs. The MAC condition thereby sets a more powerful incentive for efficient investment and signal of seller quality than the low-cost proxy (even if the proxy is in fact more accurate). Moreover, because the seller must incur litigation cost to enforce her right against the buyer when the buyer attempts to cancel the deal, litigation cost can also work as an ex post signaling device. We elaborate below the intuition in the context of the three contracting goals identified in Part I: efficient investment, efficient contracting and efficient renegotiation.

The vague MAC condition may perform better than the proxy-based alternative, even though it is more costly to verify and less accurate, because the litigation costs can operate as a screening device. When enforcement is costless, as we have described the proxy contract, the parties will always proceed to enforce the proxy condition as written or to renegotiate around that baseline. This subjects the parties to the inherent noise in the proxy. In particular, even when there has been an adverse shock that was known or could have been prevented by the seller, the proxy threshold may not be triggered. Thus, the contract may be enforced against the buyer. A vague clause, on the other hand, imposes litigation cost on the parties, and when that cost is non-trivial, it can *selectively* eliminate the parties' incentive to litigate ex post. When the litigation cost falls within an appropriate range, the seller will enforce the contract against a reluctant buyer only if the court is likely to find that the adverse shock does not fall within the MAC. Otherwise, the seller does not have a credible litigation threat against the buyer. As we illustrate in Part III, the success of this screen depends only that the court's determination is somewhat correlated with the true state of the world. Under this scenario, the seller cannot compel the buyer to accept assets whose value depreciated because of a risk that was either known by the seller or within its control.

For the litigation costs to provide an effective screen that separates different types of sellers (particularly, those who suffer adverse shocks from those who do not), the ratio of those costs to the litigation stakes must fall within an appropriate range. This range is fairly broad. Nevertheless, if the parties anticipate that either costs or stakes are such as to push the ratio outside this range, they may adopt other contractual mechanisms to adjust either variable. The contract may adjust the litigation stakes, for example, by stipulating damages or break-up fees. As noted in Part I, some buyers in the recent financial turmoil have simply tendered the reverse break-up fee while others have alleged in court the occurrence of a MAC in order to avoid the fee. The contract may also adjust the anticipated litigation costs through fee-shifting rules, burden of proof provisions or

⁸⁷ See Part IV.

arbitration clauses. We discuss briefly these tools and their possible connections to vague conditions in Part IV, but leave more thorough analysis to future work.

F. Efficient Investment

Previous scholarship has suggested that MAC clauses are designed to promote efficient investment by the seller in the period between the contract and closing.⁸⁸ In fact, other clauses contribute to this goal as well. The “bring-down” provisions, under which representations must be accurate at the time of closing, and the contractual covenants also constrain the seller. If either representations or covenants are violated, the buyer has the option to walk from the deal. Or, the buyer may threaten to walk in order to renegotiate the price of the deal. The prospect of either avenue provides the incentive to the seller to take actions that preserve the value of its assets. As we observed in Part I, all of these contractual mechanisms include a mix of precise and vague language. In our discussion, we focus on the MAC condition, but the analysis may be applied to the other instances of vague language (such as the “reasonable best efforts” covenant).

If either the value of the target or the efficiency of the seller’s actions were verifiable by a court at no cost, contracting would be easy. In the real world, of course, they are not. So, the parties have a choice between quantitative proxies that are cheap to verify but noisy, and vague provisions that are more costly to verify and perhaps more noisy. As a result of the screening properties of the litigation process, summarized above and demonstrated in greater detail in Part III, vague provisions may provide a more focused sanction on the seller who invests too little. With fewer false positives and false negatives than under a precise quantitative proxy, the vague terms are more effective in disciplining the seller’s actions before closing.

G. Ex ante Signaling Revisited

By agreeing to the buyer’s option to avoid closing, the seller can signal its private information at the time of contracting, and thereby enhance the efficiency of the decision to contract. Although buyers routinely conduct extensive due diligence, sellers have private information about the value of their assets, as well as their vulnerability to adverse shocks. The seller who knows that its assets are of higher value or better insulated against economic shock would want to credibly signal this, to encourage the buyer to enter into the deal and to agree to a higher acquisition price. In our numerical analysis in Part III, we compare the signaling potential of three types of contracts. First, the seller might signal only through the contract price. Second, the contract can allow the buyer to cancel the deal contingent on a realization of a proxy that is costless to verify, such as stock price or reported earnings. Third, the seller can condition the buyer’s right to walk away on a vague MAC definition.

For a signal to credibly convey information, and thereby to separate the high-quality from the low-quality sellers), it must impose a greater cost on the inferior sellers. The signal must be feasible to the high quality but not the low-quality seller, otherwise

⁸⁸ Gilson and Schwartz, *supra* note --.

the low-quality seller would mimic the signal and it would lose its effect in communicating private information. Among the three alternative contracts, the MAC condition can create the biggest difference in cost, and therefore, can work as the most effective signal. The low-quality seller faces a higher probability of an adverse shock than the high-quality seller. The quantitative proxy, which is correlated with firm value, and the MAC condition are each more likely to trigger the buyer's termination in the low-quality than high-quality deal. In this sense, they each function like a consumer warranty that allows a buyer to avoid a deal when a product turns out to be defective. However, because the presence of litigation costs makes the MAC condition less susceptible to false positives and false negatives, the risk of buyer termination is more closely linked to fluctuations in firm value. As a result, it widens the cost differential of the signal between high-quality and low-quality sellers. For this reason, the MAC condition may be a superior signaling mechanism than the precise proxy-based alternative.

H. Ex post Renegotiation Revisited

Even though the buyer and the seller enter into the initial contract with an expectation that they will realize a surplus from trade, intervening circumstances can destroy that surplus and make the transaction inefficient (because the buyer's value falls below that of seller's). If the parties are symmetrically informed over the joint benefits (or lack thereof) from closing the transaction, they can usually renegotiate successfully the contract to promote ex post efficiency. If the parties are not symmetrically informed, however, there may not reach this efficient result.

The problem of asymmetric information in ex post renegotiation might seem similar to that of ex ante signaling but, in fact, it is worse because the seller's ability to signal through price or through a precise condition is severely constrained. The information obstacle to renegotiation may be described more specifically as follows. Suppose the seller knows whether or not an adverse shock has made the acquisition inefficient. We refer to the seller as "bad" if the asset transfer would be inefficient, and as "good" if it remains efficient. The problem with ex post information asymmetry is that the buyer cannot distinguish between the good and the bad seller in the renegotiation, thereby allowing each type to mimic the other when it is privately profitable. For instance, suppose the buyer's obligation to close the deal depends on a proxy (such as stock price) and that the realized proxy has given the buyer an option not to close. If the good type, with whom the buyer should close, attempts to renegotiate around that option by offering a new price to the buyer, there is no reason why the bad type should also not offer the same deal. For the bad type, with whom the deal should be terminated, offering the renegotiated term is costless. The bad seller has nothing to lose by making such a renegotiation offer since there is no price at which closing the deal would have been mutually beneficial. Similarly, even if the realized proxy obligates the buyer to close or if the option is unconditioned, the buyer's lemons problem is more severe than in the ex ante signaling case.⁸⁹

⁸⁹ The reason that the ex ante signaling story produced separation, even when the seller was using only the price, was that closing the deal was efficient for both types of seller. If the bad type seller, for instance, attempts to mimic to be the high type and offers a high price, when the buyer rejects that offer, she incurs

If, however, the buyer's termination right is conditioned with a vague MAC clause, separation and renegotiation may be easier. The verification (or litigation) cost is again the key. As we have described earlier, if the litigation costs fall within the appropriate range, only the good seller has the incentive to institute costly litigation to enforce the contract. The bad seller's expected return from litigation is negative and this prevents the bad seller from mimicking. Once the good seller separates itself by filing and incurring (at least part of) the cost of litigation, the parties can renegotiate to close the deal. One might speculate the degree to which this might explain the settling of law suits that are initiated to enforce deals in the face of vague MACs (and, conversely, why they are rarely pursued to judgment).

Unlike the previous two cases where costly litigation was pushed off the equilibrium, the seller (and often the buyer) must actually incur litigation cost to signal its type. So, ex post renegotiation relying on a vague MAC condition does create some inefficiency. Hence, two conditions need to be satisfied for a MAC clause to function better than either a precise proxy or an unconditional agreement: the cost of litigation cannot be too large and the threatened efficiency loss from closing the deal (purchasing the assets from the bad seller) needs to be relatively important. These factors are fleshed out in the numerical example in Part III.

III. NUMERICAL EXAMPLE OF STRATEGIC VAGUENESS

In this section, we provide a more concrete analysis of how a vague MAC clause can, when compared to other contractual mechanism, better achieve the three goals of (a) providing efficient pre-closing investment incentive to the seller; (b) allowing the seller to signal its value to the buyer; and (c) achieving ex post renegotiation and efficiency. While our discussion so far has been fairly abstract, this section relies on more concrete, numerical examples to demonstrate our claims.

A. Efficient Investment

Suppose a buyer and a seller enter into an acquisition agreement, under which the seller agrees to sell its assets to the buyer. In the time between the agreement and closing, an adverse shock can occur to the seller's business that reduces both parties' valuations of the assets. For example, the seller may lose valuable customers or employees during that period. To be specific, when there is no adverse shock, the buyer values the seller's assets at \$100 (in millions) and the seller values her own assets at \$80. If the seller's business suffers an adverse shock, their valuations are halved: the buyer

an opportunity cost of being able to close the deal (for certain) at a lower price, which is still higher than how much she values the assets. If the bad type seller's value is higher than the buyer's, as in the ex post renegotiation scenario, the bad type seller no longer incurs any opportunity cost from buyer's rejection. The similar reasoning applies to the good type when the bad type attempts to renegotiate to drop the deal, which we show in part III-B.

values the assets at \$50 and the seller, at \$40.⁹⁰ The following table summarizes the impact of a shock on respective valuations.

	No Adverse Shock	Adverse Shock
Buyer's Valuation	\$100	\$50
Seller's Valuation	\$80	\$40

Table 1: Impact of an Adverse Shock to Valuations

We assume that the seller's pre-closing investment behavior influences whether or not the seller's business will suffer a shock. Specifically, various investments can reduce the likelihood of the adverse shock. These investments vary in nature. Some are relatively straightforward and easy to verify: for example, paying insurance premiums on firm assets and maintaining corporate existence. Others are more difficult to describe and to verify, such as developing customer relations and boosting employee morale. The former group can be easily provided for with accurate measures that are cheap to verify. We are more interested in the second type of actions that are more difficult to verify. To make the numerical example simple, suppose that the cost of the second type of investment is \$40 and, if the seller makes the investment, the probability of an adverse shock is completely eliminated. If the seller does not make the investment, on the other hand, an adverse shock will occur with certainty.⁹¹

We assume that the buyer values the assets more than the seller whether or not the shock has materialized. We also assume in this section that the parties are symmetrically informed at all times about asset values.⁹² Consequently, the transfer will always take place, either under the initial contract or a renegotiated bargain.⁹³ If the seller invests, the buyer will receive assets worth \$100, producing a joint—net of investment—surplus of \$60 ($=\$100-\40). If the seller does not invest, the buyer acquires the assets that are

⁹⁰ The numbers indicate that even after an adverse shock, there still is a \$10 million surplus from executing the deal. This assumption is not necessary. We could have changed the numbers so as to make the deal unattractive after an adverse shock. When there is a chance that the deal becomes unattractive for both parties, the main challenge the parties face will be the design of the renegotiation mechanism so as to close the deal only when there is a positive surplus from closing the deal. We deal with this problem in Section III.C.

⁹¹ Although the assumption that the seller's investment can reduce the probability of an adverse shock from one to zero is clearly excessive and unrealistic, the assumption is made to keep the exposition as simple as possible. We can certainly relax this assumption to accommodate more realistic scenarios. The zero-one assumption renders the "shock" to be completely under seller's control. In reality, the seller's pre-closing behavior will have a causal relationship to the shock while the residual would come from factors are that beyond the seller's control.

⁹² Unlike their information over valuation, we can be more flexible on whether or not the buyer observes the seller's investment behavior. If the buyer does not, this becomes a classic moral hazard problem, where the investment incentive should be based on contingent compensation scheme. Even if the buyer does observe the seller's behavior, we can assume that it may be prohibitively costly for the buyer to prove the seller's misbehavior to the court.

⁹³ This is a simple application of the Coase theorem. We are implicitly assuming that the parties are rational and the "transaction cost," such as the cost of writing and re-drafting a contract, is fairly small compared to the size of the deal so that they will always bargain around the initial terms to achieve the efficient result *ex post*. In the next two parts, we explicitly deal with the problem of information asymmetry that can impede the parties from reaching the efficient outcome.

worth \$50 but the seller does not incur the cost of investment, producing a net surplus of \$50. The seller's investment, therefore, is efficient: it raises the net surplus by \$10.

We examine three different types of contract: (1) a baseline unconditional obligation to close; (2) a contract that allows the buyer to cancel the deal if a specified quantitative threshold is realized; and (3) a contract with a MAC condition. We assume that courts specifically enforce these contracts.⁹⁴ We also assume that whenever bargaining is involved, the seller has all the bargaining power: the seller makes a take-it-leave-it offer to the buyer and the buyer can either accept or reject the offer. Bargaining can take place at the initial stage when the parties are entering into the acquisition agreement and at the renegotiation stage, if necessary, when the buyer attempts to revise the acquisition price in light of an adverse shock to the seller's business.

The sequence of the game is as follows. At the contract formation stage, the seller offers one of the three alternative contracts identified above (unconditional, precise or vague), and sets the price accordingly. If the buyer rejects, the game ends. If the buyer accepts, they proceed to the next stage, in which the seller decides whether to make the investment. After the seller's investment choice and the parties' valuations are realized and observed by both parties, the buyer can trigger a renegotiation by exercising the contractual option to terminate, if the contract provides for such option. The seller, in return, can make a take-it-or-leave-it renegotiation offer to the buyer, which the buyer can either accept or reject. If the buyer accepts, the game ends with the renegotiated terms. If the buyer rejects, the seller can bring a lawsuit against the buyer, in which the court determines whether the buyer has legally exercised her option not to close the deal.⁹⁵

1. The unconditional contract

Suppose the buyer has an unconditional obligation to close the deal at price P_0 . Given that the buyer's valuation is always higher than the seller's, imposing such an

⁹⁴ As we noted in Part II, the Delaware courts have demonstrated an inclination to specifically enforce acquisition agreements if the parties have not indicated their preference for damage remedies. Although many acquisition agreements provide for liquidated damages (in the name of a reverse break-up fee), this assumption will greatly simplify the analysis and the main argument will not be lost by relaxing it. Indeed, under certain circumstances, the parties will have to rely on a reverse break-up fee, rather than specific performance, as remedy to control their ex post litigation incentive. For instance, when the remedy of specific performance is too attractive, the seller may bring a lawsuit against the buyer even when the buyer's exercise of her option is not unjustified and this can destroy the seller's ex ante investment incentive. To eliminate such indiscriminate litigation, the parties would want to reduce the potential recovery for the seller by stipulating a reverse break-up fee. The contract, with a material adverse change clause, will give the buyer two break-up options: the buyer can either not close the deal by paying the break-up fee or by paying nothing if she can successfully show a material adverse change. We discuss the effect of incorporating a reverse break-up fee in more detail in Part IV.

⁹⁵ Assuming such a stylistic and unrealistic bargaining/renegotiation protocol will greatly simplify the analysis and make the stories consistent through the paper without sacrificing generality. The assumptions can be relaxed to accommodate other types of bargaining scenarios. In a more general bargaining game, the parties can make offers and counter-offers until (or even after) one exercises an outside option by filing a lawsuit.

unconditional obligation does not engender any transactional inefficiency when the parties are symmetrically informed, as we have assumed. It can, however, undermine the seller’s investment incentive. Since the seller is certain to receive the acquisition price of P_0 whether or not the adverse shock to the asset values materializes, she will not have any incentive to make the efficient but costly investment of \$40 to raise the value of the assets for the buyer.⁹⁶

How much would the buyer be willing to pay for such an unconditional obligation? The buyer knows that the seller has no incentive to invest and that the assets will be worth no more than \$50 to him. Under the assumption that the seller can make a take-it-or-leave-it offer, the parties will enter into the unconditional agreement at a price of \$50 and will always close the deal. Thus, under the unconditional contract, the seller does not invest in precautions against the shock, and the parties realize a joint expected value of \$50 rather than \$60.

2. The precise contract

As we indicated in Part I, the seller can be given the incentive to make the efficient investment, if the buyer has the option to terminate the contract, or renegotiate its price, when the seller fails to invest. We noted the role of covenants in this respect, both the in the form of “reasonable best effort” promises and more precise obligations in contracts such as the Pfizer-Wyeth agreement. In our numerical example, we compare a closing condition based on an easily verifiable proxy with one based on a vaguely phrased MAC condition.

Suppose that the contract provides the buyer with the option to avoid closing, contingent on the outcome of an easily verifiable proxy. The parties would set a threshold, such as a specified level in stock price or earnings, below which the buyer would be entitled to walk from the deal. We stylize this provision here by allowing the proxy to take either of two values—high or low—and by assuming that the outcome is costlessly verifiable by a court. The proxy has a 75% accuracy in reflecting the contingency that the parties wish to trigger the buyer’s option: in our example, the occurrence of the adverse shock. When there is an adverse shock, the index will be low with 75% probability and high with 25% probability; and when there is none, the index will be high with 75% probability and low with 25% probability. The buyer has the option to walk away from the deal if the proxy outcome is low.

Proxy-Index Realization	No Adverse Shock	Adverse Shock
High	75%	25%
Low	25%	75%

Table 2: Correlation between Proxy-Index and Adverse Shock

⁹⁶ This is the general problem with cooperative investment where one party’s investment has a direct effect on the other party’s valuation of the deal. If the seller’s investment were purely selfish, for instance in reducing her cost of production in a sales contract, a fixed-price contract can induce her to make the necessary investment.

For the moment, let the acquisition price in the initial agreement be P_0 . Since the maximum the buyer is willing to pay for the assets is \$100, we can assume that P_0 is set between \$100 and \$50.⁹⁷ To be more concrete about the renegotiation process, we assume that the buyer, after observing whether the seller's business has suffered an adverse shock, expresses his intention to walk from the deal to the seller. The seller, in return, makes a take-it-or-leave-it renegotiation offer, P_1 , to the buyer. If the buyer accepts, the deal closes at the new price. If the buyer rejects, the seller decides whether to sue the buyer to close the deal. In case of litigation, the court, at no cost, enforces the written terms of the agreement. That is, if the realized proxy is high, the court compels the buyer to close the deal at the initial price (P_0). If the proxy outcome is low, the buyer walks away from the deal.

We examine two scenarios separately. First, when there is no adverse shock and the assets are worth \$100 to the buyer and \$80 to the seller, the buyer has no incentive to avoid the closing, regardless of the proxy's realization,. That is, even if the proxy is low, the buyer cannot make a credible threat not to close the deal. Given that the parties are symmetrically informed and P_0 is (weakly) less than \$100, the seller knows that the buyer would lose a profitable deal if he carried out the threat. In both cases, therefore, the parties will close the deal at the initial contract price: the court compels the buyer will acquire the seller's assets that are worth \$100 to her at price P_0 and the seller will sell the assets that are worth \$80 to her for P_0 .

Second, suppose the seller's assets have suffered a negative shock, so that they are worth \$50 to the buyer and \$40 to the seller. If the proxy is high, which happens with probability of 25%, the court will specifically enforce the agreement. The deal closes at price P_0 . If the proxy is low, on the other hand, the buyer has a credible option to cancel the deal. Given that there still is a \$10 surplus from closing the deal, the seller will make a renegotiation offer \$50 (P_1) to the buyer and the buyer will accept the offer.

Proxy Realization	No Adverse Shock	Adverse Shock
High	Deal Closes at P_0 Buyer makes $\$100 - P_0$ Seller makes $P_0 - \$80$	Deal Closes at P_0 Buyer makes $\$50 - P_0$ Seller makes $P_0 - \$40$
Low	Deal Closes at P_0 Buyer makes $\$100 - P_0$ Seller makes $P_0 - \$80$	Deal Renegotiated at P_1 Buyer makes $\$50 - P_1$ Seller makes $P_1 - \$40$

Table 3: Deal Outcome with a Proxy

The seller's incentive to invest depends on the degree to which her investment alters the probability of the various outcomes and on the price she will receive in each one of them. We established that she will sell the assets for \$50 (P_1) if there is an adverse

⁹⁷The maximum value of the assets to the buyer is \$100, so he would not agree to a higher price. A price lower than \$50 will leave the seller with no incentive to invest because the buyer would want to close the deal even if the adverse shock reduces the value of the assets (to \$50). For now, we will remain agnostic about the price and come back to this issue at the end.

shock and the proxy returns a low value. In the other contingencies, she will receive the initial contract price, P_0 , even if she failed to invest.

Despite the accuracy with which the proxy predicts the value of the seller's assets, the buyer's option to walk under the proxy-based condition does not provide the seller with an incentive to make the investment. Suppose the seller does not make the investment. With 75% probability, the buyer will attempt to exercise his option and the seller will offer a new price of \$50. With 25% probability, when the proxy value is high, the seller can force the buyer to close the deal and receive P_0 . Therefore, the non-investing seller can expect to earn $(0.75) \times \$50 + (0.25) \times P_0$ from the deal. If she does make the investment, on the other hand, she can expect to earn $P_0 - \$40$ for certain: regardless of the value of the proxy, the buyer will not attempt to exercise his option and the deal will close at the initially stipulated price.

In order for the contract to provide the seller with the investment incentive, her return from making the investment should be larger than that from not making the investment. That is, $(0.75) \times \$50 + (0.25) \times P_0$ has to be (at least weakly) larger than $P_0 - \$40$. When we examine this relationship in terms of P_0 , seller will have the investment incentive when P_0 is larger than \$103.33. However, since the assets are (at most) worth \$100 to the buyer even when the seller makes the investment, the buyer would not be willing to enter into an agreement which requires him to pay something more than \$100. When the seller offers a contract with P_0 less than \$100 but with a proxy-based condition, the buyer should rationally expect that the seller has insufficient incentive to invest and be willing to pay only up to \$50. In other words, if the seller offers any price that is above \$50 but below \$100, the buyer will properly reject. The only possible equilibrium, therefore, is where the seller offers \$50, the buyer accepts, and the seller does not make the investment even though it is efficient.

The reason that the proxy fails to provide the efficient investment incentive to the seller is that the seller can, at no cost, force the buyer to close the deal when the proxy is high but the true value of the assets is low. In other words, the parties are stuck with the consequences of this false negative in the proxy. The seller's incentive was even worse under the unconditional contract, because the seller could always force the buyer to close the deal regardless of the true value of the assets. The seller is less likely to be able to do so with the proxy-based condition, but there remains some states of the world in which the seller can still force the deal at a high price even after asset values have declined because of its failure to take efficient action.

The ease of verifiability is a double-edged sword: while offering a costless enforcement of a contingent contract option, it leaves unattended the effects of false positives and false negatives inherent in a noisy proxy. In order to provide the necessary incentive in this case, either the proxy needs to be more accurate or the size of the deal, relative to the size of the investment, needs to be larger. Alternatively, the parties might adopt a vague condition that benefits from the screening effect of verification costs, as demonstrated in the section below.

3. The vague contract

The key feature of a vague provision in our analysis is that its enforcement is subject to costly litigation, and that the court is prone to error (false positives and negatives) in carrying out the parties' intent. In fact, to illustrate more dramatically the case for vague MAC language, we assume that the court's judgment under the vague term is not only more costly to obtain than the proxy, but also less accurate than the proxy.

Suppose the parties agree to a MAC condition. If the buyer attempts to exercise this option, the seller can sue the buyer to obtain the court's judgment as to whether a "material adverse change" has indeed occurred. If the court finds a MAC, the buyer can terminate the deal; if the court does not, it compels the buyer to close. As before, we'll assume that the contract price, P_0 , lies between \$100 and \$50, and that the parties are free to renegotiate before or after the litigation. When renegotiating, as before, we assume that the seller makes a take-it-or-leave-it offer to the buyer.

Litigating over whether a material adverse change occurred costs each party \$25, regardless of who prevails.⁹⁸ Moreover, the court's determination is only 60% accurate. In other words, conditional of there being an adverse shock, the court will declare that a material adverse change has occurred with only 60% probability, and similarly, even after the seller has suffered no adverse shock, the court will get that right with only 60% probability. Compared to the previously discussed proxy, the court's judgment is both more costly—it costs \$50 for the parties to obtain court's information whereas nothing to observe the realized proxy—and less accurate—court's judgment is only 60% correct while the proxy is accurate with 75% probability.

Court's Determination	No Negative Shock	Negative Shock
"Material Adverse Change has not Occurred"	60%	40%
"Material Adverse Change has Occurred"	40%	60%

Table 4: Correlation between Court Judgment and Adverse Shock

Suppose the buyer's obligation to close is conditioned on the non-occurrence of a MAC. Similar to the case with a precise proxy, if the seller's business has not suffered an adverse shock, the buyer will close the deal. Given that the assets are worth \$100 to the buyer and the buyer has to pay the contractually stipulated P_0 , which is (weakly) below her reservation value, the buyer gains nothing from walking away.

If there is an adverse shock, however, the story diverges from the precise proxy case. Given that the contract price (P_0) is higher than the value of the assets (\$50) to the buyer but there still is a positive surplus from closing the deal, the buyer will use the

⁹⁸ The assumption that the litigation cost is completely insensitive to the merits of the claim is not necessary, but we do need it to be "sufficiently" insensitive. Costly verification comes with an implicit assumption that such verification cost is insensitive to who has the right claim. See Part III.D.

MAC condition to attempt to renegotiate the price. The seller can make a renegotiation offer to the buyer, but will the seller bring a lawsuit against the buyer if the buyer rejects her renegotiation offer? If the seller prevails in obtaining an order for specific enforcement of the initial contract, she gains $P_0 - \$40$ (the contract price less the value of the assets to the seller following the adverse shock). However, her chance of prevailing in court is only 40%, and combined with the \$25 cost of litigation, her expected gain from litigation is $(0.4) \times (P_0 - \$40) - \25 . Even if P_0 is as high as \$100, she still has a negative expected return from litigation. In other words, when there has been an adverse shock in fact, the seller does not have a credible litigation claim against the buyer. So, the buyer's threat not to close the deal is credible. Once the buyer exercises his option, the parties renegotiate, and the seller makes a renegotiation offer of \$50 (P_1) to close the deal, which the buyer will accept.⁹⁹

To recap, there are two ex post scenarios under a MAC condition. If there is no shock, the buyer will close the deal and the buyer takes assets worth \$100 at a price of P_0 , for a profit of $100 - P_0$. The seller makes a profit of $P_0 - \$80$. If there is an adverse shock, the parties renegotiate the deal (with litigation off-the-equilibrium) and, given the assumption that the seller has all the bargaining power, they close the deal at \$50 (P_1). The buyer makes a profit of \$0 and the seller makes a profit of \$10. We emphasize here that there is only one outcome following the occurrence of the shock. Under the proxy contract, in contrast, there was a chance of a false negative: the proxy outcome may have been high even following an adverse shock. In that case, the parties would not have renegotiated for a lower price and the seller would not have internalized the cost of its failure to invest. In the case of the vague MAC, the corresponding false negative—that is, an erroneous judicial finding of no MAC following an adverse shock—is avoided because the seller would not find it feasible to sue to enforce the original contract.

No Adverse Shock	Adverse Shock
Deal Closes at P_0 Buyer makes $100 - P_0$ Seller makes $P_0 - \$80$	Deal Renegotiated at P_1 Buyer makes $50 - P_1$ Seller makes $P_1 - \$40$

Table 5: Deal Outcome with a MAC clause

The resulting benefit to investment incentive from the screening effect of litigation costs can be demonstrated in our numerical example. If the buyer believed that the seller would make the costly investment, the maximum contract price would be \$100. Suppose the seller offers the buyer a vague MAC contract with the contract price of \$100. Will this induce the seller to make the pre-closing investment and will the buyer accept the offer? Working backwards, assuming that the buyer accepts, the seller can expect to receive \$50 from the renegotiated contract if she does not invest. If she makes the investment, she expects to earn \$60 when the deal closes (the \$100 contract price less \$40 in investment cost). Therefore, the seller has an incentive to make the \$40 investment and reap an additional, net profit of \$10 by doing so under the contract. The buyer knows

⁹⁹ The seller may not have the incentive to sue if there has not been an adverse shock. However, we noted earlier that, in this case, the buyer will close the deal and its threat to call on the MAC is not credible, if the value of the target is fully observable.

that there is sufficient investment incentive for the seller and that the assets will be worth \$100 by the time of closing, thereby giving him the necessary incentive accept the seller's offer.

B. Using a MAC Clause to Signal Value Ex Ante

In the previous example, the parties wanted to devise a contractual mechanism to provide pre-closing investment incentive to the seller. We assumed throughout that the parties are symmetrically informed over the value of the assets. The assumption of symmetric information is unrealistic in most cases of corporate acquisitions, however. Notwithstanding the buyer's due diligence, the seller is likely to have significant private information about the condition and prospects of its firm. If the buyer understands that he is less informed about the asset values, the problem of adverse selection arises: the buyer will be afraid of paying too much and be more hesitant in entering into the deal.¹⁰⁰ The more valuable sellers would find it in their interests to signal their quality. Contract design provides a range of possible mechanisms. As with the problem of seller investment, we compare here three provisions: signaling through price alone under an unconditional contract, through a termination option triggered by the outcome of an easily verifiable, precise proxy, and a MAC condition. Our example illustrates that a vague MAC condition can perform better than the other two alternatives.

To illustrate, we modify our example to provide for private information of the seller. Suppose are two types of seller: one who knows that she will face an adverse shock for certain (the "low-quality" or simply "low-type") and the other who knows for certain that there will not be an adverse shock (the "high-quality" or simply "high-type"). We adopt this extreme case in which the probability of facing a material adverse change is either one or zero, in order to keep the numerical example simple. The logic applies equally well when the difference between the seller's exposure to adverse shocks are probabilistically smaller. Although we retain the description of "adverse shocks," we are concerned with private information that the seller has at the time of entering into the deal. The low-type knows that there are accounting irregularities, for example, while the high-type knows that the reporting statements are accurate.

We assume in this section that the buyer finds out the seller's true type, but only before the closing of the deal.¹⁰¹ Suppose that the buyer values the high-type seller's assets at \$100 and the low-type seller's at \$60. For the seller, if she is a high-type, the assets are worth \$70 to her; whereas if she is a low-type, they are worth \$50. To focus on the signaling rationale, we assume that there is no concern with the seller's investment decision between contracting and closing.

¹⁰⁰ For a closely related problem of how asymmetric information can undermine transactional and deterrence efficiency in successor liability cases, see Albert H. Choi, *Successor Liability and Asymmetric Information*, 9 AM. L. & ECON. REV. 408 (2007).

¹⁰¹ We can relax this assumption by assuming, instead, that the buyer finds out the seller's true type before closing but only probabilistically. Such an alternative assumption will not change the result but can make a MAC clause to function better as a complementary mechanism along with the others, such as due diligence and indemnification.

	High Type	Low Type
Buyer's Valuation	\$100	\$60
Seller's Valuation	\$70	\$50

Table 6: Valuations based on Seller's Type

We assume, as before, that the seller makes a take-it-or-leave-it offer to the buyer and must decide whether to include an excuse clause and, if so, whether to use a precise proxy or a vague MAC. If the buyer rejects the offer, the negotiations are over and the deal falls apart, in which case the buyer gets nothing and the seller is left with the assets that are worth \$60 or \$50 to her, depending on her type. If the buyer accepts the offer, the seller can specifically enforce the obligation to close unless the adverse shock triggers an excuse under either the precise proxy or a vague MAC definition, as the case may be.¹⁰²

1. The unconditional contract

A seller might signal quality through price. In our example, the seller has all the bargaining power because it can make a take-it-or-leave-it offer, and will therefore attempt to extract all the surplus from the acquisition. The seller will offer a price of either \$100 or \$60 to the buyer. If the seller offers to transfer the company for \$60, she implicitly reveals that the company is of low-type. The buyer is not threatened by the seller's private information and can accept the offer without hesitation. A high-type seller, of course, will not attempt to sell for \$60 because their company is worth more to her. However, if the seller demands \$100 and claims that her assets are worth this much to the buyer, the less-informed buyer has a reasonable concern that the seller is not telling the truth. The low-type seller will be tempted to make the \$100 offer to the buyer. Consequently, the buyer will reject this offer with some frequency.

The threat of the buyer's rejection might induce a low-type seller to offer a price of \$60, and thereby separate the high- and low-type sellers. However, the buyer's rejection also causes the loss of some surplus-creating transactions. To induce the low-type seller to offer \$60 and the high-type seller to offer \$100, the buyer's rejection frequency of \$100 should be sufficiently high so that the low-type seller would rather want to sell the assets at \$60 for certain than attempt to sell it at \$100 and risk being left with the assets that are worth \$50 to her. Briefly, in order to achieve such a separation, the minimum frequency with which the buyer has to reject the \$100 offer is $4/5$.¹⁰³ In

¹⁰² Renegotiation possibility is not important in this signaling game. The reason is that once the seller truthfully reveals her type to the buyer ex ante, all asymmetric uncertainties are resolved and no ex post renegotiation is necessary to achieve efficiency.

¹⁰³ For the low-type seller, if she offers \$60, the offer will be accepted for sure. If she mimics to be a high-type and offers \$100, suppose the offer will be accepted with probability β . For her to prefer offering \$60 rather than mimicking to be the high-type, \$60 should be at least as large as her profit from making the \$100 offer with the condition. In other words, we need \$50 must be bigger than or equal to $\beta \times \$100 + (1 - \beta) \times \50 . By solving for the maximum β that satisfies the inequality, we get $\beta = 1/5$. The buyer must reject the \$100 offer with probability of at least $4/5$. This type of equilibrium is known as the Perfect Bayesian Equilibrium where the buyer's belief about the seller type, in equilibrium, is consistent with the actual seller type.

other words, the adverse selection problem in this example is severe enough that the buyer accepts only one out of every five offers made at \$100. In equilibrium, the low-type seller sells her assets at \$60 for certain while the high-type seller sells the assets with only 1/5 probability, and this creates a welfare loss. The unconditional contract is a poor signaling mechanism.

2. The precise contract

Suppose the acquisition agreement conditions the buyer's option on the outcome of an easily verified, precise proxy. As before, the proxy can take on two, high or low, values, and the buyer can walk away if the low value is realized. The proxy is fairly informative: it reflects the seller's type with 75% probability. For the high-type seller, the proxy value will be high with 75% probability, and for the low-type, the index will be low with 75% probability.

Proxy-Index Realization	High Type	Low Type
High	75%	25%
Low	25%	75%

Table 7: Correlation between the Proxy and the Seller Type

The high-type seller is much more likely than the low-type to include such a condition in order to signal her value to the buyer. The low-type seller is reluctant to include such a condition because there is a 75% chance that the buyer will walk away from the deal and she will be left with assets that are worth \$50.¹⁰⁴ The low-type seller may nevertheless try to mimic by agreeing to the proxy-based condition because she can profit significantly in the 25% chance that the buyer will be forced to close the deal at \$100. Given this pooling of sellers, the buyer cannot be sure of the seller's type if she receives an offer with a price of \$100 and a proxy-based condition. She will be somewhat skeptical of the true value of the seller's assets and will reject the offer with some frequency.

In equilibrium, the low-type seller will make a \$60 offer to the buyer, whereas the high-type seller will make a \$100 offer with the condition. The buyer will always accept the \$60 offer but will reject the \$100 offer with the condition with 1/5 probability.¹⁰⁵ The welfare loss from the loss of some deals is less than that from the previous case when the seller can signal only with price under an unconditional contract—1/5 probability of

¹⁰⁴ Given that the buyer still places a higher value on the low-type seller's assets, even if the index realization is low, the buyer and the seller can renegotiate the price downward and close the deal. The proxy-index, then, will be dictating the relative bargaining strength in this renegotiation stage, like in the previous example. We ignore this possibility in this example to keep the analysis simple but inclusion of renegotiation will not change the results.

¹⁰⁵ The 1/5 probability can be found as follows. For the low-type seller, if she offers \$60 with or without the proxy condition, the offer will be accepted for sure. If she mimics to be a high-type and offers \$100 with a proxy condition, suppose the offer will be accepted with probability β . For her to prefer offering \$60 rather than mimicking to be the high-type, \$60 should be at least as large as her return from making the \$100 offer with the condition, which is $\beta \times (3/4 \times \$50 + 1/4 \times \$100) + (1 - \beta) \times \50 . By solving for β , we get $\beta = 4/5$. In other words, the buyer must reject the \$100 offer with probability of at least 1/5.

rejection of \$100 offer rather than 4/5 probability of rejection -- but we demonstrate below that it is greater than what might be achieved under a MAC condition that is costly to verify.

3. The vague contract

As in the previous section, we assume that the court's determination of whether a material adverse change has occurred is noisier than the precise proxy. Specifically, the court accurately finds the existence or absence of a MAC with only 60% probability. Moreover, litigation imposes a \$25 cost on each party.

Court's Determination	High Type	Low Type
"Material Adverse Change has not Occurred"	60%	40%
"Material Adverse Change has Occurred"	40%	60%

Table 8: Correlation between Court Judgment and Seller Type

The MAC condition is an effective signal and achieves the desired separation only if the low-quality seller does not mimic the high-type's offer of \$100 with a MAC clause, and instead offers to sell for \$60 without a MAC. In fact, this separation occurs in our example. Suppose that a low-quality seller tries to mimic by agreeing to a MAC condition, hoping that the court will later err by not finding a MAC. When the buyer learns that the assets are worth only \$60 and attempts to avoid closing the deal, the seller will not find it feasible to enforce the contract in court by convincing the court that the MAC has not occurred. The low-quality seller's gross expected return from litigation is \$20: she has a 40% chance of winning in court and, if she wins, her net return is \$50 (\$100 contract price minus \$50 of asset value). This is less than the \$25 cost of litigation. Therefore, the low-quality seller will never be able to complete a sale for \$100 under a MAC condition. Thus, when the seller offers \$100 with a MAC clause, the buyer knows she is dealing with a high-type seller and can always accept the offer. So, all deals will be accepted and closed at their respective contract prices.

Signaling Device	Probability of Accepting High Price (\$100)	Welfare Loss from High Type Seller
Price Only	1/5	\$24
Price plus Proxy-Index	4/5	\$6
Price with a MAC clause	1	\$0

Table 9: Comparison of Signaling Outcomes

As in our analysis of the investment incentive, we have compared the signaling efficacy of two noisy variables: the precise proxy and the judicial enforcement of the vague MAC. The key to the superior signaling quality of the vague MAC over the precise proxy is the cost of litigation. This cost acts as a hurdle that screens good litigation from bad litigation. With this advantage, the vague MAC is superior to even more accurate proxies. The reason is that the inaccuracy of the judicial determination is

corrected to the degree that the litigation costs screens away sellers who try to enforce their deals despite suffering adverse shocks. In our example, the low-quality seller cannot gain by mimicking the high-quality's offer of a MAC condition, because she will not find it in her interest to enforce the contract and enjoy the benefit of the higher price ex post. The false negatives of proxies, in contrast, permit some low-type sellers to enforce their deals at no cost, and retain the benefit of mimicking the contracts of their high-value counterparts. Thus, it is cheaper for the low-type to mimic the high-type by using easily verifiable proxy conditions than vague MACs.

C. Ex Post Renegotiation

To isolate the problems of efficient investment and ex ante signaling, we made two simplifying assumptions in the previous two sections. First, the adverse shock did not threaten the potential surplus created by the transfer of assets from seller to buyer. That is, under all states of the world, the assets were worth more to the buyer than the seller at closing. We relax this assumption in this section in order to assess the effectiveness of renegotiation when it is sometimes inefficient to close the deal. Second, in the preceding sections, we assumed that the parties are symmetrically informed at closing, even if the seller enjoyed private information at the time of contracting. The symmetrical information ensured that renegotiation is always effective in preserving efficient deals and terminating inefficient transactions, if any. Although the terms of such ex post bargaining might affect long-term efficiency in other ways, such as undermining the seller's investment incentive, at least ex post efficiency is guaranteed.

Given that the seller typically remains in control between contracting and closing, her information advantage is likely to persist. Therefore, she enjoys private information as to whether the condition of her firm has changed so as to render the transaction inefficient. This asymmetry threatens the efficiency of renegotiation, either to reprice the deal or to terminate it. In particular, if an adverse shock destroys the surplus from trade, the parties may not reach a renegotiated agreement that is more attractive to the seller than closing at the initial contract price. From the ex ante perspective, when their interests are better aligned, the parties have the incentive to devise a contractual mechanism that minimizes the problem of ex post information asymmetry and thereby facilitates ex post renegotiation.

To be more concrete, suppose that both parties are aware at the time of the contract, that there is a 75% chance that the seller's business will suffer an adverse shock. Without the shock, the buyer values the assets at \$100 and the seller at \$60. When there is a shock, however, the buyer's valuation drops to \$0 while the seller's valuation drops to \$50. In contrast to the previous examples, the occurrence of a shock makes closing the deal inefficient.

	No Adverse Shock	Adverse Shock
Buyer's Valuation	\$100	\$0
Seller's Valuation	\$60	\$50

Table 10: Impact of an Adverse Shock to Valuations

If the parties are symmetrically informed of the adverse shock, the seller would agree to terminate the deal in return for a side payment, rather than hold the buyer to the contract. In the current example, the seller might offer to terminate in return for a fee of slightly less than the price. Since the buyer's valuation of the assets is \$0, the buyer would accept the offer. The seller is strictly better off because she receives almost as much as the price and keeps the assets that are worth \$50.

The problem becomes interesting when the seller has private information as to whether or not her business has suffered a shock. The buyer may be characterized as facing two types of sellers ex post: one who has not suffered a shock and with whom the buyer should close the deal ("high-type") and one who has and with whom the buyer should renegotiate to cancel the transaction ("low-type").

1. The unconditional contract

Suppose the buyer has unconditionally agreed to purchase the seller's assets at \$90 (P_0). After suffering a shock, suppose the low-type seller attempts to renegotiate. She may offer to the buyer to cancel the deal in return for a fee of \$40.¹⁰⁶ If the buyer rejects the offer, the deal will close at the original price of \$90. If the buyer knows that the low-type seller is offering such a deal, the buyer is better off paying \$40 to avoid closing than buying assets worth \$0 for \$90. However, the high-type seller has the incentive to mimic the low-type by offering the same deal. By also offering the fee of \$40, the high-type seller realizes an even bigger gain of \$100 (\$60 in assets plus the \$40 fee). Even though it is efficient for the high-type seller to close the deal, she no longer has an incentive to do so. Both types of seller will offer the fee and the efficient high-type transactions will not take place.¹⁰⁷

The reverse problem (or reverse pooling) occurs when the buyer has no obligation to close the deal (or an unconditional option not to close the deal). Suppose the buyer initiates the renegotiation process by triggering the option. The high-type seller, aware of the surplus that continues to exist from the transfer, will offer to sell at a new price, say \$85. Yet, the low-type seller has the incentive to pool by making the same offer to the buyer. As long as the buyer accepts the offer with any positive probability, the low-type seller is better off mimicking the high-type rather than being truthful. As a result, the buyer is unable to distinguish between the types. If the buyer unknowingly accepts the renegotiated offer from the low-type, an inefficient transfer may occur.¹⁰⁸

¹⁰⁶ This is the minimum reverse break-up fee the low-type seller has to offer, since closing the deal allows her a profit of \$40. The maximum reverse break-up fee the buyer would be willing to pay is \$90. As the fee gets higher, the high-type seller's incentive to mimic to be the low type becomes even stronger.

¹⁰⁷ More generally, suppose the high-type seller values the assets at V_H and the low-type at V_L . Suppose also that the initial price of the agreement is P_0 and the low-type seller offers a reverse break-up fee of P_1 after observing an adverse shock. For separation, we need $P_0 \geq P_1 + V_H$ for the high-type and $P_1 + V_L \geq P_0$ for the low-type. Combining the two inequalities, we get $V_L \geq P_0 - P_1 \geq V_H$ which is not feasible so long as $V_H > V_L$.

¹⁰⁸ This result is in stark contrast to that from the previous section. When they were engaged in ex ante bargaining even if the seller could signal using only the price with an unconditional contract, the seller

2. The precise contract

A contract that conditions the buyer's option to terminate on a costlessly verifiable proxy raises each of the foregoing problems, albeit to a lesser degree, because of the false positives and negatives described earlier. The proxy provision merely makes the type of inefficiency contingent on the realized proxy value. If the realized proxy is low and the buyer can be compelled to close the deal, some high-type sellers nevertheless exist (false positives). A high-type seller can mimic the low-types by offering to cancel for the same fee. This destroys the surplus that would be received from the high-type transfers. On the other hand, the proxy may yield false negatives: the proxy outcome may be high and yet low-types emerge after the shock. The low-type seller may mimic the high-type by offering to preserve the deal at a renegotiated price, so that inefficient transactions take place.

As in our analysis of efficient investment and ex ante signaling, the parties are stuck with the false positives and negatives of their noisy and costlessly verifiable proxy. Given any proxy outcome, the parties cannot avoid the pooling of high-value and low-value sellers. Without a further signaling or screening device, the buyer will not be able to distinguish between types. As explained above, this yields efficiency losses in the form of inefficient transactions that close (in the case of a high proxy outcome) and efficient transactions that fail to occur (in the case of a low proxy outcome).

3. The vague contract

A vague MAC condition can better distinguish between seller types by imposing an enforcement cost that is feasible only for high-type sellers. When the buyer attempts to avoid the deal on the grounds of a MAC, the high-type seller can signal her type by filing suit and incurring at least part of the litigation cost.¹⁰⁹ The low-type seller, in contrast, does not have a credible litigation threat, does not file suit and allows the buyer to terminate the deal. Once the separation is achieved, the buyer and the high-type seller can settle their claim. We demonstrate below that, despite the imperfections in judicial determinations, the vague MAC yields better separation between seller types than the precise proxy, but at the cost of some litigation expenditure.

To make this more concrete, suppose that the court's judgment is 60% accurate in the following respect. If the seller has not suffered a shock, there is a 60% chance that the court will order the buyer to close; if the seller has suffered a shock, the probability

could achieve some separation so long as the buyer's rejection of the high-price offer was sufficiently high (but below 1). The reason separation was possible was that even for the low-type seller, not closing the deal was costly since there is some surplus that can be captured. In this case, however, that surplus is gone. That is, since the efficient outcome for the low-type seller is no contract, the low-type seller is not afraid of getting her offer rejected by the buyer with any probability.

¹⁰⁹ The story is similar to Michael Spence's education model, in which the high-ability workers signal their quality by obtaining a costly education. *See* Spence on education and signaling. There is a slight twist, however. In our renegotiation model, the parties need to renegotiate after the separation in order to be able to realize surplus from the transaction.

drops to 40%. Let's assume that the cost of litigation is \$15 per party and the initial price of the acquisition, P_0 , is \$84.¹¹⁰

Suppose the parties play the following renegotiation game. First, the buyer triggers the option by claiming that a material adverse change occurred. Second, the seller either sues the buyer or not. Third, after spending the litigation cost, but before the court's judgment,¹¹¹ the seller can make a take-it-or-leave-it renegotiation offer to the buyer. The renegotiation offer stipulates the new price (P_1) under which the buyer can acquire the assets. If the buyer accepts, the game ends. If the buyer rejects the offer, the court judgment is revealed and the court's order is executed. For the high-type, for instance, the court grants specific performance to the seller with 60% probability and otherwise allows the buyer to walk.

To solve for the equilibrium in this game, we work backwards from the renegotiation stage. Suppose that, at renegotiation, the buyer "believes" that he is facing the high-type seller.¹¹² Against the high-type seller, the buyer's expected return from litigation is $(0.6) \times (\$100 - \$84) - \$15 = -\5.4 . Suppose the seller makes a renegotiation offer (P_1) to the buyer to extract the buyer's entire (litigation and deal) surplus – leaving the buyer indifferent between accepting and rejecting. If the buyer were to accept the offer, her expected return is $\$100 - P_1 - \$15 = \$85 - P_1$. Note that whether or not the buyer accepts the offer, the buyer has already spent the litigation cost of \$15. To make the buyer indifferent between accepting and rejecting, we need $\$85 - P_1 = -\5.4 or $P_1 = \$90.4$. Suppose the buyer accepts this offer with probability β , which is between 0 and 1.

Working back to the second stage when the seller must decide if she will file suit against the buyer, each type of seller has two choices: either let the buyer drop the deal or file suit, spend \$15, and make a renegotiation demand of \$90.4 against the buyer before judgment. To achieve separation, we want the low-type seller to do the former and the high-type seller to do the latter. Consider first the low-type. If she lets the buyer drop the deal, she holds onto the assets that are worth \$50 to her. If she mimics the high-type's strategy, on the other hand, her expected return is $\beta(\$90.4) + (1 - \beta)((0.4)(\$84) + (0.6)(\$50)) - \$15 = \beta(\$90.4) + (1 - \beta)(\$63.6) - \$15$. In words,

¹¹⁰ It is fairly straight-forward, albeit involved, to show that \$84 is the optimal price that the seller will offer the buyer. The analysis is a bit involved partly because the initial price determines the litigations stakes and plays an important role in screening the litigants and also in the renegotiation process. Briefly, if the price were (much) higher than \$84, both types of seller will always file suit against the buyer (for specific performance) and the buyer's willingness to pay for the assets will be much lower than the price, making the initial agreement unsustainable. If, on the other hand, the price is (much) lower than \$84, neither party files suit and, when the buyer always exercises the option, the contract is worthless. Hence, even when the seller has all the ex ante bargaining power, the \$84 price is optimal for the seller.

¹¹¹ The assumption that the seller makes the renegotiation demand right before the judgment is not necessary. We can move the renegotiation demand to either after the judgment or, even better, before the entire \$15 cost of litigation has been spent. On the other hand, in order to achieve separation, the seller must spend some cost before making the renegotiation offer: renegotiation cannot take place before the seller files suit. The reason is that pre-filing renegotiation offer can be mimicked by the low-type seller at no cost, thereby destroying signaling and separation.

¹¹² This equilibrium belief, as we will show, is consistent with the seller's actual behavior. In equilibrium, only the high-type seller files suit, validating the buyer's belief.

with probability β , her renegotiation offer of \$90.4 will be accepted while with probability $1-\beta$, she proceeds to judgment, in which case the court decides in her favor with 40% probability. In order for this seller to refrain from filing suit, rather than mimic the high-type, \$50 must be (weakly) larger than $\beta(\$90.4)+(1-\beta)(\$63.6)-\$15$. The maximum β that can support the inequality is about 0.05. That is, as long as the buyer accepts the renegotiation offer with about 5% probability, the low-type seller does not sue to enforce the deal.¹¹³

Now, consider the high-type. If she were to file suit, her expected return is $\beta(\$90.4)+(1-\beta)((0.6)(\$84)+(0.4)(\$60))-\$15=\beta(\$90.4)+(1-\beta)(\$74.4)-\$15$.¹¹⁴ When $\beta=0.05$, this expression becomes \$60.2, larger than the value of the assets, \$60, she would have retained had she not enforced the contract. The high-type seller, therefore, has an incentive to file suit against the buyer to enforce the deal.

In equilibrium, therefore, when the buyer exercises his termination option and alleges the occurrence of a material adverse change, the low-type seller does not file suit while the high-type does. The high-type's renegotiation offer is accepted with some positive probability by the buyer. Not all efficient deals are consummated due to the problems of asymmetric information. If the buyer were to always accept the renegotiation offer, for instance, the low-type seller would also want to file suit to make the renegotiation offer. To achieve separation, therefore, the buyer has to reject the renegotiation offer with sufficient probability, which, in turn, leads to some ex post transactional inefficiency.

4. Relative Efficiency

If the parties were to use a proxy, suppose that all deals close when the proxy is high while no deal closes when the index is low. Given that the proxy is 75% accurate, when the seller's business has not suffered an adverse shock, there is a 25% chance of not closing the deal and generating an inefficiency of \$40. Similarly, when the seller's business has suffered a shock, there is, again, a 25% chance of closing the deal and creating an inefficiency of \$50. Since the seller's business is 75% likely to suffer an adverse shock, the expected inefficiency from relying on a proxy is, then, $(0.25)\times(0.25)\times(\$40)+(0.75)\times(0.25)\times(\$50)=\$11.88$.

¹¹³ The acceptance probability here is fairly low due to two reasons. First, because the remedy is specific performance and only the high-type files lawsuit against the buyer, the litigation cost already keeps all the bad claims out of court, making the additional efficiency gain smaller. Second, because the renegotiation demand (\$90.4) is even higher than the initial price (due to the fact that the buyer is facing the high-type in litigation), this provides more incentive to the low-type to mimic to be the high-type. To discourage the low-type from filing the lawsuit, the acceptance probability needs to be low. If, for instance, the parties had used a reverse break-up fee instead, where carrying out the court's judgment does not have any efficiency benefits (since the break-up fee constitutes a transfer), the acceptance probability will be higher.

¹¹⁴ Note that the high-type seller does not have a credible litigation threat if there were no renegotiation: $(0.6)(\$84)+(0.4)(\$60)-\$15<0$. The fact that there will be some renegotiation in equilibrium restores the high-type seller's incentive to sue. This also keeps the initial contract price and the renegotiation price low to reduce the low-type's incentive to file suit.

Now suppose the parties rely on a MAC clause and adopt the above-analyzed renegotiation mechanism. When the seller's business has suffered an adverse shock and the buyer attempts not to close the deal by citing material adverse change, the low-type seller does not file a lawsuit. No litigation takes place and all deals get dropped as they should be. Inefficiency from the renegotiation process stems exclusively from the case when the seller's business has not suffered a shock (the high-type). There are two sources of inefficiency: the joint cost of litigation and the chances of not consummating the deal even though they should, which happens when the buyer does not accept the renegotiation offer and the court erroneously rules that there was a material adverse change. Given that there is 25% chance of not facing an adverse shock in our example, the expected inefficiency from relying on a MAC clause is $(0.25) \times \{ \$30 + (0.95) \times (0.4) \times (\$40) \} = \$11.3$.

Unlike the previous cases where symmetrically informed parties never incur the cost of litigation (verification) in equilibrium, the relative attractiveness of using a MAC clause to facilitate ex post renegotiation and minimize inefficiency is more nuanced. First, the parties incur litigation cost in equilibrium to differentiate between surplus-producing and surplus-destroying deals. Second, despite the incurrence of the cost, screening is not perfect. Buyer must reject renegotiation offers with sufficiently high probability to discourage the low-type seller from mimicking the high-type, and the court's judgment is prone to error. Therefore, the vague MAC condition generates some transactional inefficiency because some surplus-generating deals do not close.

As we described above, the precise proxy-based condition (like the unconditional and optional obligation) avoids the litigation cost, but it leads to both types of transactional inefficiency: dropping efficient deals and consummating inefficient ones. Therefore, for a MAC clause to work better as a renegotiation device than the proxy alternative, two conditions must be satisfied. First, litigation cost cannot be too large. In the example, if the cost of litigation were sufficiently larger than \$15, the parties would be better off using a proxy. Second, avoiding the second type of transactional inefficiency (consummating inefficient deals) must be relatively important. If the difference in valuation when the seller suffers a shock were sufficiently smaller than \$50, or the probability of suffering an adverse shock were much lower than 75%, the MAC clause loses its advantage over the precise proxy.

In sum, the example demonstrates that when the verification cost is not too high and the danger of closing a deal that is inefficient is fairly large, the parties will be better off relying on a vague MAC clause than a more accurate proxy to facilitate ex post renegotiation. This is true even when the court is worse at determining whether or not the seller has suffered a material adverse change than a proxy-index and where obtaining such judgment is more costly than verifying the realized value of a proxy. The positive verification cost allows the privately informed seller to credibly signal her value to the buyer and allow the buyer to differentiate among different seller types. When the cost of verification is zero (or very small), as in the case with the precise proxy, such differentiation is not possible.

IV. CONTROLLING LITIGATION STAKES AND COSTS BY CONTRACT

In our analysis, a vague MAC clause can function better than a more precise, easy-to-verify proxy because of the screening effect of positive litigation costs. Our numerical examples illustrated this effect and the screening benefits from vague terms can be enjoyed across a relatively broad range of parameters. Nevertheless, to achieve this screening, verification cost can be neither too large nor too small compared to the size of the litigation stake. If the litigation cost is too large, no seller will have a credible claim against the buyer; whereas if it is too low, all sellers will bring a lawsuit against the buyer. Either no lawsuit or indiscriminate lawsuits will undermine the screening function and thereby the objective of achieving either investment or (ex post or ex ante) signaling.

In the numerical examples, we assumed that the seller has a 60% chance of prevailing in court in the face of a MAC clause if, in fact, an adverse shock did not occur. If it did occur, the seller's chance of enforcing the agreement in court dropped to 40%. To take a simple example, if the litigation stakes are \$60, then 60% and 40% probabilities of success translate to the expected return of \$36 and \$24 for the seller, respectively. If the cost of litigation are larger than \$36 or smaller than \$24, the seller either never sues to close the deal or always sues, whether or not an adverse shock occurred. Such indiscriminate or never-credible lawsuit, in turn, undermines the incentive and signaling objectives.

To better harness the screening power of a positive litigation cost, the parties will have an incentive control the size of the litigation stakes and/or the cost of litigation in order to achieve the desired separation. For screening reasons among others, therefore, the parties might agree to terms that manage litigation stakes or costs. This is a very worthwhile topic for future research and scholarship, and we offer some preliminary thoughts in connection with our explanation for vague provisions such as the MAC condition.

One way of managing the litigation stakes is through liquidated or stipulated damages. In practice, mergers and acquisition agreements often provide for reverse break-up fees in place of court-determined damages. If the relative size of the verification cost is too low so as to create indiscriminate lawsuit, for instance, the parties can restore the screening function by stipulating a smaller reverse break-up fee. To use the investment story as an example, if the cost of litigation were \$10, instead of \$25, the parties can restore the screening effect of litigation by stipulating a reverse break-up fee of \$20. By doing so, the parties deprive the seller of a credible litigation threat when no adverse shock has occurred.¹¹⁵ Conversely, when the litigation cost is too high, the

¹¹⁵ Another advantage of using a (reverse) break-up fee is that when there is no adverse shock, the seller's litigation claim is more likely to be credible. In the investment example, without an adverse shock, the seller's assets were worth \$80 to the seller and \$100 to the buyer. With \$25 litigation cost, even if the buyer attempts to walk away from the deal (which is not credible), the seller also did not have a credible litigation threat. When they stipulate the break-up fee of \$60, however, now, with 60% chance of prevailing in court, the seller will have a credible litigation threat against the buyer who attempts to not close the deal.

parties can stipulate a comparatively large break-up fee so as to restore the seller's litigation threat in case of no adverse shock.¹¹⁶

Another way through which the parties can harness the screening power of a vague MAC condition is by directly or indirectly controlling the cost of litigation. A few commonly used mechanisms in mergers and acquisitions contexts are (1) contractually stipulated fee-shifting, (2) assignment of burden of proof, and (3) mandatory arbitration clause.¹¹⁷ By stipulating that the loser in court will reimburse the winner, the acquisition agreement improves the seller's incentive to bring suit to provide for better screening of the seller's private information.

To illustrate, consider a contract in which the parties rely on litigation fee-shifting rather than a break-up fee to create the appropriate screening from litigation. If there was an adverse shock, the seller might sue for specific performance and face an expected payoff of $\$24 = (0.4) \times (\$60)$. Without fee shifting, the cost of litigation would have to be at least \$24 to deter this seller from suing. If the parties contract for a loser-pays-all mechanism instead, this seller would not sue even if the litigation cost were \$21. Her expected return from litigation, net of the \$21 litigation cost, is $(0.4) \times (\$60) + (0.6) \times (-\$42) = -\$1.2$. Because the probability of having to pay a larger litigation cost is higher for the seller with a non-meritorious claim, fee-shifting can enhance the screening mechanism.

The assignment of burden of proof and mandatory arbitration clauses can also control the litigation cost. By requiring the seller, for instance, to prove "by clear and convincing" standard, rather than the "preponderance of evidence" standard, for instance, the parties can raise the litigation cost to achieve better separation.¹¹⁸ Furthermore, when arbitration is deemed to be less costly for the parties and when the cost of litigation is deemed too high so as to deter all litigation, they can contractually require arbitration so as to give the seller better incentive in bringing only the meritorious claims to the arbitrators. Conversely, if the parties think that the cost of arbitration is too low, they can decide to litigate, rather than arbitrate, so as to weed out the bad claims.

An important aspect of the burden of proof assignment is that it may assign to one party the burden to bear the litigation cost first. A sequential litigation process of this kind might promote the ex post renegotiation objective. To illustrate, recall the numerical example concerning ex post renegotiation in the face of a MAC condition.

¹¹⁶ One issue that might arise is whether the stipulated damages might be struck down as a penalty. Although there has not been much challenge against large (reverse) break-up fees in mergers and acquisitions context, if this were a concern, the parties can attempt to reduce the litigation cost, e.g., by relying on arbitration, instead.

¹¹⁷ Although we frequently encounter fee-shifting clauses in acquisition agreements, burden of proof and arbitration clauses are (much) less common. Given that most of the disputes of large acquisition deals are litigated in the specialized Delaware court system, one suspects whether a commercial arbitration panel will be (much) more competent than the Delaware judiciary.

¹¹⁸ The courts, in most cases, will impose the burden of proof on the buyer, who is attempting to exercise the MAC-based option, to prove that a material adverse change has occurred. They can contractually shift this burden to the seller if necessary.

Suppose the parties assign the burden of establishing no material adverse change to the seller, so that the seller has to incur the litigation cost of \$10 before the buyer incurs any. This can be done, for instance, by stipulating that the seller must bear the burden of the presence of a MAC to survive the buyer's summary judgment motion. Now, the parties can renegotiate the deal after the seller incurs the cost, but before the buyer starts her defense, and by doing so, they can reduce the ex ante inefficiency from relying on a MAC clause from $(0.25) \times \{ \$30 + (0.95) \times (0.4) \times (\$40) \} = \$11.3$ to $(0.25) \times \{ \$10 + (0.95) \times (0.4) \times (\$40) \} = \$6.3$. Recall that the inefficiency that results from relying on a proxy does not depend on the litigation cost since that is assumed to be zero: the size of the inefficiency is fixed at \$11.88. A properly-tailored burden shifting, therefore, can reduce the size of the litigation-induced inefficiency and make a vague MAC clause even more attractive vis-à-vis other mechanisms in facilitating ex post renegotiation.

CONCLUSION

In the wake of the greatest economic and financial shock in 75 years, lawyers are at the forefront of the effort to pick up the pieces from deals broken by the frozen credit markets and depressed economic conditions. The attention of policy makers is now on the mechanisms and prospects for recovery. Corporate and commercial contracting will be an important element in the drive train and lawyers have the opportunity to focus more deliberately on the important questions of contract design, particularly with the benefit of the experience of disputes, litigation and renegotiation over the past couple of years.

A significant challenge in contract design is the optimal mix of precise and vague provisions. We have shown how this question arises in corporate acquisition agreements. The conventional theoretical approach is to balance front-end savings generated by drafting vague rather than precise terms, against the back-end costs of litigating them. We have identified several other explanations for vague language that are often mentioned by transaction practitioners. In this paper, we advance a novel and arguably more significant benefit from vague provisions that flows, surprisingly, from the fact that they raise litigation costs. The litigation costs act as information screens, and in turn enhance the effectiveness of contract provisions, such as embedded options, in serving the goals of efficient investment, efficient decisions to contract and efficient renegotiation. We also suggest how termination fees, such as reverse break-up payments, can interact with vague terms, such as material adverse change clauses, to enhance the effectiveness of the screen.

Much remains to be investigated in the realm of contract design, particularly with application to the real world of commerce. One lesson that our analysis highlights is the role of the transaction lawyer to anticipate litigation in its broadest sense: not simply the substantive doctrines of contract enforcement, but also the expected cost and strategies of prospective litigation.