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Understanding MACs: Moral Hazard in Acquisitions

Ronald J. Gilson and Alan Schwartz***

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Abstract

The standard contract that governs friendly mergers contains a material adverse change clause (a “MAC”) and a material adverse effect clause (a “MAE”); these clauses permit a buyer costlessly to cancel the deal if such a change or effect occurs. In recent years, the application of the traditional standard-like MAC and MAE term has been restricted by a detailed set of exceptions that curtails the buyer’s ability to exit. The term today engenders substantial litigation and occupies center stage in the negotiation of merger agreements. This paper asks what functions the MAC and MAE term serve, what function the exceptions serve and why the exceptions have arisen only recently. It answers that the term encourages the target to make otherwise noncontractable synergy investments that would reduce the likelihood of low value realizations, because the term permits the buyer to exit in the event the proposed corporate combination comes to have a low value. The exceptions to the MAC and MAE term impose exogenous risk on the buyer; the parties cannot affect this risk and the buyer is a relatively superior risk bearer. The exceptions have arisen recently because the changing nature of modern deals make the materialization of exogenous risk a more serious danger than it had been. The modern MAC and MAE term thus responds to the threat of moral hazard by both parties in the sometimes lengthy interim between executing a merger agreement and closing it. The paper’s empirical part examines actual merger contracts and reports preliminary results that are consistent with the analysis.

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1. Introduction

Corporate assets commonly transfer under acquisition agreements and these have crystalized into a fairly standard form.¹ Despite its immense commercial significance, however, the standard acquisition agreement has excited almost no academic commentary.² This paper begins a study of the standard agreement by focusing on a set of terms that now receives considerable attention from lawyers and courts, the material adverse change clause (the “MAC”) and its equivalent, the material adverse event clause (the “MAE”).³

The negotiation of MACs and MAEs historically was not the object of bargaining concern. James Freund’s 1975 classic *Anatomy of a Merger* thus treats the topic in a page and a half.⁴ A typical

¹The standard form does not apply to hostile acquisitions, defined as transactions to which the target board does not agree. The bulk of acquisitions are not hostile, however. Even in the 1980s, the decade of the hostile takeover, 86% of acquisitions were friendly. In the 90s, this fraction rose to 96%. Acquisitions are of major economic significance. Thus, in 1995 mergers accounted for 5% of US GDP and 48% of nonresidential investment. See Andrade, Mitchell and Stafford, “New Evidence and Perspectives on Mergers, 15 J. Econ. Perspectives 103 (2001).

²An early exception is in Ronald J. Gilson, “Value Creation by Business Lawyers: Legal Skills and Asset Prices”, 89 Yale L. J. 239 (1989).

³Commonly, the same numbered paragraph in the standard agreement will include both a material adverse change clause and a material adverse event clause. We sometimes refer to both of these clauses together as MACs.

⁴James Freund, *Anatomy of a Merger: Strategies and Techniques for Negotiating Corporate Acquisitions* 259-61 (1975).

term would permit the buyer not to close the transaction on the post-execution occurrence of “any change, occurrence or state of facts that is materially adverse to the business, financial condition or results of operations” of the seller (i.e., the “target”). This language is ambiguous with respect to significant issues. As an illustration, did a material change in the target’s “business” include a change whose only impact would be on the target’s *future* cash flows, because the current value of the business is the discounted value of future flows, or would additional language be required to reach this result? The term “prospects” could be added to the litany of objects of the MAC clause, or the clause could expand to specify that a change that would or was likely to have a future effect also was covered. These and other ambiguities in the typical MAC produced little litigation despite the potentially high stakes associated with a term that could allow the buyer to cancel or renegotiate a large transaction.

The calm in acquisition practice has been shattered in recent years. Litigation over MACs and MAEs has become prominent.⁵ In its wake, the negotiation of these clauses has become contested and their length has exploded. The professional literature also has expanded dramatically. This change – the promotion of MACs and MAEs from the M & A chorus to center stage – provides the motivation for our paper.

We attempt to make three contributions. Our primary goal is to understand the role MACs

⁵See, e.g., *The Bear Stearns Companies, Inc. v. Jardine Strategic Holdings Limited*, Del Ch. #31731/87 (1987 stock market crash); *North Point Communications Group, Inc. v. Verizon Communications Inc.* (2000) (decline in e-commerce sector); Andrew Sorkin & Jonathan Glater, “Merger Deals are Stalled Amid Doubt: Attack May be Invoked to Cancel Agreements, NY Times, p. C1, column 11 (Sept. 17, 2001) (impact of September 11th).

play in the structure of an acquisition agreement. We will argue that the traditional MAC form⁶ completes the transactional structure that constrains seller moral hazard. In the same vein, we hope to explain the change in MAC practice; that is, to identify the factors that account for the new efforts to resolve the ambiguities inherent in the traditional MAC formulation through detailed drafting. Two hypotheses could account both for the traditional role of MACs and for changes in MAC practice. The first, which we call the *symmetry* hypothesis, is driven by changes in corporate law that have accentuated the resemblance of the seller's interest in an executed but not yet closed transaction to a put option. The second, which we call the *investment* hypothesis, is driven by the implications of a seller's ability to make relation-specific investments during the post-execution/pre-closing period that would affect the post-closing value of the new, combined company. We sometimes refer to the seller's actions as synergy investments. These are lost when deals fail to close, but do not necessarily reduce a seller's stand alone value beyond the wasted resources themselves. In some recently expanding industries, however, wasted synergy investments could have a value reducing effect, thereby heightening the significance of terms such as the MAC that permit the buyer to exit costlessly. As we will see, the symmetry and investment hypotheses yield different predictions about the nature of the recent change in MAC practice: the symmetry hypothesis predicts an expansion of the circumstances that would permit a buyer not to close a transaction; the investment hypothesis predicts a contraction of those circumstances. Our data reject the symmetry hypothesis. This paper's second contribution is to explore the implications of our explanations for the drafting of MAC clauses and for their judicial

⁶We define a MAC as "traditional" if the acquisition agreement omits to set out explicit exceptions to the acquirer's right to cancel in the event of a material adverse change or effect.

interpretation.

Finally, we focus on the contract theory implications of the MAC term. Parties commonly reject contract law's standards in favor of contractual rules.⁷ MACs thus are interesting from a contract theory point of view because the traditional MAC is a contractual standard -- a "material adverse change" -- while recent changes in drafting practice have made MACs more rule like. We will argue that the investment theory of MACs explains both the apparent oddity of the traditional MAC and the reversion of MAC and MAE clauses to the more rule-like "contracting mean".

In Part 2, we describe the role that MACs and MAEs play in the structure of the standard acquisition agreement and we frame the competing symmetry and investment theory explanations both for the existence of a traditional MAC term and for the recent change in its formulation -- from the general to the particular. Part 3 contains a simple model of the investment theory that attempts to illuminate its corporate and contract theory implications. Part 4 next reports the results of our empirical analysis: Despite the real change in the character of the acquiring company's interest in an executory acquisition agreement, the data are inconsistent with the symmetry theory. Rather than observing a broadening of the acquirer's right to walk away from the transaction as a result of a change in the value of a target's business, we see the opposite: a shift in risk from the target to the acquirer through an increasingly detailed list of changes in the target's business that will not permit the acquirer to exit. We

⁷A standard specifies permitted or prohibited actions ex post. Thus, requiring the buyer to object to a defective tender in a "reasonable time after delivery" is a standard; requiring the buyer to object within ten business days is a rule. The ratio of standards to rules in contract law is very high. See Alan Schwartz and Robert E. Scott, "Contract Theory and the Limits of Contract Law", forthcoming, 113 Yale L. J.541 (2003).

then offer an explanation for this change in the form that MACs and MAEs take: an increase in exogenous and undiversifiable risk that would be inefficiently borne by the seller were merger agreements not to allocate the risk to buyers. Part 5 briefly considers the implications of our analysis for judicial interpretation of MAC clauses and for their drafting, and Part 6 concludes.

2. The changing structure and function of the standard acquisition agreement.

2.1. The role of closing conditions in a corporate acquisition agreement.

Three sets of provisions reflect the three basic transactional engineering elements of a corporate acquisition agreement: representations and warranties, covenants, and conditions. Representations and warranties specify what the buyer acquires. These provisions warrant, as of the date of the acquisition agreement, such matters as the accuracy of the target's financial statements; the absence of liabilities for taxes or other matters accruing after the date of the target's most recently audited financial statements, including contingent liabilities; the ownership and condition of assets, including intellectual property, important to the operation of the target's business; the absence of pending or threatened litigation against the target; and the absence of problems in particularly important areas, such as environmental and pensions. When an acquisition agreement is executed and closed simultaneously, the agreement need contain little more than a warranties and representations article.⁸ The other two elements of the transactional triumvirate – covenants and conditions – are irrelevant when there is no temporal gap

⁸Other subjects, such as the contractual statute of limitations that specifies whether and for how long representations and warranties survive the closing and provisions regarding claims for breach like "baskets" and "caps", would still demand attention. A basket is the minimum amount that the buyer's claims must sum to before the claims can be asserted. A cap is the seller's maximum liability for breaches of the representations and warranties term.

between execution and closing.

More commonly, a significant temporal gap will exist. A regulatory regime may require delay. For example, the regime may require a shareholder vote so that a proxy statement must be prepared and filed with the SEC. The consideration for the merger may be issuer securities whose offer must be registered under the Securities Act of 1933. The Hart-Scott-Rodino Premerger Notification Act may require a filing and a waiting period. Agency approval of the transaction may be required, as with a bank merger. Delay also may reflect regulatory convenience, as when the parties seek a revenue ruling from the IRS concerning the deal's tax consequences. Finally, delay may result from the nature of the transaction itself; due diligence for some deals can take considerable time. As a consequence of these factors, mergers seldom close within 90 days of execution of the acquisition agreement, and are sometimes delayed for as long as a year.

Covenants and conditions bridge the temporal gap between execution and closing. Covenants require or prohibit particular verifiable actions, such as complying with regulations or not declaring an unusual dividend. Conditions specify the circumstances that, when absent, permit the acquirer not to close.

Two conditions are of particular significance, and both respond to a hidden action concern. To understand the concern, realize that a seller typically has available to it a set of post-execution actions that would reduce the probability that the value of the proposed new corporate combination would fall in the interim between signing the acquisition agreement and closing the deal. Certain of these seller actions could affect specific and verifiable aspects of the target company's business. As examples, the failure to maintain a factory or to police pollution emissions could result in a decline in the factory's

value or an increase in the target (and therefore the acquiring) firm's environmental liabilities. The warranties and representations term ensures that the factory is in satisfactory shape and the environmental liabilities are sufficiently low when the deal is executed. The "bring down" condition discharges the buyer's obligation to close if the seller's representations and warranties are not true and correct on the closing date as well as on the execution date. This condition thus creates an incentive for the seller to maintain the factory and to police its emissions during the gap between execution and closing.

The MAC condition relates to that subset of seller actions that also would reduce the likelihood of a low value realization for the new company if not taken, even if the actions do not itself breach the bring down condition. The particular effect of not taking these actions, or of taking them badly, cannot conveniently be described in a contract, however. These difficult to describe actions relate to seller investments in integration -- i.e., in synergy -- the effective pursuit of which would reduce the likelihood that the post-closing combined entity would turn out to be worth less than the parties anticipated at deal time. The standard acquisition agreement, we argue, creates an incentive for the seller to invest in synergy by permitting the buyer to exit if the target's business suffers a "material adverse change", or experiences an event that results in a "material adverse effect", on a litany of target characteristics, including the target's business, its financial condition and the results of its operations.⁹

⁹The MAC term also can be drafted to extend the time period covered by the representations and warranties. Because the current value of the target's business is the discounted present value of future cash flows, a change occurring in the post-closing/pre-execution period that affects future cash flows would affect the current value of the business, and thus may give the buyer with MAC protection a right not to close even if the express warranties only spoke to current values. This timing issue has been addressed in litigation over whether a simple reference to "business" is sufficient to give the MAC

Finally, there is a question whether a MAC would permit a buyer not to close if a value change occurred in consequence of an exogenous event rather than because of an action that the target took or failed to take. The traditional MAC formulation is ambiguous regarding exogenous risk. As an example of the issue, the bring down condition will be satisfied if a company's backlog is the same at closing as at the deal's signing. But suppose the target manufactures military helicopters and that, in the interim between signing and closing, the Defense Department announces a new policy that will substitute planes for helicopters in providing support for attacking troops. The new policy would materially reduce the expected gain from a merger with the target -- future cash flows would decrease because of a decrease in future orders -- but neither party could have affected the policy's adoption. As we will see, whether parties intend the MAC to impose such an exogenous risk on the seller or the buyer will permit us to distinguish between the symmetry and investment theories.

2.2 Explanations for MACs and changes in MAC practice.

2.2.1 The symmetry theory: the MAC as an offsetting option.

Parties to friendly acquisitions did not worry seriously about hostile competing bids before the 1980s.¹⁰ Economic and legal changes in the 1980s altered this happy state (that is, happy for everyone but the shareholders of targets). The capital market and transaction technology evolved such that financing for a competing bid could be raised before a friendly transaction could be closed, thus making

term a forward looking character, or whether an additional term like "prospects" is necessary.

¹⁰For an early recognition of the effect of a hostile competitive bid on the structure of a friendly deal see Freund and Easton, "The Three-Piece Suit: An Alternative Approach to Negotiated Corporate Acquisitions", 34 Business Law. 1679 (1979).

real the requirement that target shareholders approve the transaction.¹¹ A set of Delaware cases also established that target managers were required to accept the highest bid, regardless of their preference for the friendly acquirer. Indeed, the managers were required to seek out the highest bid.¹² In a later round of cases, the courts further restricted the ability of parties to a friendly deal to prevent the target from considering competing bids by agreeing in the acquisition agreement to “no shop” or “no talk” clauses.¹³ The result of these economic and legal innovations was to enable the seller always to accept a higher competing bid or to compel a renegotiation of the price; acquisitions require target shareholder approval, whether explicitly by vote or implicitly by tender, and the target shareholders would refuse consent to an initial offer in the face of another buyer’s higher bid.

On the symmetry theory, the ability of the seller to go elsewhere, when fully appreciated, would have seriously curtailed acquisition activity in the absence of a MAC. To see why, realize that a friendly acquirer is bound by the acquisition agreement it had signed while the target is not bound (its shareholders could refuse consent), *and* target management is legally required to attempt to improve on

¹¹These developments are explained in Ronald J. Gilson, “Catalyzing Corporate Governance: The Evolution of the U.S. System in the 1980s” in *The Ecology of Corporate Governance* (T. Heller and M. Klausner, eds., forthcoming 2004).

¹²See *MacAndrews & Forbes Holdings*, 506 A.2d 173 (Del. S. Ct. 1986); *Mills Acquisition Company v. Macmillan*, 559 A.2d 1261 (Del. S. Ct. 1989); *Paramount Communications v. QVS Network, Inc.*, 637 A.2d 34 (Del. S. Ct. 1993).

¹³See, e.g., *Phelps Dodge Corp. v. Cyprus Amax Minerals Co.*, 1999 WL 1054255 (Del. Chancery, Sept. 27, 1999); *Ace Limited v. Capital Re Corp.*, 747 A2d 95 (Del. Chancery 1999). Most recently, the Delaware Supreme Court cast substantial doubt on a target company’s ability to commit absolutely to a bidder even after a full and fair auction. *Omnicare v. NCS. Healthcare, Inc.*, 822 A.2d 397 (2003).

the buyer's offer.¹⁴ If the seller's value at closing time, either to the buyer or to another acquirer, is above the bid price, the seller would either renegotiate the bid price or exit to accept a better offer. If the seller's ex post value were below the bid price, the seller in a contract without a MAC would make the original deal. The buyer thus would bear the full cost of low realizations but receive only part of the gain (or no gain) from high realizations.

A seller functioning in this economic and legal environment has an incentive to offer a MAC to potential buyers. A broadly drafted MAC would increase a buyer's expected gain from an acquisition, and this would increase the likelihood that the seller would receive bids. Just as the seller would exit if its value turned out to be above the bid price, the buyer now would exit if the seller's value turned out to be below. Transaction costs would keep the seller in the deal if its value turned out to be slightly high and would keep the buyer in the deal if value turned out to be slightly low. When the standard acquisition agreement has a traditional MAC, the acquirer thus no longer commits to purchase the bottom half of a probability distribution, but instead only commits to purchase if the realized value is close to the negotiated price.

This symmetry theory has a testable implication. To create a call for the buyer that is symmetric to the put the Delaware courts gave to the target, the formulation of the MAC term should shift to the target the risk of exogenously caused reductions in the value of the new corporate combination. In

¹⁴In many cases, approval requirements for an acquisition are asymmetric as between the seller and the buyer. The seller's shareholders must approve the transaction because it involves the elimination of the seller as an independent firm. The buyer's shareholders typically need not consent, however, unless the transaction involves the issuance of more than 20% of the buyer's stock. Thus, the buyer's board commonly can make a binding offer to purchase.

particular, by the late 1980s the MAC clause would clarify the traditional formulation by specifying that the existence of such value reducing factors as unfavorable economic conditions in the general economy or in the target's industry would permit the acquirer not to close.¹⁵

2.2.2. The investment theory.

The investment theory rests on the ability of a seller, in the post-execution/pre-closing period, to make relation specific investments that will affect the value of the combined company. These investments fall into three categories. Initially, the success of an acquisition may depend on early efforts to facilitate integration, for example because the acquisition is motivated by the potential for post-closing synergy.¹⁶ Getting a head start on integration could then be valuable, especially in competitive industries that experience rapid technological change. In such industries, the merger announcement, rather than the closing, will trigger a competitive response. As examples of investment, the target company may begin the process of integrating its product line with that of the acquirer by suspending or canceling development or improvement of existing products; may freeze investment in capabilities that

¹⁵The buyer's disadvantageous position under an acquisition agreement without a MAC apparently could be reflected in a lower price; the market, that is, could price the seller's put option. Pricing real options that are not regularly traded can be difficult, however, which suggests that the MAC may be a more convenient solution. Nevertheless, the symmetry theory has a theoretical gap. A buyer can protect itself against the risk that the seller will abandon the deal when value has risen by taking a toehold stake in the seller or by obtaining a break up fee. See generally Ronald J. Gilson, "Seeking Competitive Bids Versus Pure Passivity in Tender Offer Defenses", 35 Stan. L. Rev. 51 (1982). The positive role of break up fees in inducing bidder entry is analyzed in Thomas W. Bates and Michael L. Lemmon, "Breaking Up is Hard to Do? An Analysis of Termination Fee Provisions and Merger Outcomes", 69 J. Financial Econ. 469 (2003). Thus, the parties' decision to protect the buyer by creating a call option requires further explanation. We focus here on the empirical implications of the theory.

¹⁶Synergy as an acquisition motive is discussed in Ronald J. Gilson & Bernard S. Black, *The Law and Finance of Corporate Acquisitions*, Chapter 8 (2d ed. 1995).

the acquirer already possesses; may shift its research and development to fit the anticipated post-closing strategic plan; and may discuss with its customers the buyer's capabilities in markets where the buyer has been a competitor.

The second investment category comprises efforts by the target company to retain the cohesiveness of its work force. The announcement of a friendly transaction could lead employees to suspect lay-offs or unwanted changes in the work environment. These expectations could cause more mobile, and likely more valuable, employees to become less focused on the target and more focused on their own futures, with the potential of an adverse selection cascade. The third investment category focuses on seller efforts to preserve the expected profitability of the new enterprise. A target firm's customers and suppliers may reconsider their relations with the target in anticipation of the post-closing situation. Also, competitors may attempt to exploit these uncertainties. The failure of a seller to expend effort in retaining a work force and in preserving relations with customers and suppliers in the sometimes lengthy interim between execution and closing thus could materially reduce the value of the new company.¹⁷

Certain of the actions that a seller could take share a common characteristic: they may materially reduce the target's stand alone value if the deal fails to close. This is particularly true of investments in integration, where the target may reveal information to the buyer that the buyer, or other

¹⁷The model in Part 3 below uses the phrase "investment" to refer to actions the seller can take to prevent the loss of employees, customers and opportunities. The bring down condition does not create an incentive for a seller to take all of these actions. As examples, a seller seldom warrants the continued existence of business opportunities or covenants that it will take actions to mesh its R & D program with that of the buyer.

firms, could use to the seller's disadvantage. In addition, the competitive cost of strategic steps undertaken in expectation of closing but with negative consequences for the target if the transaction does not close could be substantial in some industries.¹⁸

The investment theory follows from this story. Regarding the intuition – the model is set out below – suppose that an acquisition agreement lacks a MAC, and that the value of the proposed corporate combination turns out to be higher at closing time than it was at execution time. The ability of the seller to cancel at will permits a seller to threaten exit in order to renegotiate the price upward. The seller thus has an incentive to take value increasing actions. Alternatively, suppose that the combined company turns out to have a value at closing time that is below the merger price. The seller will then enforce the deal at that price, and so lacks an incentive to take value preserving actions. Commonly, the same set of actions would both preserve and increase value. Thus, the assumed acquisition

¹⁸The post-execution/pre-closing activities in Hewlett-Packard's acquisition of Compaq illustrate the intensity of integration efforts and the potential risks if the transaction does not close. Prior to closing, more than 1,000 employees of both companies devoted more than one million hours to integration planning. Pui-Wing Tam & Scott Thurm, "Married at Last: HP, Compaq Face Real Test", WSJ, May 8, 2002. This effort included choosing which of the two companies' products would survive in each product line as well as developing three year plans for each surviving line. These choices had obvious effects on the lines that were to be discontinued. Pui-Wing Tam, "An Elaborate Plan Forces H-P to Stay on Target", WSJ, April 28, 2003, p. 1,10. At the employee level, the top three tiers of managements were selected from among the two companies' managers well before closing. *Id.* At the same time, customers of both companies were the object of intense attention from competitors. One customer recounted that "he gets as many as five calls a week from other computer makers. The pitches frequently aren't subtle. 'You may want to be aware that such-and-such H-P or Compaq product won't be a survivor of the deal,' [the customer] quotes one sales representative as saying." Scott Thurm, Pui-Wing Tam & Gary McWilliams, "Nail Biter: HP Claims Victory on Compaq Merger", WSJ, March 20, 2003. To the same effect, a post-execution/pre-closing survey of Compaq Unix customers showed that they would be "less likely" to buy from the merged company. Scott Thurmn, "HP, Compaq Plan the Details of Their Union", WSJ, January 25, 2002.

agreement would be inefficient. The agreement would permit the seller not to optimize against much of the distribution from which the value of the new corporate combination will be drawn; rather, because the seller is insured against low realizations, it will invest too little relative to the social optimum.

The MAC responds in a subtle way to this moral hazard problem. To see how, assume that parties cannot contract directly on the value the new company would have because values are unverifiable and that it is too costly to describe in a contract the full set of value preserving and enhancing seller actions. A MAC permits the buyer to exit if the seller experiences a material adverse “change” or “effect” in its “business or financial condition”. These changes or effects have three characteristics: they would be verifiable if material; they correlate negatively with the value the new corporate combination would have; and the changes or effects would be less likely to occur if the seller took the investment actions described above.¹⁹ The effect of the MAC thus is to reduce the seller’s insurance against low realizations. The seller’s best response is to choose an investment level that is closer to the social optimum.²⁰

The investment theory generates three testable predictions. First, acquisition agreements will have had MACs before the legal developments summarized in Part 2.2.1. Second, MAC drafters will resolve the ambiguity in the traditional MAC formulation by creating exceptions to the traditional MAC

¹⁹Buyers have called MAC events, sometimes successfully, when, e.g., the seller was late with a product development; it experienced a material shortfall in inventory; its recent revenues dropped substantially; its operating margins declined substantially; it began to experience operating losses; it had a negative accounting net worth in consequence of conducting (bank) mergers without using available government assistance; it incurred large losses in consequence of a recent entry into a new market.

²⁰We later argue that corporate law creates efficient incentives for the buyer to invest in synergy. This paper thus considers only seller investments when attempting to explain the content of the standard acquisition agreement.

that would impose exogenous risk on the buyer. Third, the incentive of parties to resolve ambiguity in this way increases when the combination of exogenous risk and the seller's investment could cause the seller's stand alone value to fall should the deal not close. Regarding the second prediction, a buyer who could cancel for exogenous risk would renegotiate the price downward when the materialization of exogenous risk would cause the deal to become unprofitable for it at the original price. This would allocate more of the exogenous risk to the seller. As we will see, conditional on deals closing buyers are better able to reduce the impact of and to insure against exogenous risk. On the assumption in our model that the parties are risk neutral, the acquisition agreement thus should allocate the entire risk to the buyer when the efficiency gains from this risk allocation would exceed the transaction costs of creating MAC exceptions. Regarding the third prediction, when a MAC lacks exceptions, the bargaining game the parties play ex post will allocate to the seller a greater share of exogenous risk when the seller's value would fall after a failed deal. This further reduces the efficiency of a merger agreement without MAC exceptions, and so increases the parties' incentive to create them.

It is helpful to make the last two predictions more concrete. The investment theory holds that an efficient acquisition agreement will impose endogenous risk on the seller and exogenous risk on the buyer. The need to make explicit the exogenous risk allocation should become more pressing as exogenous risks become more severe. The increased volatility of capital and product markets in the 1990s thus suggests that explicit MAC exceptions should become more prevalent in that decade. These exceptions would impose exogenous risk on the buyer by excluding from the definition of a material adverse change or effect such matters as unfavorable changes in the general or industry specific economic environment. We then extend this argument to predict that MAC exceptions should be

especially common in connection with the acquisition of companies where human capital and technological knowhow are critical inputs, and where technological change is rapid. Such companies, as argued just above, are most exposed to information leakage that could aid competitors, customers and suppliers; to anticipatory defections by employees; and to anticipatory reactions by competitors, particularly to poach employees and customers. These companies -- technology based targets best fit the description -- will more likely suffer declines in stand alone value when deals fail.

3. A MAC model.

3.1 The model.

A risk neutral seller and a risk neutral buyer enter into a contract (d, τ) at t^0 for the sale of the seller's company, where d is the price and τ is a vector of terms describing what is purchased. The seller's stand-alone value is denoted v_T and the acquirer's stand-alone value is denoted v_A . At t^1 , the seller can take an action, denoted e , that will affect the value that the proposed corporate combination will create. The action is referred to as choosing an investment or effort level. The set of potential actions available to the seller, and the various ways in which the actions can be performed, are sufficiently complex so that we assume parties cannot write a contract specifying what an efficient seller investment would be.²¹ The seller's investment along with the subsequent realization of the state of the

²¹The contracting cost has two elements. First, it is costly (or impossible) to describe a complex set of actions and the circumstances in which they should be undertaken. Second, it is costly to monitor the seller to ensure that it complied with its contractual obligations. The cost of enforcing a contract clause actually is a cost of writing it. We assume that total writing costs, so defined, are sufficiently great as to preclude contracting directly on the seller's investment behavior. This is a standard assumption in contract theory models and is consistent with transactional practice. Covenants thus will contain explicit prohibitions rather than specify a set of actions the seller is to perform.

world (ω) determine the value of the combined entity: $v_{AT}(e, \omega) \in (0, v_h)$, where v_h is the highest possible realized value. For convenience, we let $v_{AT} = v$. If the merger turns out not to produce surplus, then $v = v_A + v_T$, which is denoted v_{ng} .

Seller investment is stochastic. The probability that the firm will come to have a value that is less than or equal to any realized value v is $F(v(e; \omega))$ given an effort level e . The density associated with $F(v(e; \bullet))$ is $f(v(e; \bullet))$. Investment improves this distribution by reducing the likelihood of realizing low values.²² We assume:

$$A_1: F(v(e; \omega)) \geq 0.$$

A_2 : The acquisition agreement does not contain a MAC, but does contain the other terms described above.

$$A_3: v_T(e, \omega) = v_T \quad \forall e, \omega.$$

$$A_4: d > v_T.$$

Because $v_{ng} > 0$ and A_1 has $v = 0$ occurring with positive probability, assumption A_1 permits an acquisition to be ex post inefficient (then $v < v_{ng}$). Assumption A_2 permits us to focus on the possible contribution of a MAC to welfare. Assumption A_3 holds that seller investments in synergy have no effect on a seller's stand-alone value if a deal fails to close. This assumption is made for convenience at this stage and is relaxed in Part 3.3 below, where we discuss exogenous risk. Regarding assumption

²²Formally, we suppose that $\frac{\partial F(v(e; \omega))}{\partial e} < 0$ for all $v \in (0, v_h)$. In other words, if $e > e'$,

then $F(v(e; \omega))$ strictly dominates $F(v(e'; \omega))$ in the sense of first-degree stochastic dominance. To ensure interior solutions to optimization problems, we also make the standard assumptions that $f'(v(e; \omega)) > 0$; $f''(v(e; \omega)) < 0$; $f(v(\infty; \omega)) < 1$.

A_4 , that $d = v_T$ is an individual rationality constraint. We assume that d exceeds the seller's stand-alone value because no two targets are exactly alike, so that a target will have some bargaining power at the negotiation stage.

At t^2 , the parties observe the value the combined company will have.²³ The parties then decide whether to make the deal at the original price d , to cancel the deal and renegotiate the price or to abandon the deal. At t^3 , the parties conclude a deal under the original or under the renegotiated price, or do not transact.

As shown in Part 2.2.1 above, corporate law effectively gives sellers an option not to be bound by the acquisition agreement. Suppose then that the new company's value turns out to be high; the seller then will refuse to ratify the deal. This wipes the slate clean legally; the seller is not bound and the buyer need not pay the price d . If an acquisition would be ex post efficient, however, there is surplus to share, so the parties will renegotiate. We model renegotiation as a Nash bargaining game with disagreement points that function as threat points: the parties' bargaining weights are denoted α_A (for the acquirer) and α_T (for the seller), with $\alpha_A + \alpha_T = 1$.²⁴ The renegotiation surplus is denoted s where $s = v - (v_A + v_T) = v - v_{ng}$. Hence, if the target calls the deal off and renegotiates, it will receive the new price $d_r = v_T + \alpha_T s$, while if the target lets the deal stand its payoff is the original price d . A seller thus will renegotiate when $d_r > d$. We let v_m denote the value for the new company that makes this

²³Values are assumed to be observable but not verifiable. The motivation for assuming a lack of verifiability is the large expense and considerable time that it takes to value sizable companies in judicial proceedings.

²⁴This game, which is commonly used in the contract theory literature, requires each party to receive a payoff that equals the payoff of its next best option plus an exogenously determined share of the surplus that remains after the disagreement payoffs have been made.

expression an equality.

This analysis implies that the combined company's value can fall within five ranges. If despite seller investment $v < v_{ng}$ is realized, the deal is ex post inefficient. Both society and the buyer would like the merger to be canceled. If value is between v_{ng} and v_h , the deal is ex post efficient and should be concluded. If value is between v_{ng} and $d + v_A$, however, the buyer would cancel if it could; a deal at d would cause it to incur a loss.²⁵ If target value turns out to be between $d + v_A$ and v_m , the parties will voluntarily complete the merger at the contract price: the buyer would earn a positive profit and the seller prefers the price to renegotiation.²⁶ Finally, if value is above v_m , the seller calls the deal off and renegotiates. These five ranges are illustrated in Figure 1, where the values are of the new corporate combination.

Figure 1

$/0$ $/v_{ng}$ $/d$ $/d + v_A$ $/v_m$ $/v_h$

Remark 1: A seller's investment could increase value in two ways. First, though the seller's investment is specific to a combination with the buyer, the seller's actions could reveal that it would be a good merger partner for other companies. This will increase the likelihood of receiving outside offers

²⁵The buyer breaks even when the difference between the value of the combined company and the buyer's stand-alone value – the buyer's gain – equals the price. The buyer thus loses money when $v - v_A < d$, which implies that the buyer prefers cancellation when $v < d + v_A$.

²⁶Note that $v_m > d + v_A$. To see why, recall that the seller accepts the deal at the contract price whenever $d > v_T + \alpha_T(s)$. Recalling that $s = v - v_{ng}$ and substituting the buyer's break even point of $d + v_A$ for v , this inequality reduces to $d > v_T$, which holds by assumption. Thus, the seller always accepts the deal when the realized value equals the buyer's break even point, while v_m is defined as the realized value at which the seller is indifferent between acceptance and renegotiation.

and so increase the seller's value. Second, the seller's actions could increase the expected revenue the proposed corporate combination would earn. In either case, the seller in the model will renegotiate when the new company's value would exceed v_m .

Remark 2: Buyers can take two kinds of value affecting actions in the interval between signing a deal and closing it. One kind would protect the new company against exogenous risk. We defer discussion of this action category to Part 3.3 below. The second category is comprised of investments in synergy that can prevent declines in (and may increase) the value of the new company. Nevertheless, we model synergy as an investment problem that only the seller faces for two reasons: (a) The buyer has an incentive to delay investing in synergy until after the deal closes; (b) Corporate law gives the buyer appropriate incentives to invest when its investments are best made in the post-execution/pre-closing period, so there is no need to motivate the buyer by contract.

Regarding reason (a), the buyer can invest in synergy before or after the deal closes. If a buyer's pre-closing actions would increase the value of the new company sufficiently, the seller would cancel and renegotiate. Since the seller would have bargaining power in the renegotiation, the buyer could not realize the full return from successful pre-closing synergy investments. Therefore, unless short term discount rates were high, the buyer does better delaying investment to the post-closing period, where it then could capture the full return. Regarding reason (b), investment by a party in the model is motivated by the ability of the other party to exit. As we will see, a contract term is needed to give the buyer this right, but corporate law permits the seller always to exit so no contract term is needed.

3.2. The effect of MACs on investment.

The initial question is what investment level the seller should choose from a social point of view.

As we assume no externalities, the social surplus from a deal is $s = v - v_{ng}$. First-best efficiency requires:

- (i) A deal should close if and only if $v \geq v_{ng}$.
- (ii) The seller should choose the effort level e^* , where

$$e^* = \operatorname{argmax}_e \int_{\{\omega | v(e, \omega) \geq v_{ng}\}} v(e; \omega) dF(\omega) - e$$

The first order condition for a social maximum is

$$\int_{v_{ng}}^{v_k} v_e(e; \omega) dF(\omega) = 1 \quad (1)$$

where subscripts denote partial derivatives. Thus, $v_e(e, \omega) = \frac{\partial v(e; \omega)}{\partial e}$.

An acquisition agreement without a MAC will not create first best investment incentives for two reasons. First, the seller does not have all the bargaining power in the renegotiation game; thus, it cannot capture the full return from investment. Second, the contract sets a floor of the price d under the seller's possible payoffs. If realized value is in the range $v_{ng} \dots v_m$, the seller will enforce the deal at the price d .²⁷ The seller's problem thus is to choose e to maximize

$$\left\{ (1 - F(\omega | v \leq v_m)) v_I + \alpha_I \int_{v_m}^{v_k} (v(e, \omega) - v_{ng}) dF(\omega) \right\} + F(\omega | v \leq v_m) d - e$$

²⁷We defer to Part 3.4 the case when a deal would be ex post inefficient ($v < v_{ng}$).

The term in large braces is the seller's expected payoff in the high value state, when the seller calls the deal off and renegotiates; the second term is the expected value of receiving the price d when the seller lets the deal stand; and the third term is the effort level the seller chooses. The seller's first order condition for a maximum thus is

$$\alpha_s \int_{v_m}^{v_h} v_s(e; \omega) dF(\omega) = 1 \quad (2)$$

The left hand side of expression (2) is smaller than the left hand side of expression (1) because the integrand is over a smaller range and because the seller's renegotiation payoff, d_s , is less than the value of the combined company v . The seller thus will choose a *lower* level of investment without a MAC than is socially optimal. This result obtains for two reasons: the seller cannot capture the full gain from high realizations because it has less than all of the bargaining power; and the fixed price contract insures the seller against low realizations.

A contract with a MAC will improve the seller's investment incentives by lowering the floor under the seller's payoffs in bad states. When the new company's realized value is in the range v_{ng} to $d + v_A$, the buyer will use the MAC to cancel the deal. The parties will then renegotiate. The seller will receive a share of the ex post value of the combined company, but the expected value of this, by definition, is less than the original price d . Hence, the seller now bears part of the cost from low realizations.

Formally, when the merger agreement has a MAC the seller chooses e to maximize

$$\alpha_s \left[\int_{v_m}^{v_h} v(e; \omega) dF(\omega) + \int_{v_m}^{d+v_A} v(e; \omega) dF(\omega) \right] + d[F(\omega | v \leq v_m) - F(\omega | v \leq d+v_A)] - e$$

The second term in the first set of brackets is the seller's expected payoff when value turns out to be in the range v_m to $d + v_A$, the buyer uses the MAC to exit and the parties then renegotiate the price. The second bracketed term is the expected value of receiving the price d . The seller's first order condition for a maximum with a MAC becomes

$$\alpha_s \left[\int_{v_m}^{v_h} v_s(e; \omega) dF(\omega) + \int_{v_m}^{d+v_A} v_s(e; \omega) dF(\omega) \right] = 1 \quad (3)$$

The left hand side of (3) is larger than the left hand side of (2), thereby implying that the seller has a greater incentive to invest when the contract has a MAC than when it does not. With a MAC the seller is "insured" over a smaller part of the possible return space and at risk over a larger portion of that space. As a consequence, the seller's incentive to invest is increased. This reasoning yields

Proposition 1: A MAC increases to a level that is closer to the socially optimal level the seller's investments in synergy in the post-execution/pre-closing period.

Remark 3: A seller's incentive to invest would improve if the seller could make a take it or leave it offer to the buyer at the ex post bargaining stage. The contract theory literature exhibits mechanisms that permit such offers²⁸. We exclude these mechanisms from consideration because they

²⁸See Hart and Moore, "Foundations of Incomplete Contracts", 66 Rev. Econ. Studies (1999), and Maskin and Tirole, "Unforeseen Contingencies and Incomplete Contracts", 66 Rev. Econ. Studies

are not robust to renegotiation under the contract law rules that now obtain.²⁹

Remark 4: The MAC permits the buyer to exit in the event of a low realization, and this exit right motivates the seller to invest to reduce the likelihood of these realizations. Corporate law permits the seller to exit in the event of a high realization, and this exit right motivates the buyer to invest to increase the likelihood of these realizations. This paper therefore can treat motivating synergy investment as a problem that only the seller faces when attempting to explain the content of the standard acquisition agreement.

Remark 5: The traditional MAC is an unusual term from a contract theory point of view because it is a standard (“material adverse change”) rather than a rule. Standards are less costly for parties to create than rules.³⁰ Contracting parties, however, commonly prefer to create rules when the discretion that a standard confers would provide an opportunity for moral hazard. For example, section 2-615 of the Uniform Commercial Code permits a seller to avoid a contract if its performance “has been made impractical by the occurrence of a contingency the non-occurrence of which was a basic assumption on which the contract was made” A seller for whom a contract has turned out badly has an incentive to breach in the hope that the vagueness of this standard would permit it to avoid

(1999).

²⁹Law reforms could authorize courts to enforce no renegotiation terms (see Schwartz and Scott, *supra* note 7) and Schwartz and Watson, “The Law and Economics of Costly Contracting”, forthcoming, 20 *Journal of Law, Economics and Organization* (2004), or could permit parties to deter renegotiation by imposing penalties. See Edlin and Schwartz, “Optimal Penalties in Contracts”, 78 *Chicago Kent Law Review* 33 (2003).

³⁰It is easier to tell a party to behave “reasonably” than to tell the party just what it should do.

liability. Parties routinely respond by contracting out of section 2-615 in favor of writing precise force majeure clauses. In contrast, *here* the party with discretion has appropriate incentives. The MAC, that is, permits the buyer to exit when realized value is low, and it is the buyer's credible threat so to act that improves the seller's incentive to invest. Parties to acquisition agreements thus can realize the virtues of a standard without increasing their incentive to engage in moral hazard.

3.3 Exogenous risk and MAC exceptions.

Nether party, by definition, can affect whether an exogenous value affecting risk will materialize. The buyer is the more efficient risk bearer, however. To see why, it is helpful first to note that if exogenous events cause the value of the corporate combination to fall below the parties' stand alone values ($v < v_{ng}$), the buyer will exit regardless of what the contract provides.³¹ Hence, the parties' problem is to allocate exogenous risk for states of the world in which the deal is ex post efficient and thus will close.

A risk whose materialization cannot be prevented should be assigned to the party who can most conveniently insure or take value preserving actions. Both parties in our model perhaps could affect exogenous risk during the period between executing and closing a deal. The seller's corporate law right to exit creates an incentive for the buyer to take risk affecting actions in this period, and the buyer's contract right to exit under a traditional MAC creates an incentive for the seller to act. Only the buyer can take risk affecting actions after a closing, however. Also, the buyer can capture the full gain from

³¹The parties' actions when a deal would be ex post inefficient are considered in Part 3.4 below.

actions whose effects will be realized after the seller is paid.³² An efficient acquisition agreement therefore would impose on the buyer those exogenous risks whose impact would largely be felt after the buyer takes control of the new enterprise. An obvious example is the risk that the law regulating the new entity would change. Another example is a recession in the parties' industry. The impact of a typical recession likely extends beyond the interim between signing an acquisition agreement and closing the deal. Also, the effect of typical buyer responses— e.g., positioning the company for an economic upturn – ordinarily would be realized after the deal closes. The buyer's greater ability to respond to long term exogenous risk and the buyer's good incentives to do so imply the efficiency of allocating these risks to buyers.³³

Relating this reasoning to the MAC term, exogenous risk makes relevant two possible states of the world. First, the realization of exogenous risk reduces the value of the new company, but value would still be high enough to permit the buyer to make a positive profit at the transaction price d . In this event, the MAC's risk allocation would not matter because the deal would close at d and the buyer would bear the full cost of the exogenous change or effect. This gives the buyer an incentive to take value preserving or insuring actions. Second, the materialization of exogenous risk causes the value of the new company to fall such that the buyer would incur a loss if it bought at the deal price. If the MAC imposed exogenous risk on the buyer, it again would pay d ; as a consequence, the buyer would optimize against more of the return distribution that exogenous risk could generate.

³²See *Remark 2* above.

³³In Commercial Law, exogenous risk commonly is allocated to the party that has control of the goods. See, e.g., Uniform Commercial Code §2-509 allocating the risk of loss or destruction of the goods to the seller in the period after the contract is made but before tender of delivery.

In contrast, if the seller bore exogenous risk, the buyer would cancel the deal when it would otherwise incur a loss, and the parties then would renegotiate to split the deal's surplus s .³⁴ The renegotiation price would be $d_r = v_T + \alpha_T s < d$ because the buyer could not make a profit at the original price. Renegotiation thus would impose part of the exogenous risk on the seller. Anticipating this outcome, the buyer would not optimize against a material portion of the return distribution that exogenous risk could produce. Since the buyer is the more efficient risk bearer, the buyer would be investing too little in risk cushioning or insuring activities. This analysis predicts that parties would clarify the traditional MAC formulation by allocating long lasting exogenous risks to the buyer – impose more of the return distribution on it – when the efficiency loss from a traditional MAC would exceed transaction costs.

We can extend this analysis to the case where the failure of a deal to close would reduce the seller's stand-alone value. Again consider the case where the materialization of exogenous risk would cause the value of the new company to fall below the buyer's break even point. If the parties fail to conclude a deal, the buyer's stand-alone value would remain v_A but the seller's stand alone value now is assumed to fall to $v_T - \Delta v_T$. The surplus from doing the deal thus would increase to $s^+ = v + \Delta v_T - v_{ng} > s$. Therefore, when the agreement contains an unqualified MAC and the buyer cancels to initiate a renegotiation, the renegotiation price will be below, by the amount $\alpha_T \Delta v_T$, the renegotiation price calculated above, when a deal's failure was assumed not to affect the seller's stand alone-value. The seller now bears more exogenous risk than before and the buyer's incentive to take value cushioning activities correspondingly diminishes. Put another way, when a failed deal would cause the seller's

³⁴Recall that the surplus is $s = v - v_{ng}$, where v_{ng} is the sum of the parties' stand alone values.

stand alone-value to fall, the width of the value distribution against which the buyer should optimize has widened, but a traditional MAC could not appropriately increase the buyer's incentive to act. The efficiency loss from an unqualified MAC thus is largest in the value reduction case, so MAC exceptions are more likely to be seen there. We summarize this reasoning in

Proposition 2: Transaction costs aside, it is efficient for the standard acquisition agreement to allocate endogenous risk to the seller and exogenous risk to the buyer – to contain a traditional MAC qualified by a set of MAC exceptions.

Remark 5: The likelihood that MAC exceptions are present in an acquisition agreement should be higher in industries where the failure of a deal to close would result in a fall in the seller's stand-alone value. For the reasons given in Part 2.2.2 above, technology mergers will most often fulfill this condition.

Remark 6: MAC exceptions should more closely resemble rules than standards. The phraseology of the traditional MAC arguably comprehends both endogenous and exogenous risk. This ambiguity is best clarified by rules. In addition, the materialization of an exogenous risk that would materially lower the long term value of a corporate combination often would be verifiable. Thus, parties could contract on such risks.

3.4. MACs and ex post efficiency.

The model in Part 3 assumed that the seller's investment would not affect its stand-alone value; and since the buyer did not invest, this assumption implied that the ex post value of the proposed new company would always equal or exceed v_{ng} , the sum of the parties' stand-alone values. We now consider the possibility that the new company's value turns out to be below v_{ng} . In this event, a

MAC efficiently reduces the buyer's exit cost relative to the buyer's contract law rights. If there were no MAC and the buyer breached, the seller could not prove market damages because these would be the difference between the contract price and the target's stand-alone value and, we assume, values are unverifiable. In such cases, however, courts routinely award specific performance, which would require the buyer to pay d . The buyer would complete the deal when $v \geq v_{ng}$ and purchase the right to exit otherwise. In the latter case, the "breach surplus" – the loss from performance that breach would avoid – is $v_{ng} - v$. The buyer could exit by paying the price d and a share of this surplus. Therefore, renegotiation yields ex post efficiency under contract law.

A MAC also generates only efficient performances, but where no exceptions apply, the buyer could cancel whenever $v < d$. The parties will renegotiate to perform when $v \geq v_{ng}$ and let the cancellation stand otherwise. When performance would be inefficient, then, the buyer's exit price when the agreement has a MAC is zero. Therefore, while the parties' ability to avoid inefficient deals is unaffected by whether the agreement has a MAC, efficiency is achieved under a MAC at lower cost. This relaxes buyer participant constraints and thus increases the set of value increasing deals parties can do. We can summarize this logic with

Proposition 3: Parties will conclude only ex post efficient deals, whether the standard acquisition agreement contains a MAC or not, but MACs relax buyer participation constraints relative to contract law.

4. Data and analysis.

The symmetry and investment theories support different hypotheses regarding MACs:

$H1_S$:³⁵ The traditional MAC clause – a term without exceptions – should become prevalent after 1985.

$H1_I$: The traditional MAC clause should have been used long before 1985.

$H2_S$: MAC exceptions should impose on sellers the risk of exogenously caused declines in the value of the new corporate combination.

$H2_{I(1)}$: MAC exceptions should impose on buyers those exogenous risks whose impact would be felt most strongly after a deal closes.

$H2_{I(2)}$: MAC exceptions should be more prevalent in industries in which human capital is a significant asset and technological change is rapid.

These hypotheses have been motivated in Part 2.2 above. To summarize briefly, the symmetry theory cannot account for the early existence of MACs because the term functions in the theory only to create an offsetting call to the seller's put option. That option became significant in consequence of economic and legal developments that took place in the 1980s. In our view, by contrast, MACs should always have been present because they function to encourage the seller to take affirmative actions that would preserve (or increase) the value that the parties expect the new enterprise to have. This explains the two H1 hypotheses. Regarding H2, under the symmetry theory the seller should bear exogenous risk because this makes the buyer's offsetting call option more effective. Under the investment theory, there is no need to impose exogenous risk on the seller, and since the buyer is a more efficient risk bearer than the seller, the buyer should bear this risk. Moreover, the gains to the parties from imposing exogenous risk on the seller are more likely to exceed contracting costs when synergy investments in a

³⁵Subscripts denote theories. Thus, $H1_S$ is the initial hypothesis of the symmetry theory.

deal that fails to close could reduce the target's stand-alone value. For the reasons given above, these are the industries to which $H2_{I(2)}$ refers.

Systematic data on MACs for the years before 1980 is difficult to get. Our impressionistic evidence, from experience and memory, lawyer interviews and the professional literature³⁶, suggests that the traditional MAC was widely used in the pre-1980 era, and we are aware of no evidence to the contrary. This record, though unsystematic, is consistent with the investment theory.

We were able to test $H2$ more systematically. The set of acquisition agreements on which we report below are insufficient to refute conclusively either theory. Rather, the data is suggestively inconsistent with the symmetry hypotheses and suggestively supports the investment hypotheses. This evidence, together with the theory Part 3 develops, cause us to conclude that the investment story best explains the presence of MACs in acquisition agreements and the form that MACs take.

To secure contracts, we downloaded from the Securities and Exchange Commission's EDGAR site random samples of acquisitions announced in 1993, 1995 and 2000. These samples included the terms "material adverse change", "material adverse event" or both. We then asked whether the traditional MAC formulation – no material adverse change in the business, financial condition, or results of operations – was modified by explicit inclusions or exclusions from the generic formulation. The acquisition agreements were coded for the presence of the following categories of events: (1) changes in global economic conditions; (2) changes in U.S. economic conditions; (3) changes in global stock, capital or financial market conditions; (4) changes in U.S. stock, capital or financial market conditions; (5) changes in the economic conditions of other regions; (6) changes in the target company's industry;

³⁶See Freund, *supra* note 4.

(7) changes in applicable laws or regulations; (8) changes in the target company's stock price; (9) loss of customers, suppliers or employees; (10) changes due to the agreement or the transaction itself; and a (11) a miscellaneous category. The agreements also were coded for two qualifications to the explicit inclusions or exclusions of the traditional MAC definition. These qualifications would make a specified inclusion or exclusion inapplicable if the MAC either specifically affected the target company or had a materially disproportionate effect on the target company.³⁷

A preliminary analysis of the data from the three sample years appears in Tables One -Three.

³⁷This exception to MAC exceptions apparently rests on the view that the seller can cushion the shock of an exogenous change that would affect it but not similar firms, or that would affect it disproportionately. Such risks therefore seem more endogenous than exogenous.

TABLE ONE

Year	# of Trans.	% (#) with one or more MAC Exlus.	Types of Exclusions *						
			(a)	(b)	(c)	(d)	(e)	(f)	(g)
			% (#) Global Econ. Cond.	%(#) U.S. or General Econ. Cond.	% (#) Global Stock/ Capital Market Cond.	% (#) U.S. Stock/ Capital Market Cond.	% (#) Other Region Econ. Cond.	% (#) Target Industry Cond.	% (#) Change in Law or Reg.
1993	60	18.33 (11)	0	10.0 (6)	0	1.67 (1)	0	5.00 (3)	3.33 (2)
1995	63	31.74 (20)	0	10.00 (6)	0	1.67 (1)	0	5.00 (3)	3.33 (2)
2000	100	83.0 (83)	11.0 (11)	64.0 (64)	9.0 (9)	38.0 (38)	7.0 (7)	71.0 (72)	25.0 (25)

*Totals more than 100%

Year	# of Trans.	% (#) with one or more MAC Exlus.	Types of Exclusions				Qualifications**	
			(h)	(i)	(j)	(k)	(a)	(b)
			% (#) Target Stock Price	%(#) Loss of Customers, Suppliers, Employees	% (#) Changes due to Agmt. or Transaction	% (#) Misc .	% (#) Unless Change Specifically Affects Seller	% (#) Unless Materially Disproportion. Effect on Seller
1993	60	18.33 (11)	1.67 (1)	0	0	1.67 (1)	0	0
1995	63	31.74 (20)	0	0	4.76 (3)	14.29 (9)	0	0
2000	100	83.0 (83)	24.0 (24)	12.0 (12)	58.0 (58)	22.0 (22)	12.0 (12)	17.0 (17)

**Qualifies applicability of exclusion; e.g.; change in U.S. conditions is not excluded if the change specifically affects or has a materially disproportionate effect on the seller.

TABLE TWO**Prevalence and Characteristics of MAC and MAE Exclusion for 1995 by Industry***

Industry	# of Trans.	Avg. # of Excl.	% (#) with one or more MAC Exl.	Types of Exclusions**						
				(a)	(b)	(c)	(d)	(e)	(f)	(g)
				% (#) Global Econ. Cond.	% (#) U.S. or General Econ. Cond.	% (#) Global Stock/ Capital Market Cond.	% (#) U.S. Stock/ Capital Market Cond.	% (#) Other Region Econ. Cond.	% (#) Target Industry Cond.	% (#) Change in Law or Reg.
Non-Technology	54	0.69	29.6 (16)	1.9 (1)	14.8 (8)	0	1.9 (1)	0	20.4 (11)	14.8 (8)
Technology***	9	0.55	44.4 (4)	0	0	0	0	0	11.1 (1)	0
Total 1995	63	0.67	31.74 (20)	1.58 (1)	12.7 (8)	0	1.58 (1)	0	19.5 (12)	12.7 (8)

* As shown in Table One, the 1993 sample had too few exclusions to warrant an industry breakdown.

** totals more than 100%

*** Technology is defined narrowly in this set to only include engineering, computer, biotech, and industrial instruments, and target companies that plainly involve a high technology component. The classification could not rely on SIC codes because in many industries, the classification depends on the product, rather than the production technology. So, for example, internet companies were classified based on the product they sold, rather than the technology associated with marketing.

Industry	# of Trans.	% (#) with one or more MAC Excl.	Types of Exclusions				Qualifications****	
			(h)	(i)	(j)	(k)	(a)	(b)
			% (#) Target Stock Price	%(#) Loss of Customers, Suppliers, Employees	% (#) Changes due to Agmnt. or Transaction	% (#) Misc.	% (#) Unless Change Specifically Affects Seller	% (#) Unless Materially Disproportion. Effect on Seller
Non-Technology	54	29.6 (16)	0	0	3.7 (2)	11.1 (6)	0	0
Technology*	9	44.4 (4)	0	0	11.1 (1)	33.3 (3)	0	0
Total 1995	63	31.74 (20)	0	0	4.76 (3)	14.29 (9)	0	0

**** Qualifies applicability of exclusion; e.g.; change in U.S. conditions is not excluded if the change specifically affects or has a materially disproportionate effect on the seller.

TABLE THREE

Prevalence and Characteristics of MAC and MAE Exclusion for 2000 by Industry

Industry	# of Trans.	Avg. # of Excl.	% (#) with one or more MAC Exl.	Types of Exclusions *						
				(a)	(b)	(c)	(d)	(e)	(f)	(g)
				% (#) Global Econ. Cond.	% (#) U.S. or General Econ. Cond.	% (#) Global Stock/ Capital Market Cond.	% (#) U.S. Stock/ Capital Market Cond.	% (#) Other Region Econ. Cond.	% (#) Target Industry Cond.	% (#) Change in Law or Reg.
Non-Technology	61	3.64	80.3 (49)	14.8 (9)	59.0 (36)	13.1 (8)	47.5 (29)	4.9 (3)	70.5 (43)	34.4 (21)
Technology **	39	4.05	87.2 (34)	5.1 (2)	69.2 (27)	23.1 (9)	21.2 (7)	10.1 (4)	71.8 (28)	10.3 (4)
2000 Totals	100	3.75	83.0 (83)	11.0 (11)	64.0 (64)	9.0 (9)	38.0 (38)	7.0 (7)	71.0 (71)	25.0 (25)

*Totals more than 100%

**Technology is defined narrowly in this set to only include engineering, computer, biotech, and industrial instruments, and target companies that plainly involve a high technology component. The classification could not rely on SIC codes because in many industries, the classification depends on the product, rather than the production technology. So, for example, internet companies were classified based on the product they sold, rather than the technology associated with marketing.

Industry	# of Trans.	% (#) with one or more MAC Excl.	Types of Exclusions				Qualifications***	
			(h)	(i)	(j)	(k)	(a)	(b)
			% (#) Target Stock Price	%(#) Loss of Customers, Suppliers, Employees	% (#) Changes due to Agmnt. or Transaction	% (#) Misc.	% (#) Unless Change Specifically Affects Seller	% (#) Unless Materially Disproportion. Effect on Seller
Non-Technology	61	80.3 (49)	6.6 (4)	3.3 (2)	54.1 (33)	30.0 (14)	13.1 (8)	11.5 (7)
Technology*	39	87.2 (34)	48.5 (19)	25.6 (10)	64.1 (25)	20.5 (8)	10.3 (4)	25.6 (10)
2000 Totals	100	83.0 (83)	24.0 (24)	12.0 (12)	58.0 (58)	22.0 (22)	12.0 (12)	17.0 (17)

*** Qualifies applicability of exclusion; e.g.; change in U.S. conditions is not excluded if the change specifically affects or has a materially disproportionate effect on the seller.

The Tables reveal a significant shift in transaction practice respecting MACs. In 1993, only 18.33% of MAC clauses included one or more event specifications that restricted the buyer's right to exit; more than half of these stated a single event. In 1995, the percentage of clauses with an event specification had increased to 31.74%, with an average of 0.67 per transaction. By 2000, event specifications had become mainstream; 83% of the sample acquisition agreements featured at least one MAC or MAE exclusion, with an average of 3.75 per transaction.

Table One also rejects H_{2s} in favor of H_{2i} . We observe no evidence that exceptions to MAC clauses have expanded to give acquirers an option to abandon on the occurrence of a value reducing exogenous change to match the target company's option to abandon on the occurrence of a value increasing exogenous change. To the contrary, approximately two-thirds of the transactions in the 2000 sample exclude from the definition of a MAC or MAE the two most obvious examples of exogenous risk: changes in the U.S. economy and changes in the target company's industry.

The data also permit us to distinguish between technology and non-technology mergers for the years 1995 and 2000.³⁸ This evidence is consistent with $H_{2(2)}$, that the change in acquisition practice may have begun in connection with, and is more significant in, high technology acquisitions. In our analysis, this would be because the danger of reductions in a target's stand alone value is more serious there. In 1995, 29.6% of non-technology acquisition agreements had one or more MAC exclusions

³⁸The professional literature claims a special role for MAC exclusions in high technology transactions. See, e.g., Rodrigo J. Howard, "Allocating the Risks of Interim Changes: MACs and MAEs in Recent Technology M & A Agreements", in *Drafting Corporate Agreements 1998-1999* (PLI 1998); Michael J. Halloran and D. Stanley Rowland, "Changes in Material Adverse Change Provisions in High Tech Deals", 2 No. 10 M & A Law. 12 (1999).

while 44.4% of technology acquisitions had these exclusions. Part 2.2.2 argued that the risk of customer, supplier or employee loss was greater in connection with high tech mergers. No agreement in the 1995 sample excluded from the definition of a material adverse change the target company's loss of customers, suppliers, or employees. The 2000 data show that 3.3% of non-technology acquisition agreements but 25.6% of technology agreements had such an exclusion.

Part 2.2.2 also argued that high tech firms would be more likely to experience a general reduction in stand alone value from a failed deal. No agreement in the 1995 sample excluded from the definition of a material adverse change a decline in the target company's stock price. The 2000 data indicate that 6.6% of non-technology acquisition agreements but 48.5% of technology acquisition agreements had such an exclusion. Such a decline is likely if the target would lose value in consequence of a failed deal because the market realizes that not all deals close. Moreover, the dramatic increase in exclusions for changes in the target's stock price is also consistent with the increasing volatility that we earlier argued drove the shift from a standard toward rules. In short and as predicted, parties to technology acquisition seem more inclined to restrict the buyer's right to exit than parties to acquisitions generally.

The changes in corporate law and in the technology of financing acquisitions that operate to give the target an effective put option are real, so it is striking not to observe their impact on the element of the transaction structure – the MAC term – that apparently could most directly respond to this problem, by creating an offsetting call. The phenomena that underlie the investment theory, however, also are real. Thus, a workable transaction fix must respond effectively to both concerns. Our explanation is that the MAC responds to the investment concern alone because other contractual techniques, such as

a toehold acquisition, stock options, or the payment of breakup fees if the seller accepts a higher offer, address the symmetry concern. These techniques address the symmetry problem without unnecessarily shifting exogenous risk to the seller, and thus do not inefficiently reduce the buyer's incentive to invest against this risk in the post-execution/pre-closing period.³⁹

It is interesting to speculate briefly on the widespread diffusion of MAC exceptions and the pattern of this spread. The New York Supreme Court's decision, in the *Jardine* case⁴⁰, to send to the jury a buyer's invocation of the traditional MAC to justify its exit following a classic exogenous event -- the 1987 stock market crash -- prompted transaction lawyers to focus on the ambiguity in the traditional MAC formulation regarding exogenous risk. As the analysis in Part 3.3 above suggested, the transaction costs of this focus are more likely to be below the gains for technology acquisitions in which the materialization of exogenous risk can cause the most difficulty. An innovation here might have diffused widely through Silicon valley in consequence of repeated interactions among networks of M & A lawyers.⁴¹

³⁹An experienced Silicon Valley lawyer linked the scope of the MAC clause and the seller's option to exit to the use of different contractual techniques for addressing the symmetry and investment concerns. The attorney recounted that the negotiation of exceptions to a MAC (which exacerbate the symmetry concern) typically is paired with the negotiation of a narrowly drafted "fiduciary out" (which can mitigate the symmetry concern). The more narrow the fiduciary out, the more difficult it is for the seller to accept a higher priced offer.

⁴⁰*The Bear Stearns Companies, Inc. v. Jardine Strategic Holdings Limited*, #31731/87 (N.Y. Sup. 1988).

⁴¹Gerald Davis has studied the spread of legal practice innovations. See Gerald F. Davis, "Agents Without Principles? The Spread of the Poison Pill through the Intercorporate Network", 36 *Admin. Sci. Q.* 583 (1991); Gerald F. Davis and Henrich R. Greve, "Corporate Elite Networks and Governance Changes in the 1980s", 103 *Am. J. Soc.* 1 (1997).

As is apparent from our 2000 sample, the next step was the spread of the new MAC and MAE practice across industries. A number of factors may have influenced this diffusion. Perhaps most interesting, the spread may have been due to the nature of judicial interpretation. Lawyers would expect that judicial construction of a traditional MAC term in a particular transaction would be influenced by changes in MAC terms in other transactions. In particular, how a court resolves the ambiguity in the traditional MAC formulation may be influenced by the practice of parties in other transactions to resolve the ambiguity explicitly. The nature of high tech innovations thus could have affected the construction of traditional MACs in non-high tech deals. Transaction lawyers could come to believe that this increase in juridical risk -- the reading in of specific inappropriate inclusions or exclusions -- would justify creating explicit modifications to the traditional MAC that fit the deal at issue. We note, however, that the diffusion is more than mere mimicry. In 2000, the exclusions most central to the risk of a decline in stand alone value if the acquirer did not close in reliance on the MAC -- the loss of customer's suppliers or employees, and a drop in target stock price -- were still more than seven times more likely to appear in agreements involving technology transactions than in agreements involving non-technology transactions. Conversely, MAC exclusions for changes in law or regulations, likely of greater significance in older, more heavily regulated industries, were in 2000 approximately 5 times as likely to appear in a non-technology agreement than in a technology agreement.

5. Legal and drafting implications.

It is beyond the scope of this article to analyze the extensive case law regarding MACs.⁴²

⁴²We supply an analysis of the cases in a non-technical treatment of MACs. See Ronald J. Gilson and Alan Schwartz, *The Evolution of MACS* (in progress).

However, it is useful to comment briefly here on what is widely thought to be the most important case, the Delaware Court of Chancery's decision, *In re IBP, Inc. Shareholders' Litigation*⁴³, and we suggest an interpretive criterion for MAC adjudication that follows from our analysis here. The court faced in *IBP* a traditional, and thus ambiguous, MAC and it attempted to make the term more concrete: A MAC event, the court held, was "a significant diminution of the value of the business entity as a whole". This well meaning effort to deal with ambiguity in the traditional MAC formulation was unsatisfactory for two reasons. First, parties to acquisition agreements, we have seen, have begun to negotiate detailed MAC exceptions, thereby lessening the need for a legal default rule. The issue courts now face is how to interpret the contract, not how to fill in the blanks.⁴⁴ Second, the court's proposed default itself is off the mark because it focuses on clarifying the adjective "material" rather than on distinguishing between endogenous and exogenous causes of a decline in the value of the combined company. Materiality refers to the extent of a value change but, had values been verifiable, the MAC term would have conditioned directly on them. Rather, because values are difficult to verify, parties prefer courts to focus on causes.⁴⁵

⁴³2001 WL 675330 (Del. Ch. 2001).

⁴⁴The acquisition agreement in *IBP* was, coincidentally, a part of our 2000 sample. It was unusual in that it was part of the 17% of the sample that had no MAC exclusions. The court did not consider whether the general change in transactional patterns – in our sample 83% of the entire sample and 80.3% of the non-technology sample addressed at least one element of endogenous risk – should bear on the construction of a provision that retained the traditional ambiguous formulation.

⁴⁵A commercial law analogy may be clarifying. The Uniform Commercial Code excuses a seller from performance when subsequent events make performance "impracticable". This phrase directs courts to focus on the loss the seller would have suffered from performance. Profits and losses are difficult to verify, however. Parties thus routinely replace the UCC with force majeure clauses that list verifiable excusing events – fire, war, legal regulation – whose materialization would ordinarily cause

The investment theory supplies an interpretive criterion for a judicial inquiry into causation.

When a buyer attempts to exit by invoking a MAC clause, the court should ask whether the event was within the seller's ability to affect. As an example of this distinction, assume a MAC contains an exception regarding economic conditions in the target's industry. The exception should keep the buyer in the deal if a material decrease in the seller's profitability was caused by a sudden, but apparently permanent, increase in imports in the industry. On the other hand, the presumption should be that the buyer would be permitted to exit if the decline was caused by an increase in input costs against which the seller could have, but did not, hedge. Here, however, the analysis is completed by shifting attention to the concept of "change" in the MAC formulation. If it had not been the practice of firms such as the seller to hedge the particular risk, then, we suggest, the relevant change should be held to be exogenous – the realization of an external risk – rather than endogenous – that is, caused by actions the seller took or failed to take.

Interpretive criteria for MACs are an important subject because the current inventory of MAC exclusions retain what may be an inherent, standard-like ambiguity. For example, consider the qualification to the exception that permits a buyer to exit when exogenous events that otherwise would have been covered by an exception to the MAC clause have a disproportionate impact on the seller⁴⁶ in light of the interpretation of the "change" requirement we just suggested. Such a disproportionate impact could be relevant to interpretation in two opposing ways. First, it may suggest that the target

the seller to incur large losses.

⁴⁶See text at note 39 above and note 39. These exceptions appeared in none of our 1993 contracts but in 17% of the 2000 contracts.

had actions available to it that would have prevented or lessened the impact of the apparently exogenous event. If so, the exception to the exception should apply, so that the buyer could exit if it wished. Second, the impact may be a consequence of the seller following a high beta strategy that was efficient for it; the seller, that is, may have been investing less in risk cushioning activities and more in production activities than some of its competitors. If so, the exception to the exception probably should not apply because it is uncommon for parties to intend a seller to take actions that would differ materially from its pre-transaction practice without saying so; costly, deviant actions would usually be an expressed part of the agreement's operating covenants were they meant to be taken.⁴⁷ Thus, the exclusion's proportionality measure would require a change in the company's pre-event sensitivity to industry changes.

More detailed analysis of interpretive criteria for MACs awaits further research but we offer two concluding remarks. Initially, courts sometimes appear to suspect that a buyer who invokes a MAC is merely renegeing on a deal that turned sour. Such courts attempt to resolve ambiguities in the MAC against the buyer. This attitude is in considerable part mistaken because it is the threat of buyer exit that efficiently increases the seller's incentive to take actions that reduce the probability of bad realizations. Second, parties could aid courts by prefacing the MAC term with a discursive statement of what they intended the term to promote and to avoid. As an example, the parties could ask courts to use the interpretive criterion suggested here. Such a drafting approach would leave courts with much

⁴⁷It is commonplace among the covenants governing the target's conduct of its business during the period between execution and closing that it not change its business practices without the consent of the acquirer. From this perspective, business practices whose change would require the acquiring company's consent would be taken as given in interpreting the MAC clause.

less discretion than the *IBP* court actually had or wanted to have; rather, a court's residual discretion would be channeled in a fashion that would reflect the parties' now explicit goals.

6. Conclusion.

Hundreds of billions of dollars of assets transfer each year under what is essentially the same acquisition agreement. This agreement has received little academic analysis despite its commercial significance. Our paper begins such an analysis by examining an important set of acquisition terms, the material adverse change clause and the material adverse event clause. We ask why these terms are in the agreement and why their formulation has changed substantially over the years.

We conclude that the clauses' presence results from two problems that parties to acquisitions face, both of which are a consequence of the sometimes lengthy interim between the signing of an acquisition agreement and its closing. The first problem is to induce the seller to make efficient value preserving and value enhancing investments in the transaction; the second problem is to induce the buyer to take precautions against or to insure against exogenous events that could reduce the value of the new combination. These problems require creative contractual solutions because, we assume, courts cannot observe the value of the post-transaction combination or the value affecting actions that a seller and buyer could take; and it would be too costly for parties to create behavioral codes that courts could merely enforce.

The MAC solves these problems in a simple but nice way. The traditional MAC permits a buyer to exit when a material adverse change or effect would make the deal unprofitable for it. The buyer's exit right encourages the seller to take actions that would protect and possibly enhance the value that the new company is expected to have. The set of MAC exceptions, in contrast, encourages

the buyer to take actions that would protect the new company against the materialization of risks that neither party could prevent but that the buyer could best affect. The MAC term thus allocates transaction risks to the party that can most efficiently bear them.

We also report the results of our empirical analysis of actual MAC terms. This analysis is preliminary, but its results are consistent with the explanations we advance here. In particular, our theory predicts that MACs will have been in use for a long time; that ambiguities in MACs will be resolved by allocating endogenous risk to sellers and exogenous risk to buyers; and that MAC exceptions are more likely to appear in cases when a failed deal would reduce the seller's stand alone value. The data we present support these predictions. And finally our analysis supplies interpretive criteria that could aid courts when interpreting MACs. We uncover the parties objectives in writing this term – to create incentives for the party that can best preserve or increase value to do so. The interpretive task should be eased for courts when they understand what the parties are attempting to achieve.

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