Material Adverse Change Clauses and Acquisition Dynamics

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Abstract

Material adverse change (MAC) clauses are a ubiquitous feature of acquisitions and exhibit substantial cross-sectional variation in the number and types of events that are excluded from being material adverse events (MAEs). MAEs are the underlying cause of 69% of acquisition terminations and 80% of renegotiations. These renegotiations lead to substantial changes in the price offered to target shareholders. Acquisitions with fewer MAE exclusions are characterized by wider arbitrage spreads during the acquisition period and are associated with higher offer premiums. We conclude that MAC clauses have an economically important impact on the dynamics of corporate acquisitions.

I.   Introduction

A large prior literature documents that acquisitions significantly impact the wealth of both target and acquiring firm shareholders.[1] At the time of the initial announcement, however, the ultimate impact on shareholder wealth is uncertain. Because of the relatively long period between the announcement and the completion of the acquisition (4.5 months, on average, in our sample), the probability of adverse events that can alter the expected wealth gains from the acquisition is nontrivial. As a result, terminated and renegotiated acquisitions are not uncommon. Merger agreements thus often contain contractual mechanisms that allocate

    [1]See, among others, Andrade, Mitchell, and Stafford (2001), Holmstrom and Kaplan (2001), and Moeller, Schlingemann, and Stulz (2005).

the risks between the target and acquirer over the time period between the 1st announcement and the completion of the acquisition.

We analyze the impact of one such mechanism, material adverse change (MAC) clauses, on the dynamics of corporate acquisitions. The MAC clause functions as an abandonment option in that it gives the acquirer the right to walk away from the acquisition, without penalty, if a material adverse event (MAE) occurs between the announcement and the completion of the acquisition. Examples of MAEs include economic or industry shocks, financial misreporting, and regulatory changes. The strength of this abandonment option is potentially limited, however, by specifying particular events (or classes of events) that are excluded from being MAEs.

Although Gilson and Schwartz (2005) argue that MACs "occupy center stage in the negotiation of merger agreements," the impact (if any) of MACs on acquisition dynamics is unclear. In the Gilson and Schwartz framework, the structure of MACs plays an important role in allocating the risks of the acquisition between the target and acquiring firms. Implicit in this framework is the notion that MACs affect the likelihood of acquisition completion and renegotiation by permitting the acquirer to exit the acquisition agreement under certain conditions. An alternative view, however, is that MACs may be difficult to enforce legally. MACs and their exclusions have engendered substantial litigation in recent years. Legal decisions in *IBP v. Tyson Foods*, *Frontier Oil v. Holly Corp.*, and *Genesco v. Finish Line* arguably impose a very high standard on acquirers for claiming that an MAE has occurred.[2] If MACs are difficult to enforce, they are unlikely to have a meaningful impact on acquisition dynamics. This impact, therefore, remains an open empirical question that we address in this study.

Our sample consists of 755 acquisitions announced between 1998 and 2005. More than 99% of the sample acquisitions employ a MAC clause. This makes MACs far more common than other contractual mechanisms for allocating risk between target and acquiring firm shareholders such as termination fees, lockup options, collars, and earnouts.[3] Despite this uniformity in use, however, we observe substantial cross-sectional variation in the number and type of MAE exclusions. On average, MACs contain nearly 4 MAE exclusions ranging from fairly general, market-wide events (i.e., global economic conditions) to firm-specific events (i.e., failure to meet projections), and by the end of our sample period, virtually every MAC clause contains at least 1 MAE exclusion.

Our analysis indicates that MAEs are common and have a large impact on the dynamics of the acquisition process. Approximately 9% of the sample acquisitions experience an MAE between the initial announcement of the acquisition and the completion of the acquisition period. MAEs are the underlying cause for more

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[2]See *Genesco, Inc. v. The Finish Line, Inc.*, Dec. 27, 2007, Memorandum and Order, Case No. 07-2137-II(III) (Tenn. Ch. 2007); *In Re IBP, Inc. Shareholders Litigation, IBP, Inc. v. Tyson Foods, Inc.*, 789 A.2d 14 (Del. Ch. 2001); and *Frontier Oil Corp. v. Holly Corp.*, 2005 Del. Ch. LEXIS 57, 128 (Del. Ch. 2005).

[3]See Coates and Subramanian (2000), Burch (2001), Houston and Ryngaert (1997), Officer (2003), (2004), Bates and Lemmon (2003), Cain, Denis, and Denis (2011), and Boone and Mulherin (2007).

than ⅔ of the terminated acquisitions and 80% of the renegotiated acquisitions. Moreover, MAEs ultimately lead to large changes in the price offered to target shareholders. On average, acquirers negotiate a 15% reduction in offer price when the target experiences an MAE.

We also find that the structure of MAC clauses is associated with acquisition outcomes. Specifically, we find that the probability of an acquisition being completed is positively related to the number of MAE exclusions. Ceteris paribus, a 1-standard-deviation increase in the number of MAE exclusions is associated with an increase of 2% in the probability of acquisition completion (relative to an unconditional probability of 94%). By contrast, the probability of an acquisition being renegotiated is negatively related to the number of MAE exclusions. Increasing the number of MAE exclusions by 1 is associated with a decrease in the probability of renegotiation of 3% (ceteris paribus) relative to the unconditional probability of renegotiation of 7%. These results are robust to controls for other measures of the strength of the acquirer's abandonment option, other potential determinants of acquisition outcomes, and our attempts to control for potential biases related to self-selection and endogeneity.

Nonetheless, it is possible that our tests omit an unknown factor that is correlated with both MAC structure and acquisition outcomes. Therefore, to provide further evidence on causation, we analyze arbitrage spreads (the difference between the price offered to target shareholders and the current market price of the target's shares) as a market-based measure of the expected probability of acquisition completion.[4] If MACs with more MAE exclusions decrease the likelihood of termination and the likelihood of downward revisions in the offer price, we expect a negative association between the number of MAE exclusions and arbitrage spreads. Consistent with this view, we find that acquisitions with an above-median number of MAE exclusions exhibit median arbitrage spreads of 5.2% on the day following the announcement of the acquisition. This spread is significantly lower (at the 0.01 level) than the median spread of 7.3% for acquisitions with a below-median number of MAE exclusions. These findings are robust to controls for other determinants of the arbitrage spread and persist over the 20-day period following the initial announcement of the acquisition.

Importantly, the negative association between arbitrage spreads and the number of exclusions exists only in the subset of acquisitions for which the merger agreement has been filed by the date on which the arbitrage spreads are measured. Moreover, we find that the change in arbitrage spreads from the day prior to the day following the merger agreement is negatively related to the number of exclusions in the MAC agreement. These findings imply that stock market participants use information contained in the merger agreement (specifically, the number of MAE exclusions) to update their priors on the likelihood of acquisition completion. Collectively, therefore, our findings are consistent with the joint hypothesis that i) MAC structure affects the likelihood of acquisition completion, and ii) this likelihood is reflected in market prices when publicly disclosed.

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[4]See, for example, Brown and Raymond (1986) and Mitchell, Pulvino, and Stafford (2002), (2004) as other studies that use arbitrage spreads as a proxy for the expected probability of acquisition completion.

Having established the association between MAC structure and acquisition dynamics, we then test whether the apparent impact of MACs on these dynamics is "priced" by the parties to the acquisition. Specifically, we analyze the association between MAC structure and the premium offered by the acquiring firm. We hypothesize that acquirers with a stronger abandonment option (i.e., fewer MAE exclusions) will be willing to offer a higher ex ante premium for the target firm. Consistent with this prediction, we find a significant negative relation between the acquisition premium and the number of MAE exclusions. A 1-standard-deviation increase in the number of exclusions decreases the predicted offer premium from a baseline value of 43% to 40%. We note, however, that the structure of the MAC clause and the offer premium are jointly negotiated as part of the acquisition agreement. Thus, it is possible that both are affected by some unobserved factor. Although we cannot completely rule out this possibility, we estimate 3-stage least squares (3SLS) models and find that the basic negative association between offer premium and MAE exclusions is robust to our controls for simultaneity bias.

The remainder of the paper is organized as follows: Section II provides background information on MAC clauses and the acquisition process. Section III describes our sample selection process and presents descriptive statistics for the sample acquisitions. Section IV reports our evidence on the impact of MAC clauses on acquisition dynamics. Section V analyzes the impact of MACs on offer premiums. Section VI concludes.

II.   Background on MAC Clauses

Figure 1 presents a schematic that divides the acquisition process into separate pre-announcement and post-announcement subperiods. Prior to the announcement, the parties to the acquisition initially engage in due diligence activities and then begin the process of drafting the merger agreement. During this period, the parties negotiate an offer price and any contractual mechanisms (e.g., MAC clauses, earnouts, collars, termination fees, lockups) that will affect the ex post payoffs to the parties. Between the initial announcement of the merger agreement and completion (or termination) of the merger (a period of 4.5 months, on average, in our sample), a variety of events can occur that potentially alter the wealth gains to each party from the acquisition. During this period, merger terms can be renegotiated, and the merger is either completed or terminated.

MAC clauses in the merger agreement define the conditions under which each party can "walk away" from the merger (without penalty) in the event of an MAE. MAEs can be of a market-wide or a firm-specific nature. Typical market-wide MAEs are changes in economic, market, industry, or regulatory conditions. Typical firm-specific MAEs are the loss of key customers, employees, or inventory; the accidental death of the CEO; or drastic changes in the stock price or volume. As such, firm-specific MAEs can be either exogenous (e.g., the accidental death of the CEO) or endogenous (e.g., earnings restatements or the loss of a large customer due to lack of effort after the announcement of the acquisition).

Although MACs can provide either the target or the acquirer with the right to terminate the acquisition, MACs are primarily geared toward providing walk-away rights to acquiring firms. However, as reported in Gilson and Schwartz (2005),

FIGURE 1

Time Line of the Takeover process

The announcement date divides the takeover process in the pre-announcement and the post-announcement takeover processes. Acquirers and targets report specific information about the pre-announcement takeover process in the SEC filings after the announcement date. Brackets, such as the one for the Due-Diligence, represent windows with large variation for each acquisition.
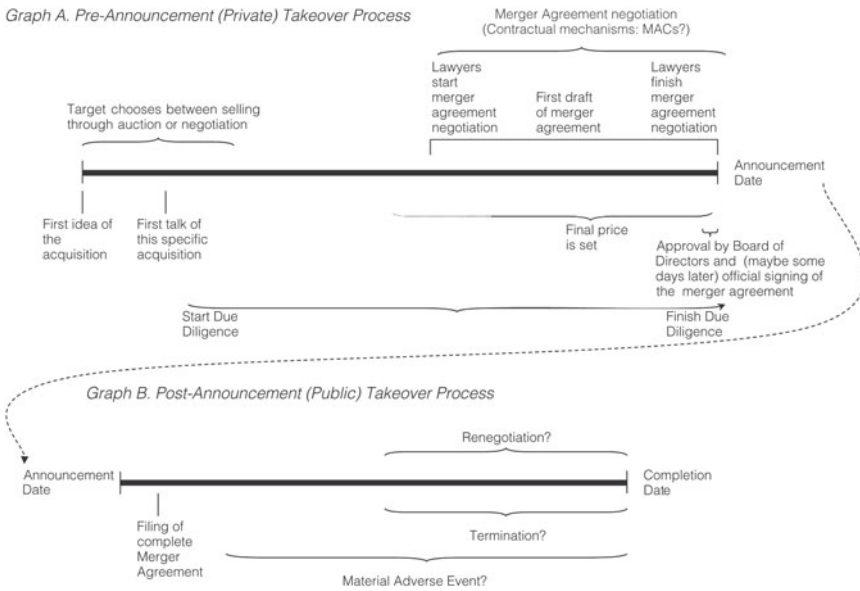
MACs have been increasingly restricted in recent years by the inclusion of a set of exceptions that limit the acquirer's ability to exit the acquisition agreement. That is, if an excluded MAE occurs, the acquirer cannot walk away from the original merger agreement. Legal practitioners claim that the set of MAE exclusions within MACs are highly negotiated elements of merger agreements.[5]

Gilson and Schwartz (2005) analyze the economic role that MACs and MAE exclusions play in acquisition agreements. They argue that MACs are a mechanism for efficiently allocating risks that stem from the lengthy period between the signing of an acquisition agreement and the closing of the transaction. In their model, efficient acquisition agreements impose endogenous risk on the target firm and exogenous risk on the acquiring firm. The basic MAC clause (i.e., one with no exclusions) imposes risk solely on the target firm in that the acquiring firm can abandon the acquisition in the event of any MAE. The purpose of the MAE exclusions, therefore, is to impose exogenous risks (i.e., changes in the general or industry-specific environment) on the acquirer who, Gilson and Schwartz maintain, is better positioned to bear those risks.[6] Gilson and Schwartz predict that such transference of exogenous risk will be more important in the acquisition of

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[5]See, for example, Klein and Cooper (2007), Alexander (2005), and Adams (2004).

[6]Appendix A provides excerpts from the merger agreement between Arrow Electronics and Richey Electronics (filed with the Securities and Exchange Commission (SEC) on Dec. 4, 1998) to illustrate how the target and acquirer define the MAC and the MAE exclusions.

targets in which human capital and technological expertise are important, as well as those in which technological change is rapid. Consistent with this prediction, they report that MAC clauses in acquisitions of technology firms contain a greater number of exclusions than do the MAC clauses of nontechnology targets.

The Gilson and Schwartz (2005) analysis implies that MACs have an important impact on acquisition dynamics. Specifically, their model implies that the likelihood of acquisition completion and/or renegotiation will be affected by the realization of MAEs. Moreover, the impact of MAEs will be stronger in acquisitions for which the MAC contains fewer exclusions. However, they do not test these particular implications.

An alternative view is that MACs have little influence on acquisition dynamics because they are difficult to enforce. Gilson and Schwartz (2005) note that MACs typically engender substantial litigation. Moreover, as noted earlier, recent legal decisions in the Delaware Chancery Court appear to impose a very high standard on acquirers making a claim of MAEs. Thus, it is possible that the dynamics of acquisitions are not affected much by MACs or their exclusions because MACs are legally unenforceable.

Despite recent anecdotal evidence of acquisitions that have been terminated following alleged MAEs,[7] we are not aware of any systematic evidence of the economic impact of MACs on acquisitions. Prior academic studies of MACs have been limited to analyses and descriptions of MAC structure, with emphasis on legal issues (Davidoff and Baiardi (2008)), their role in addressing moral hazard issues (Gilson and Schwartz (2005)), and their cross-sectional variation (Macias and Moeller (2013)). We complement and extend this literature by analyzing how (if at all) MACs affect the dynamics of the acquisition process. Specifically, we first provide detailed evidence on the structure of MACs, the frequency of MAEs, the link between MAEs and acquisition outcomes, and the association between MAC structure and acquisition outcomes. We then test whether the impact of MACs on acquisition dynamics is associated with arbitrage spreads and offer premiums.

III.   Sample Selection and Data Description

Our sample begins with the universe of 2,045 acquisitions (both completed and terminated) of public targets in the United States announced by U.S. public acquirers between 1998 and 2005 and reported in the Securities Data Corporation (SDC) *Mergers and Acquisitions* database. We require the market value of the target's equity to be at least 1% of the acquirer's value and that the sample firms are covered on the Center for Research in Security Prices (CRSP) and Compustat databases. In addition, to document the structure of MACs, we require that the relevant SEC filings (i.e., 8-K, 425, S4, PREM14, DEF14A, or SC 13D files) exist for the acquisition. Because these filings are required only for those acquisitions in which the acquirer seeks at least 50% ownership of the target's shares, this requirement limits our sample to acquisitions in which the acquirer seeks

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[7]Among others, see *The Economist* (Sept. 2001), (Dec. 2001), (Nov. 2005), Knowledge@Wharton (2006), and Wolff and Moore (2007).

majority ownership of the target. Finally, we exclude hostile or unsolicited deals, since there is no merger agreement in these transactions. After imposing these requirements, our final sample consists of 755 announced acquisitions.

Panel A of Table 1 reports a time profile of the sample and the frequency of MACs. Of the 755 acquisitions, 750 (99.3%) contain a MAC clause. This frequency increases slightly over time from a low of 97.9% in 2001 to a high of 100% in all but 3 years (1999, 2000, and 2001).[8] To put this frequency in perspective, we note that prior studies of other contractual mechanisms in acquisitions report much lower frequencies. For example, Officer (2003), (2004) reports frequencies of 42% and 18% for termination fees and collars, respectively. Boone and Mulherin (2007) report that 29% of their sample acquisitions have a lockup option, while Cain et al. (2010) report that only 4% of completed acquisitions of public targets on SDC have an earnout provision. We conclude, therefore, that MACs are the most pervasive among the set of contractual mechanisms that allocate risks between the target and acquiring firm shareholders.

TABLE 1

Time Profile and Description of MAE Exclusions

The sample includes 755 acquisitions of U.S. public targets announced by U.S. public acquirers between 1998 and 2005. Material adverse change (MAC) clauses are obtained directly from the merger agreements filed with the SEC. These merger agreements also describe the number and type of material adverse event (MAE) exclusions contained in the MAC clause. Panel A reports the frequency of MACs, the average number of MAE exclusions, and the frequency of completed and renegotiated deals in each sample year. Panel B reports the percentage of sample firms with each type of MAE exclusion. Panel C reports pair-wise correlations between MAE exclusions. Correlations significant at the 10% level (or below) are in bold.

Panel A. Time Profile

	MACs		MAE Exclusions			
Year	# of Acquisitions	% with MAC	Mean	% > 0	% Completed	% Renegotiated
1998	159	100.0%	2.8	60.4%	96.2%	5.0%
1999	162	98.8%	2.7	61.1%	90.7%	4.9%
2000	119	99.2%	3.8	75.6%	91.6%	6.7%
2001	96	97.9%	4.4	85.4%	93.8%	6.3%
2002	44	100.0%	5.4	90.9%	95.5%	6.8%
2003	61	100.0%	5.3	93.4%	96.7%	13.1%
2004	70	100.0%	6.0	91.4%	95.7%	10.0%
2005	44	100.0%	7.2	97.7%	97.7%	4.5%
Total	755	99.3%	4.0	75.6%	94.0%	6.6%

Panel B. Types of MAE Exclusions

Market-Wide Exclusions		Firm-Specific Exclusions	
Any economic condition	59%	Changes due to agreement or transaction	55%
Target industry conditions	56%	"Disproportionate" economic condition	36%
Change in law or regulation	29%	"Disproportionate" industry condition	31%
Change in accounting	27%	Stock price	18%
Any capital market condition	24%	Miscellaneous	12%
War/terrorism	10%	Loss of customers, suppliers, employees	12%
		Failure to meet projections	7%
		Litigation/breach of fiduciary duty	6%

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[8]Gilson and Schwartz (2005) report a much lower (but increasing) incidence of MAE exclusions over earlier time periods. As a result, much of their analysis compares firms having at least 1 exclusion with those having none. Because virtually all of the firms in our sample have at least 1 exclusion, our analysis focuses more on the number of exclusions than on the simple binary classification used in Gilson and Schwartz.

TABLE 1 (continued)

Time Profile and Description of MAE Exclusions

Panel C. Correlation Matrix for Various Types of MAE Exclusions

	Type of MAE Exclusion	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Any economic condition	1.00													
2	Any capital market condition	**0.42**	1.00												
3	Target industry conditions	**0.70**	**0.32**	1.00											
4	Change in law or regulations	**0.21**	**0.07**	**0.26**	1.00										
5	Change in accounting	**0.17**	−0.01	**0.20**	**0.73**	1.00									
6	War/terrorism	**0.24**	**0.33**	**0.15**	**0.26**	0.07	1.00								
7	Target Stock price	**0.27**	**0.14**	**0.26**	−0.04	−0.05	**0.16**	1.00							
8	Failure to meet projections	**0.16**	**0.14**	**0.18**	0.01	0.00	**0.20**	**0.43**	1.00						
9	Loss of customers, suppliers, employees	**0.19**	**0.12**	**0.20**	−0.05	−0.04	**0.08**	**0.34**	**0.16**	1.00					
10	Litigation/breach of fiduciary duty	0.05	0.06	**0.09**	0.01	0.01	0.02	**0.21**	**0.24**	**0.20**	1.00				
11	Changes due to agreement or transaction	**0.44**	**0.22**	**0.41**	**0.34**	**0.32**	**0.18**	**0.20**	**0.17**	**0.14**	**0.16**	1.00			
12	"Disproportionate" economic condition	**0.36**	**0.12**	**0.59**	**0.15**	**0.14**	0.04	0.06	−0.02	**0.10**	0.00	**0.24**	1.00		
13	"Disproportionate" industry condition	**0.63**	**0.27**	**0.43**	**0.10**	0.07	**0.12**	**0.15**	0.04	**0.09**	0.02	**0.29**	0.65	1.00	
14	Miscellaneous	**0.11**	0.03	0.05	**0.07**	**0.11**	0.06	**0.12**	**0.08**	**0.09**	0.02	**0.16**	0.03	**0.08**	1.00

Panel A of Table 1 also reports data on the number of MAE exclusions. On average, the sample MACs contain nearly 4 exclusions, and more than ¾ of the sample MACs contain at least 1 exclusion. The average number of exclusions has increased significantly over the sample period from 2.8 in 1998 to 7.2 in 2005.

There is also substantial variation in the number and type of exclusions across acquisitions. We categorize MAE exclusions based on the definitions of MAEs contained in the merger agreements.[9] As reported in Panel B of Table 1, the most frequent exclusions are for general economic conditions (59%), industry conditions (56%), and changes in firm prospects due to an agreement or a transaction announcement (55%).

Finally, in Panel C of Table 1, we report a correlation matrix for the different types of MAE exclusions. In general, pairs of exclusions are positively correlated with each other, suggesting that, on average, different exclusions are complements rather than substitutes.

To provide further evidence on how the use of different types of exclusions varies across firms, Table 2 first partitions the sample into 12 industry groups using the Fama-French (1997) classifications, then reports the number of exclusions and the proportion of firms in each industry that have a particular type of exclusion.[10] These data reveal that the average number of exclusions is greatest in the finance and business equipment (computers, software, and electronic equipment) industries, and lowest in the consumer durables industry. Exclusions related to changes in the target's stock price are most prevalent in the business equipment industry, while those related to changes in law and regulation are most prevalent in the finance industry. Gilson and Schwartz (2005) argue that this reflects a greater concern among technology targets about reductions in the target's stand-alone value if the acquisition fails to close. By contrast, changes in laws and regulation are likely to be of greater significance in older, more regulated industries like financial services. Overall, we interpret the distribution of MAE exclusions across industries as being consistent with the view that MACs are structured so that acquirers in each acquisition are forced to bear those exogenous risks that are of greatest significance for that particular acquisition. This type of "customization" appears to be an important feature of MAC clauses.

In Table 3 we present descriptive statistics for characteristics of the sample acquisitions. Targets are approximately ⅓ the size of the acquirer, on average. Approximately 15% of the acquisitions are tender offers, as defined in SDC or SEC filings, or on Factiva. The consideration paid in the acquisition is exclusively cash in 28% of the acquisitions, exclusively stock in 51% of the acquisitions, and a mix of cash and stock in the remainder. On average, cash comprises 38% of the total consideration paid. These characteristics are similar to those in other studies of acquisitions over a similar time period.[11]

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[9]See the American Bar Association (2006) study and the Nixon-Peabody (2007) survey for more detailed explanations of the categories of MAE exclusions.

[10]This analysis is similar to that reported in Table 3 of Gilson and Schwartz (2005), though in their case, they report a simple partition of the sample into 2 groups: technology and nontechnology.

[11]See, for example, Boone and Mulherin (2007), Officer (2003), and Fuller (2003).

TABLE 2

MAC Structure by Industry

Number of exclusions and the proportion of firms in each industry that have a particular type of exclusion for the sample of 755 announced acquisitions of U.S. public targets by U.S. public acquirers between 1998 and 2005. The sample is partitioned into 12 industry groups based on the Fama-French (1997) industry definitions.

Type of MAE Exclusion	Consumer Nondurables	Consumer Durables	Manufacturing	Energy: Oil, Gas, and Coal Extraction and Products	Chemicals and Allied Products	Business Equipment: Computers, Software, and Electronic Equipment	Telephone and TV Transmission	Utilities	Shops: Wholesale, Retail, and Some Services	Healthcare, Medical Equipment, and Drugs	Finance	Other: Mines, Constr., BldMt, Trans, Hotels, Bus Serv, and Entertainment
	1	2	3	4	5	6	7	8	9	10	11	12
# of firms	28	10	71	26	13	160	17	14	44	53	245	74
% of sample	4%	1%	9%	3%	2%	21%	2%	2%	6%	7%	32%	10%
# of MAE exclusions	3.5	2.2	3.5	3.7	2.6	4.5	3.3	2.6	3.0	4.2	4.6	3.5
Proportion with at least 1 MAE exclusions	0.64	0.40	0.66	0.88	0.46	0.73	0.65	0.50	0.68	0.75	0.89	0.70
Proportion with above median number of exclusions	0.43	0.30	0.38	0.31	0.38	0.51	0.47	0.43	0.45	0.42	0.63	0.42
Market-Wide Exclusions												
Any economic condition	0.54	0.30	0.55	0.73	0.38	0.65	0.47	0.36	0.55	0.68	0.60	0.57
Any capital market condition	0.39	0.00	0.21	0.15	0.38	0.23	0.35	0.14	0.18	0.38	0.22	0.23
Target industry conditions	0.43	0.40	0.49	0.73	0.38	0.62	0.47	0.21	0.45	0.62	0.59	0.59
Change in law or regulations	0.18	0.10	0.15	0.19	0.08	0.14	0.00	0.14	0.11	0.17	0.58	0.16
Change in accounting	0.11	0.10	0.20	0.08	0.08	0.16	0.06	0.14	0.11	0.09	0.58	0.12
War/terrorism	0.18	0.10	0.07	0.15	0.00	0.09	0.06	0.07	0.05	0.19	0.08	0.12
Firm-Specific Exclusions												
Target Stock price	0.07	0.10	0.18	0.12	0.15	0.42	0.00	0.00	0.14	0.23	0.07	0.19
Failure to meet projections	0.00	0.10	0.03	0.04	0.08	0.20	0.00	0.07	0.05	0.13	0.02	0.05
Loss of customers, suppliers, employees	0.14	0.10	0.11	0.04	0.00	0.25	0.18	0.07	0.16	0.06	0.03	0.15
Litigation/breach of fiduciary duty	0.07	0.00	0.03	0.00	0.00	0.13	0.18	0.07	0.00	0.00	0.05	0.01
"Disproportionate" economic condition	0.39	0.20	0.31	0.35	0.31	0.39	0.35	0.29	0.36	0.38	0.39	0.32
"Disproportionate" industry condition	0.29	0.30	0.24	0.38	0.38	0.29	0.35	0.07	0.30	0.23	0.38	0.30
Miscellaneous	0.00	0.00	0.08	0.12	0.00	0.08	0.24	0.07	0.11	0.15	0.11	0.08

Table 3 also compares acquisition characteristics for firms with an above-median and a below-median number of MAE exclusions. Because of the time trend in the number of exclusions reported in Table 1, we calculate the median number of exclusions separately each year and label a firm as having an above-median number of exclusions if its number of exclusions is greater than the median for that calendar year. These data indicate that in acquisitions with an above-median number of exclusions, the acquirer is larger and is less likely to pay for the acquisition with cash. In addition, in acquisitions with an above-median number of exclusions, the target is more likely to be from a regulated industry, has less volatile stock returns, and has a higher Tobin's Q ratio.[12] We later control for

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[12]We follow the regulated industry classifications of Barclay and Smith (1995) and Boone and Mulherin (2008) as applied to the 48 Fama-French (1997) industries. Specifically, a firm is classified as regulated if the main industry of the target is classified as Defense, Petroleum and Natural Gas, Utilities, Communication, Banking, Insurance or Trading.

TABLE 3

Sample Description and Univariate Comparison

Descriptive statistics for the sample of 755 announced acquisitions of U.S. public targets by U.S. public acquirers between 1998 and 2005. Appendix B contains definitions and data sources for all variables. For each characteristic, we report the mean value for the full sample as well as for subsamples with above-median and below-median number of material adverse event (MAE) exclusions, where medians are calculated separately each year. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively, of the difference between the average values for the "above-median" and "below-median" subsamples.

Characteristic	Full Sample	Above Median	Below Median
Acquirer market capitalization ($millions)	$9,813	$11,842	$7,735**
Target market capitalization ($millions)	$1,237	$1,378	$1,096
Relative size (target mkt. cap./acquirer mkt. cap.)	0.31	0.30	0.33
Percentage of tender offers	14.97%	10.85%	19.10%***
Percentage of "diversified deal" bids	22.65%	20.11%	25.20%**
Percentage of "cash-only" bids	28.34%	25.93%	30.77%*
Percentage of "stock-only" bids	50.60%	53.70%	47.48%**
Percentage of payment in cash	37.60%	34.71%	40.50%**
Percentage with target termination fees	84.77%	84.39%	85.15%
Percentage with acquirer termination fees	26.75%	24.87%	28.65%
Percentage with lockup agreement	23.18%	28.84%	17.51%***
Percentage with offer price collars	20.00%	18.52%	21.49%
Target's Tobin's Q	1.84	1.93	1.75*
Target in Technology industry	21.46%	17.72%	25.20%***
Target in Regulated industry	37.48%	46.56%	28.38%***
Target Research and Development/Sales	0.08	0.06	0.10*
Std. deviation of Target Stock return prior year	3.64	3.54	3.74*
Days due diligence conducted by acquirer before the announcement date	38.95	36.35	41.55

these systematic differences in our tests of the association between MAC structure and acquisition dynamics.

IV.   MACs and Acquisition Dynamics

In this section, we analyze how, if at all, MACs affect the dynamics of the acquisition process. Because MACs give the acquirer the right to abandon the acquisition in the presence of an MAE, they can also provide a greater incentive to the acquisition parties to renegotiate the terms of the acquisition in a way that reflects the revised market conditions. We first document the extent to which acquisition dynamics are affected by MAEs and then analyze the association between the structure of MACs and acquisition outcomes.

A.   MAEs and Acquisition Outcomes

Panel A of Table 4 provides a frequency distribution of acquisition outcomes. Of the 755 sample acquisitions, 710 (94.0%) are completed and 45 (6.0%) are terminated. In 50 (6.6%) acquisitions, the terms of the acquisition are renegotiated following the initial merger agreement. Of these, 41 are eventually completed under revised terms and 9 are ultimately terminated.

In Panel B of Table 4, we analyze the link between MAEs and acquisition outcomes. For each acquisition that is either terminated or that reports a change in any of the negotiated terms of the deal, we examine each proxy statement filed between the initial announcement of the acquisition and the outcome of the acquisition contest. We then identify the stated reasons for the termination or renegotiation from the proxy statements and confirm this information in news reports

TABLE 4

Post-Announcement Acquisition Dynamics

Panel A of Table 4 reports the frequency distribution of acquisition outcomes. Panel B reports the frequency of material adverse events (MAEs) and the link between MAEs and acquisition outcomes. Panel C reports the magnitude of the revision in offer price for the subset of acquisitions whose terms are renegotiated following an MAE. Data are obtained from news and proxy files found in LivEdgar M&A database, 10kWizard, and Factiva News. Some acquisitions can be classified as having been renegotiated *and* terminated due to an MAE. The sample includes 755 announced acquisitions of U.S. public targets by U.S. public acquirers between 1998 and 2005.

Panel A. Frequency Distribution of Outcomes

Acquisition Outcome	Number	% of Sample
Acquisition is completed	710	94.04%
Acquisition is terminated	45	5.96%
Terms of acquisition are renegotiated	50	6.62%
Terms renegotiated – acquisition completed	41	5.43%
Terms renegotiated – acquisition terminated	9	1.19%

Panel B. Link between MAEs and Acquisition Outcomes

MAE Occurrence	Number	% of Sample
Acquisitions with MAE	65	8.61%
Terms renegotiated due to MAE	40	5.30%
Terms renegotiated – acquisition completed	31	4.11%
Terms renegotiated – acquisition terminated	9	1.19%
Acquisition terminated due to MAE	31	4.11%
Acquisition terminated following earlier renegotiation of terms due to MAE	3	0.40%

Panel C. Price Renegotiations Due to MAEs

Economic Impact of MAE	Number	Mean % Change in Offer Price
Market-wide MAE reducing value of target	15	−10.95%
Firm-specific MAE reducing value of target	36	−16.37%
Market-wide MAE on acquirer	0	0.00%
Firm-specific MAE on acquirer	14	6.09%

on Factiva. We find that MAEs occur in 65 (8.6%) of the sample acquisitions. Of the 50 sample acquisitions that are renegotiated, 40 are renegotiated as a direct result of an MAE. Similarly, of the 45 acquisitions that are terminated, 31 are terminated as a direct result of an MAE, while another 9 are terminated following a renegotiation of deal terms that was initiated by an MAE. Thus, MAEs are the underlying cause of over 69% of the terminated acquisitions in the sample and 80% of the renegotiated acquisitions.[13]

Finally, Panel C of Table 4 shows that the occurrence of an MAE results in an economically large revision in the terms of the acquisition. We classify MAEs into those that refer to market-wide events and those that refer to firm-specific events. Additionally, we specify whether the MAE is experienced by the target or by the acquirer (i.e., whether the event primarily reduced the value of the target or the acquiring company). As presented in Panel C, conditional on an acquisition being renegotiated in response to an MAE, the offer price is revised by 14.8%, on average. (This value is obtained by computing the weighted average of the absolute values of the price changes in Panel C.) The largest change is associated with firm-specific MAEs experienced by targets; these events are associated with a 16.4% reduction in the offer price, on average. Similarly, firm-specific MAEs

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[13]If anything, we expect this process to understate the link between MAEs and termination/renegotiation decisions, since public documents will not necessarily draw a direct link between the MAC clause and the termination/renegotiation decision.

experienced by the acquiring firm are associated with an average change in the offer price of 6.1%.[14] We conclude, therefore, that MAEs are relatively common and have a large impact on acquisition dynamics through the MAC clause.

B.   The Association between MAC Structure and Acquisition Outcomes

We further examine whether cross-sectional variation in the structure of MACs is associated with variation in acquisition outcomes. Building upon the intuition of Gilson and Schwartz (2005), we assume that a greater number of MAE exclusions imposes greater exogenous risk on the acquirer. To the extent that this weakens the acquirer's option to abandon the acquisition, we expect the number of MAE exclusions to be positively associated with the probability that the acquisition is completed. Moreover, to the extent that a stronger abandonment option provides acquiring firm managers with greater leverage to renegotiate the terms of the acquisition following an MAE, we expect a negative association between the probability of renegotiation and the number of MAE exclusions.[15]

To test these predictions, we first estimate separate logit models in which the dependent variable is equal to 1 if the acquisition is completed (renegotiated), and 0 otherwise. The models control for other acquisition characteristics as well as target firm characteristics. We report standardized odds ratio coefficients with *p*-values in parentheses below. All models include year dummy variables, but these coefficients are not reported in the table.[16] The results for the likelihood of completion are reported in column 1 of Panel A of Table 5, while those for the likelihood of renegotiation are reported in column 1 of Panel B. These findings are also depicted in Figures 2 and 3.

Consistent with our prediction, the results in Panel A of Table 5 indicate that the likelihood that an acquisition is completed is positively associated with the number of MAE exclusions. A 1-standard-deviation change in the number of MAE exclusions results in a 2% change in the probability of completion. This compares with an unconditional probability of completion of 94%. The likelihood of completion is negatively related to whether the terms of the acquisition are renegotiated, the size of the target firm, and whether the target is from a technology industry.

Similarly, the results in Panel B of Table 5 indicate that the likelihood of renegotiation is negatively associated with the number of MAE exclusions. As also depicted in Figure 3, a 1-standard-deviation increase in the number of MAE exclusions reduces the probability of renegotiation by 3%, as compared with the unconditional probability of 7.0%. The likelihood of renegotiation is positively related to the dummy variable for target in a regulated industry, target's research

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[14]These tend to reflect adjustments to the exchange ratio in stock-for-stock merger transactions.

[15]We recognize that a simple count of the number of exclusions is a crude measure of the amount of exogenous risk imposed on the acquirer. Nonetheless, to our knowledge, it is an unbiased measure. We later report that our findings are robust to alternative measures.

[16]Recall that Table 1 indicates that there is a positive time trend in the number of MAE exclusions. As an alternative to the inclusion of year dummy variables, we also estimate all of our models using a measure of the number of MAE exclusions that is adjusted for the median number of MAE exclusions in that calendar year. Our results are qualitatively unchanged.

and development (R&D), and the length of the due diligence conducted by the acquirer before the announcement date. In untabulated results, we find similar results using a duration analysis of the time to completion or renegotiation rather than simple logit specifications.

It is possible, of course, that the number of exclusions is determined jointly with deal outcomes. For example, perhaps acquirers of targets with a lower ex ante probability of completion and higher probability of renegotiation negotiate fewer MAE exclusions. If so, the association between the probability of completion and

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TABLE 5

Association between MAC Structure and Probability of Completion and Renegotiation

Table 5 presents estimates from logit models of the probability of completion or renegotiation. Coefficient estimates are reported with *p*-values in parentheses below. All models on probability of completion or renegotiation include year dummy variables, but these coefficients are not reported in the tables. Both the logit and 3SLS regressions use Eicker (1967)-Huber (1967)-White (1980) sandwich standard errors clustered by industry. The 3SLS models are solved using a simultaneous maximum likelihood estimation (MLE) approach. The initial sample consists of 755 announced acquisitions of U.S. public targets and U.S. public acquirers between 1998 and 2005. Appendix B contains variable definitions and data sources. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Probability of Completion

	Dependent Variable		
	Logit	3SLS	
	Prob [Completion] = 1	Prob [Completion] = 1	Total # MAE Exclusions
		Model	
Regressor/Model	(1)	(2.1 2nd stage)	(2.2 2nd stage)
# of MAE exclusions/Instrument for above-median # of MAE exclusions	0.184*** (0.002)	0.243*** (0.000)	
Completion (Instrument in 3SLS)			1.683 (0.737)
Renegotiated deal	−1.233*** (0.002)	0.064 (0.548)	−0.808 (0.311)
Termination fee by Target	0.147 (0.708)	−0.211** (0.035)	0.902*** (0.007)
Cash-Only Payment	0.601 (0.193)	−0.016 (0.604)	
log(MV Assets Target)	−0.233*** (0.014)	−0.072*** (0.003)	0.272*** (0.002)
Tender offer	−0.080 (0.870)	0.196* (0.026)	−0.722** (0.024)
Target in Technology industry	−0.848*** (0.010)	−0.112 (0.115)	0.344 (0.374)
Target in Regulated industry	0.490 (0.388)	−0.128* (0.084)	0.585* (0.056)
Target R&D/Sales	0.159 (0.684)	0.048 (0.540)	−0.185 (0.573)
Volatility Index (VIX)	0.024 (0.750)	0.013* (0.063)	−0.066** (0.016)
log(# days of Due Diligence on Target)	0.074 (0.535)	−0.031 (0.142)	0.144* (0.092)
"After 2001" dummy			2.186*** (0.000)
Intercept	3.462* (0.063)	0.931*** (0.000)	0.419 (0.935)
Prob $>\chi^2$	0.000	0.000	0.000

TABLE 5 (continued)

Association between MAC Structure and Probability of Completion and Renegotiation

Panel B. Probability of Renegotiation

	Dependent Variable		
	Logit	3SLS	
Regressor/Model	Prob [Renegotiation] = 1	Prob [Renegotiation] = 1	Total # MAE Exclusions
		Model	
	(1)	(2. 2nd stage)	(2. 1st stage)
# of MAE exclusions/Instrument for above-median # of MAE exclusions	−0.127** (0.017)	0.028 (0.226)	
Renegotiation (instrumented in 3SLS)			0.781 (0.835)
Termination fee by Target	−0.249 (0.677)	−0.051 (0.216)	0.953*** (0.005)
Cash-Only Payment	−0.843 (0.127)	−0.040 (0.156)	
log(MV Assets Target)	0.110 (0.255)	−0.001 (0.890)	0.240*** (0.001)
Tender offer	0.675 (0.186)	0.064 (0.118)	−0.749** (0.025)
Target in Technology industry	0.426 (0.343)	0.011 (0.705)	0.218 (0.472)
Target in Regulated industry	−1.101*** (0.003)	−0.084*** (0.007)	0.732** (0.034)
Target R&D/Sales	−1.848* (0.081)	−0.041 (0.189)	−0.115 (0.751)
Volatility Index (VIX)	−0.033 (0.541)	0.001 (0.736)	−0.071** (0.013)
log(# days of Due Diligence on Target)	−0.229* (0.067)	−0.021** (0.016)	0.183* (0.067)
"After 2001" dummy			2.131*** (0.000)
Intercept	−1.584 (0.339)	0.133 (0.266)	2.068** (0.020)
Prob $> \chi^2$	0.000	0.000	0.000

MAC structure will be spurious, and our coefficient estimates are likely to be biased and inconsistent.

As one approach to addressing this concern, we attempt to identify an instrument for the number of exclusions such that the instrument is related to the number of exclusions, but unrelated to the likelihood of completion (once we control for other exogenous determinants of that likelihood). One candidate for such an instrument is a dummy variable denoting the years following the 2001 *IBP v. Tyson* decision. The logic for this variable as a valid instrument is that there appears to have been a structural shift toward a greater number of MAE exclusions following the 2001 IBP case. (Our analysis verifies this in a multivariate setting.) In addition, we are unaware of any reason why the likelihood of completion would be systematically different in the post-2001 period, other than through the "number of exclusions" channel. Thus, it seems plausible that this instrument meets both the relevance and exclusion criteria for a valid instrument.

We follow the methodology of Maddala (1983) and estimate a 3SLS system of simultaneous equations in which the number of exclusions and a dummy

FIGURE 2

MAC Structure and the Predicted Probability of Completion

Figure 2 presents the predicted probabilities of completion and is based on the logit model 1 in Panel A of Table 4. Dotted lines depict the 95% confidence intervals. The baseline probability of termination is 0.94. Sample starts with 755 announced acquisitions of U.S. public targets and U.S. public acquirers (1998–2005).

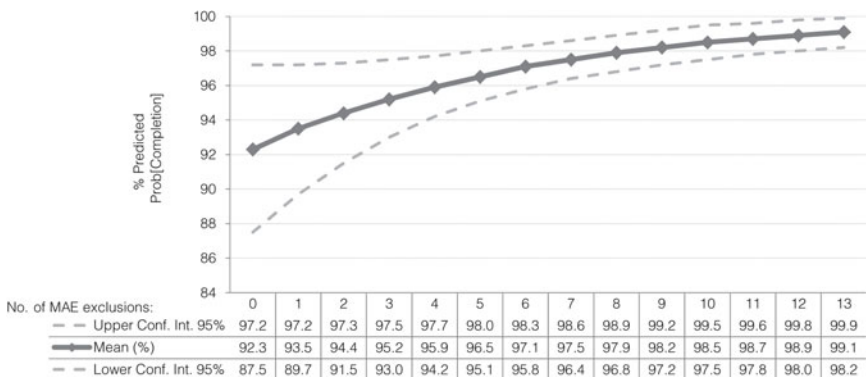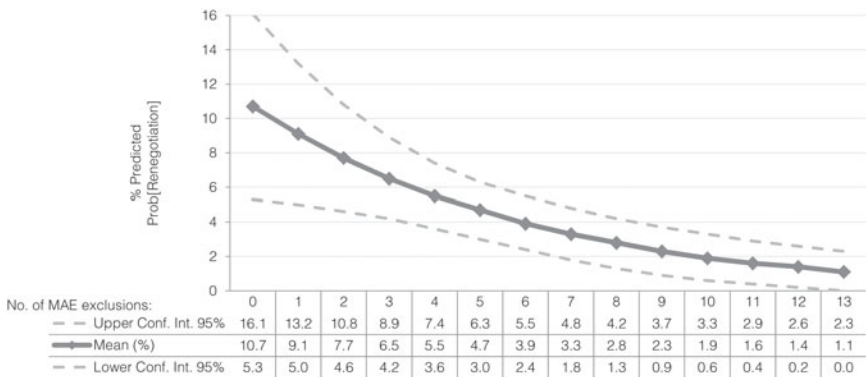| No. of MAE exclusions:	0	1	2	3	4	5	6	7	8	9	10	11	12	13
– – Upper Conf. Int. 95%	97.2	97.2	97.3	97.5	97.7	98.0	98.3	98.6	98.9	99.2	99.5	99.6	99.8	99.9
◆ Mean (%)	92.3	93.5	94.4	95.2	95.9	96.5	97.1	97.5	97.9	98.2	98.5	98.7	98.9	99.1
– – Lower Conf. Int. 95%	87.5	89.7	91.5	93.0	94.2	95.1	95.8	96.4	96.8	97.2	97.5	97.8	98.0	98.2

FIGURE 3

MAC Structure and the Predicted Probability of Renegotiation

Figure 3 presents the predicted probabilities of renegotiation based on the logit model 1 in Panel B of Table 4. Dotted lines depict the 95% confidence intervals. The baseline probability of renegotiation is 0.07. Sample starts with 755 announced acquisitions of U.S. public targets and U.S. public acquirers (1998–2005).

No. of MAE exclusions:	0	1	2	3	4	5	6	7	8	9	10	11	12	13
– – Upper Conf. Int. 95%	16.1	13.2	10.8	8.9	7.4	6.3	5.5	4.8	4.2	3.7	3.3	2.9	2.6	2.3
◆ Mean (%)	10.7	9.1	7.7	6.5	5.5	4.7	3.9	3.3	2.8	2.3	1.9	1.6	1.4	1.1
– – Lower Conf. Int. 95%	5.3	5.0	4.6	4.2	3.6	3.0	2.4	1.8	1.3	0.9	0.6	0.4	0.2	0.0

variable denoting whether the deal is completed (renegotiated) are the endogenous variables.[17] We estimate the predicted number of exclusions as the fitted value of an ordinary least squares (OLS) regression of the number of exclusions on a set of independent variables and our instrument, the post-2001 dummy variable. The 2nd-stage regressions are then i) a logit model of the probability of completion (renegotiation), and ii) an OLS model of the number of exclusions. Standard errors for the coefficients are adjusted to account for the fact that the instruments are estimated.

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[17]See also Bates and Lemmon (2003) and Officer (2003) for similar approaches.

The specification of the 1st-stage model for the number of exclusions is based primarily on the Gilson and Schwartz (2005) model. Specifically, they hypothesize that MACs will impose greater risk on the acquiring firms when there is greater macro-uncertainty regarding the completion of the acquisition, when target company human capital and technical know-how are more critical inputs, and when technological change is more rapid. As a proxy for macro-uncertainty, we use the volatility index (VIX) measured over the 6 months prior to acquisition announcement. To measure the impact of target company human capital, technical know-how, and technological change, we include as independent variables the ratio of R&D to total sales and a dummy variable for whether the target is from a technology industry.[18] We also hypothesize that longer due diligence periods will reduce firm-specific risks, while acquisitions of regulated firms will lengthen the time for approval, thereby increasing market-wide risks. Under the Gilson and Schwartz hypothesis, both should lead to a greater number of MAE exclusions (i.e., more risk imposed on the acquirer). We include a dummy variable for tender offers with the expectation that acquirers seek stronger abandonment options in tender offers.

The 2nd-stage model for the likelihood of completion necessarily excludes our instrument for the number of exclusions (after-2001 dummy variable) but includes all of the other variables from the 1st-stage model, as well as year dummy variables. In addition, we include in the 2nd-stage models a dummy variable denoting renegotiated deals and the dummy variable denoting "cash only" as the method of payment.[19]

The results, presented in columns 2 and 3 of Panels A and B of Table 5, continue to indicate a significant positive association between the probability of completion and the instrument for the number of exclusions. However, the association between the probability of renegotiation and the instrument for the number of exclusions is statistically insignificant.

C. The Impact of MAC Structure on Arbitrage Spreads

Although we attempt to control for endogeneity in our 3SLS estimates, it is nonetheless possible that our controls remain incomplete. Therefore, we provide further evidence on the relation between MAC structure and the likelihood of acquisition completion by analyzing arbitrage spreads. Following the announcement of an acquisition, the target company's shares typically trade at a discount to the price that is being offered by the acquiring company. This difference between the market price and the offer price is known as the arbitrage spread. Prior studies by Brown and Raymond (1986) and Mitchell and Pulvino (2001) report evidence

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[18] Specifically, using Fama and French's (1997) industry classifications, we classify the target to be from a technology industry if the main industry of the target is classified as Medical Equipment, Pharmaceutical Products, Machinery, Electrical Equipment, Defense, Computers, Electronic Equipment, or Measuring and Control Equipment.

[19] Bates and Lemmon (2003) report that having at least some stock included in the method of payment increases the likelihood of acquisition completion. Note that although Bates and Lemmon also find that deal hostility has a large impact on the likelihood of completion, hostile transactions are excluded from our sample.

consistent with the view that arbitrage spreads capture the probability that the acquisition will be completed. That is, arbitrage spreads are wider for acquisitions that are ultimately terminated than for those that are ultimately completed.

If the structure of MACs affects the dynamics of acquisition outcomes, we expect this to be reflected in the arbitrage spread. Specifically, if a greater number of MAE exclusions constrains the acquirer's ability to walk away from the proposed acquisition, we expect a negative association between the arbitrage spread and the number of MAE exclusions. To explore this hypothesis, we calculate arbitrage spreads over days 1–20 relative to the initial announcement of the acquisition. On each day, we calculate the arbitrage spread as the difference between the stated offer price and the current market price of the target, scaled by the current market price. As indicated in Panel A of Table 6, median arbitrage spreads are 5.7% on the day after initial announcement and 3.8% on day 20 relative to the initial announcement. These spreads are significantly higher for acquisitions that have a below-median number of MAE exclusions than for those with an above-median number of MAE exclusions. On day 1 (day 20), median arbitrage spreads are 7.3% (6.7%) for acquisitions with a below-median number of exclusions and 5.2% (3.0%) for acquisitions with an above-median number of exclusions. The paired differences are statistically significant at the 0.01 level using a medians test.

We provide further evidence on this issue by estimating cross-sectional regressions of arbitrage spreads at day 1 and day 20 on the number of MAE exclusions and other potential determinants of the arbitrage spread such as the existence of a termination fee, the form of payment, whether the acquisition was in response to another bid, the size of the target, and whether the acquisition takes the form of a tender offer. The results, reported in columns 1 and 4 of Panel B of Table 6, indicate that arbitrage spreads are negatively associated with the number of MAE exclusions. The coefficient on the number of exclusions is significant at the 0.03 level on day 1 and at the 0.10 on day 20. Apart from the method of payment, none of the other independent variables are statistically significant.[20]

Although the negative association between arbitrage spreads and the number of MAE exclusions is consistent with the view that fewer MAE exclusions decreases the probability of deal completion and/or increases the probability of a downward revision in the offer price, it is possible that arbitrage spreads and the number of exclusions are both driven by the same underlying (but unobserved) phenomenon. For example, perhaps target and acquiring firms choose to have fewer MAE exclusions in acquisitions that have a higher risk of failure. Arbitrageurs may then react to this perceived risk by setting higher spreads.

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[20]It is possible that the higher spreads of acquisitions with a below-median number reflect a longer expected time to completion rather than a difference in the probability of completion. Although we cannot observe the ex ante expected time to completion, we can observe the ex post length of time between initial announcement and completion (or termination) for those acquisitions that are completed. Under the assumption that market participants make an unbiased forecast of the time to completion, this variable can be used as a proxy for the expected time to completion. We find no significant difference in this variable between acquisitions with an above-median number of exclusions and those with a below-median number of exclusions. Moreover, in untabulated results, our regression results in Panel B of Table 6 are unaffected by the inclusion of this variable.

TABLE 6

MAC Structure and Arbitrage Spreads

Panel A of Table 6 presents descriptive statistics and univariate comparison of arbitrage spreads on day 1, day 20 relative to the acquisition announcement for the full sample, and for subsamples with below-median and above-median number of MAE exclusions. Arbitrage spreads are defined as the percentage difference between the offer price and the stock price of the target on that day. Appendix B contains the definitions and data sources for the remaining variables. Panel B presents 3 sets of 3 regressions of arbitrage spreads on the number of MAE exclusions and a series of control variables. In models 1–3, the dependent variable is the arbitrage spread on day 1, while in models 4–6, the dependent variable is the arbitrage spread on day 20. Models 7–9 present estimates for the subsample of 430 firms for which the merger agreement has not been filed on day 1. In model 7, the dependent variable is the arbitrage spread on the day before the merger agreement filing. In model 8, the dependent variable is the arbitrage spread on the day after the merger agreement filing. In model 9, the dependent variable is the difference between the spread on the day following and that on the day prior to the merger agreement filing. Coefficient estimates are reported with p-values in parentheses below. The p-values are estimated using Eicker (1967)-Huber (1967)-White (1980) sandwich standard errors clustered by target industry and announcement year. The initial sample consists of 755 announced acquisitions of U.S. public targets by U.S. public acquirers between 1998 and 2005. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Univariate Comparison

	Full Sample	Below Median	Above Median
Median Arbitrage Spread on day 1	5.7%	7.3%	5.2%***
Median Arbitrage Spread on day 20	3.8%	6.7%	3.0%***

Panel B. Cross-Sectional Regressions of Arbitrage Spreads

Regressor/Model	Day 1			Day 20			Day Before Filing	Day After Filing	Change (After – Before)
	1	2	3	4	5	6	7	8	9
MAE exclusions	−0.458	−0.824	−0.181	−0.472	−0.699	0.886	−0.198	−0.410	−0.154
	(0.029)	(0.044)	(0.229)	(0.103)	(0.063)	(0.275)	(0.586)	(0.000)	(0.092)
Termination fee by Target	0.057	3.780	−1.657	−0.121	1.802	−6.883	−2.088	−0.740	0.417
	(0.964)	(0.138)	(0.325)	(0.938)	(0.375)	(0.156)	(0.396)	(0.012)	(0.014)
Cash-Only Payment	−5.593	−8.516	−3.030	−5.785	−5.839	−6.960	−4.246	−2.964	0.019
	(0.008)	(0.000)	(0.310)	(0.027)	(0.022)	(0.407)	(0.122)	(0.216)	(0.965)
log(MV Assets Target)	−0.155	0.289	−0.554	−0.228	0.578	−4.098	−0.795	−0.437	0.153
	(0.672)	(0.620)	(0.302)	(0.645)	(0.309)	(0.053)	(0.403)	(0.539)	(0.261)
Tender offer	−1.654	−0.114	−3.410	−2.497	−2.361	2.029	−2.604	−3.551	−0.968
	(0.372)	(0.966)	(0.168)	(0.255)	(0.272)	(0.837)	(0.055)	(0.000)	(0.011)
Intercept	14.435	10.469	16.865	15.466	9.700	39.398	19.824	15.400	−1.502
	(0.000)	(0.016)	(0.001)	(0.000)	(0.003)	(0.014)	(0.025)	(0.008)	(0.000)
N	729	299	430	729	605	124	430	430	430
Adj. R^2	0.028	0.071	0.009	0.018	0.028	0.049	0.006	0.019	0.019
Public disclosure of MAC?		Yes	No		Yes	No	No	Yes	

To address this issue, we note that arbitrageurs can only assess the impact of different MAC structures on the likelihood of acquisition completion if they have access to the details of the MAC structure in the merger agreement. In our sample, more than 50% of the merger agreements are filed with the SEC at least 5 days after the initial announcement of the acquisition. Thus, if the negative association between arbitrage spreads and the number of MAE exclusions is due to arbitrageurs inferring information about the likelihood of acquisition completion from the structure of the MAC, we expect to observe the negative association only in those transactions in which the merger agreement has been filed by the date on which the arbitrage spreads are measured. By contrast, if arbitrage spreads and the number of MAE exclusions are both driven by an unobserved factor, we do not expect the date on which the merger agreement is filed to affect the negative association between spreads and the number of exclusions.

As shown in models 2 and 3 of Table 6, as of day 1 following the initial acquisition announcement, the merger agreement has been filed in only 299 of

the 729 acquisitions with available data. For these 299, there is a strong negative association between arbitrage spreads and the number of MAE exclusions. The coefficient on MAE exclusions implies that adding each MAE exclusion reduces the predicted arbitrage spread by 0.8%. This effect is economically large relative to the unconditional median arbitrage spread of 5.7% on day 1. By contrast, for the 430 acquisitions in which the merger agreement has not yet been filed as of day 1, there is no association between arbitrage spreads and the number of MAE exclusions.

We find similar results at day 20 after the initial announcement (models 5 and 6 of Table 6). As of day 20, 605 of the 729 merger agreements have been filed. For these targets, there is a significant association between the arbitrage spread on that day and the number of MAE exclusions in the MAC clause of the merger agreement. Again, the effect is economically important; the addition of each MAE exclusion is associated with a reduction in the arbitrage spread of 0.7%. This compares with an unconditional median arbitrage spread of 3.8% on day 20. For the remaining 124 cases in which the merger agreement has not been filed, there is no association between arbitrage spreads and the number of MAE exclusions.

If the market interprets a greater number of exclusions as implying a greater likelihood of acquisition completion, we expect that the filing of a merger agreement should elicit a change in arbitrage spreads as the market learns of the MAC structure. To examine this possibility, we analyze changes in arbitrage spreads from the day prior to the filing to the day following the filing for the 430 firms that have not filed the merger agreement as of the acquisition announcement date. Not surprisingly, we find a reduction in spreads for this sample (average change in spread = –0.93%), presumably reflecting an overall reduction in uncertainty regarding the completion of the acquisition following the filing of the merger agreement. More importantly for the purposes of our study, we find that this reduction in spreads is significantly greater in acquisitions with an above-median number of MAE exclusions (–1.27%) than in acquisitions with a below-median number of exclusions (–0.36%). The difference is significant at the 0.05 level. (These data are not reported in a table.)

We provide further evidence on the impact of the merger filing on arbitrage spreads in models 7–9 of Table 6. For the subsample of 430 acquisitions for which the merger agreement has not been filed as of the acquisition announcement date, we report the estimates from 3 additional regression models. In model 7, we show that, as of the day *prior* to the filing of the merger agreement, there is no association between arbitrage spreads and the number of MAE exclusions. By contrast, the results in model 8 indicate that on the day *following* the filing of the merger agreement, there is now a negative association between arbitrage spreads and the number of exclusions for these same firms. Finally, in model 9, we show that the change in arbitrage spreads from the day prior to the day following the filing of the merger agreement is negatively associated with the number of exclusions listed in the agreement.

Taken together, these findings provide strong support for the view that causation runs from MAC structure to acquisition dynamics. Our findings are consistent with the joint hypothesis that i) the structure of MACs materially affects the likelihood that the acquisition will be completed on the original terms, and ii) this

likelihood is reflected in market prices when publicly disclosed. More generally, our findings imply that the structure of MACs represents one channel through which information about the likelihood of acquisition completion is embedded in stock prices.

D.   Sensitivity and Robustness

Our measure of the strength of the acquirer's abandonment option, the number of MAE exclusions, is admittedly crude and gives equal weight to some exclusions that are very broad (i.e., market conditions) and some that are fairly narrow (i.e., litigation). Therefore, we conduct several robustness tests and verify that our findings are sensitive to this and other methodological choices. To conserve space, these results are not reported in a separate table, but are available from the authors.

First, we estimate all of the models in Tables 5 and 6 using a binary variable equal to 1 if the acquisition has an above-median number of exclusions for that year. The benefit of this approach is that it does not force each additional exclusion to have the same marginal impact on acquisition outcomes. Second, we separately analyze the impact of market-wide exclusions and firm-specific exclusions. These results indicate that both market-wide and firm-specific exclusions have a positive impact on the probability of completion and a negative impact on the probability of renegotiation. Third, we use a principal component analysis to group MAE exclusions into clusters of correlated exclusions. The 1st principal component accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible. This analysis reveals that 2 components are significantly related to the probability of completion, while one component is negatively related to the probability of renegotiation. This is consistent with targets and acquirers customizing the structure of MACs based on the cross-sectional characteristics of the acquisition. Fourth, we winsorize all variables at the 1st and 99th percentiles and use bootstrapped standard errors. Fifth, we estimate quantile regressions on different quantiles.

Because our findings are not sensitive to these choices, we conclude that our findings in Tables 4–6 support the view that the structure of MACs has an empirically important impact on the dynamics of corporate acquisitions. MACs with few exclusions give acquiring firms a strong abandonment option. Our findings are consistent with the view that acquirers use this option as leverage to renegotiate the terms of the acquisition agreement in the face of MAEs. By contrast, MACs containing more MAE exclusions impose more risk on the acquirer, thereby limiting their ability to renegotiate acquisition terms. Moreover, this impact of MACs on acquisition dynamics is reflected in target share prices.

V.   MACs and Offer Premiums

At the time of an acquisition, the target and acquiring firms negotiate both the premium to be offered to the target and the structure of the MAC clause. Thus, if the structure of MACs influences the subsequent dynamics of the acquisition, it is plausible that the parties to the acquisition trade off the offer premium with

the number of MAE exclusions.[21] Specifically, if a greater number of MAE exclusions limits the acquirer's ability to "walk away" from the acquisition, we hypothesize that, all else being equal, the acquirer will offer a lower premium in such cases. Thus, we expect a negative association between offer premiums and the number of MAE exclusions.[22]

To explore this hypothesis, we first estimate the offer premium by comparing the reported offer price with the target's share price 4 weeks prior to the initial public announcement of the acquisition. We verify consistency of the data across the various data sources that we use in the study. In those cases in which we have data from multiple sources, but for which there is a discrepancy, we use the following order of priority: i) SEC filings, ii) LivEdgar M&A database, and iii) SDC's M&A database.

We find that, on average, acquiring firms offer a price for the target that is 43% above the target's price 4 weeks earlier. This premium is larger for firms with a below-median number of MAE exclusions (average = 47%) than for those with an above-median number of exclusions (average = 41%). The difference is statistically significant at the 0.01 level using either a *t*-test for means or a medians test. (These data are not reported in a table.)

In Table 7, we estimate cross-sectional regressions of the offer premium (expressed as a percentage) on the number of MAE exclusions and a series of control variables. To reduce the influence of outliers, we winsorize the premium at the 1st and 99th percentiles. Prior studies (e.g., Bates and Lemmon (2003), Officer (2003), and Boone and Mulherin (2008)) find that offer premiums are associated with the size of the target and acquiring firms, the method of payment, tender offers, and whether or not the acquisition includes a termination fee. To facilitate comparison with the prior literature, we first present OLS regressions using these independent variables in column 1. Statistical significance is measured using Eicker (1967)-Huber (1967)-White (1980) sandwich standard errors clustered by target industry and announcement year.

Consistent with prior studies, the results in column 1 of Table 7 indicate that offer premiums are positively related to cash as the form of payment and to the standard deviation of target returns, but negatively related to the size of the target firm. Controlling for these firm characteristics, we find that offer premiums are significantly negatively related to the number of MAE exclusions contained in the MAC clause. The coefficient on number of MAE exclusions is significant at

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[21]Note that even in those cases in which the MAC has not been publicly disclosed as of the time of the initial acquisition announcement, its terms have been finalized by the target and acquiring firms.

[22]In the Gilson and Schwartz (2005) framework, the optimal design of the MAC clause allocates risk between the target and the acquirer such that the surplus from the acquisition is maximized. Our tests implicitly assume optimizing behavior on the part of the targets and acquirers such that there is no association between the number of exclusions and the deal surplus. That is, for some firms the optimal design will consist of few exclusions, while for others the optimal design will have many exclusions. We verify this assumption empirically by estimating the association between the deal surplus (i.e., combined wealth effects for the bidder/target pair over days −3 to +3 relative to the acquisition announcement) and the number of exclusions. We find no evidence that the deal surplus is associated with the number of exclusions.

TABLE 7

MAC Structure and Offer Premiums

Table 7 presents cross-sectional regressions of the offer premium on the number of MAE exclusions and a series of control variables. Model 1 reports estimates from an OLS regression. Models 2 and 3 report estimates from the 3SLS model. Year dummy variables are included in the estimation of the premium regressions but are not reported in the table. Coefficient estimates are reported with *p*-values in parentheses below. The *p*-values in the OLS regression are measured using Eicker (1967)-Huber (1967)-White (1980) sandwich standard errors clustered by target industry and announcement year. The 3SLS models are solved using a simultaneous MLE approach. The offer premium is winsorized at the 1st and 99th percentiles. The initial sample includes 755 announced acquisitions of U.S. targets by U.S. acquirers between 1998 and 2005. Appendix B contains variable definitions and data sources. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable		
	% Premium	% Premium	# MAE Exclusions
		Model	
Regressor/Model	1	2	3
# MAE exclusions (instrumented in 3SLS)	−0.003* (0.085)	−13.416* (0.065)	
Offer premium instrument			0.093 (0.741)
Termination fee by target	0.028 (0.509)	11.094 (0.115)	0.912*** (0.007)
Cash-Only payment	0.097** (0.035)	5.094 (0.348)	
log(MVAssets-target)	−0.021*** (0.011)	4.252 (0.192)	0.249*** (0.000)
Tender offer	0.009 (0.848)	−12.180 (0.187)	−0.740** (0.020)
Std. dev. of Target Stock return prior year	0.036*** (0.001)	2.055 (0.347)	
Volatility Index (VIX)		−0.365** (0.019)	−0.071*** (0.009)
Target in Regulated industry		11.571 (0.183)	0.711*** (0.010)
Target in Technology industry		2.724 (0.228)	0.250 (0.393)
Target R&D/Sales		−4.139 (0.320)	−0.132 (0.694)
log(# days of Due Diligence)		1.978 (0.107)	0.176** (0.030)
"After 2001" dummy			2.171*** (0.000)
Intercept	0.290*** (0.004)	42.624*** (0.051)	2.084** (0.022)
Adj. R^2/Adj. R^2 in 1st stage of 3SLS	0.110	0.151	0.255
N	729	729	729

the 0.085 level and indicates that, at the margin, each additional MAE exclusion is associated with a reduction of 1 percentage point in the offer premium.[23]

Although the results in column 1 imply a statistical association between MAC structure and offer premiums, it is difficult to interpret this association as causal because the number of MAE exclusions and the premium are both negotiated as part of the merger agreement. That is, they are jointly determined. To provide further evidence, therefore, we again estimate a simultaneous equations system with the number of MAE exclusions and the offer premium treated as

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[23]The results are also robust to winsorizing all variables at the 1st and 99th percentiles as well as at the 5th and 95th percentiles.

the 2 endogenous variables. Specifically, as in Table 5, we use the "after-2001" dummy variable as our instrument for the number of MAE exclusions and again include all other independent variables in the 2nd-stage "Premium" regression. We exclude from the 2nd-stage MAE exclusions equation the method of payment and the standard deviation of target returns over the prior year. In unreported correlation analysis, we find that these variables are correlated with the offer premium, but not with the number of MAE exclusions.

The results of the simultaneous equations estimations are reported in columns 2 and 3 of Table 7. In column 2, we continue to find that the offer premium is negatively associated with the number of MAE exclusions. The coefficient on the instrument for the number of exclusions is negative and significant at the 0.07 level. By contrast, we find no evidence in column 3 that the number of MAE exclusions is related to the instrument for offer premium.[24]

Overall, our findings in Table 7 are consistent with the interpretation that greater MAE exclusions lead to lower offer premiums. Nonetheless, we acknowledge that establishing this relation as causal is difficult even with the simultaneous equations models that we employ. It is possible, for example, that there is still some unknown omitted factor that is affecting both the premium and the contractual features of the MAC. Having said that, the fact that our prior findings indicate a causal relation between MAEs and acquisition outcomes suggests that it is plausible that the association between MAE exclusions and offer premiums is also causal. That is, if MAEs lead to economically meaningful differences in acquisition outcomes, it seems likely that targets can extract higher premiums from acquirers when the acquirer holds a stronger abandonment option through the MAC clause. Conversely, targets might be willing to accept a lower premium if a greater number of MAE exclusions increases the probability of completion.

VI.   Conclusions

MAC clauses are a ubiquitous and intensely negotiated feature of merger agreements. Our analysis shows that MAEs are the underlying cause for the majority of acquisition terminations and renegotiations. These renegotiations result in economically large changes in merger premiums. In addition, cross-sectional differences in MAC structure are associated with differences in acquisition outcomes. Specifically, MACs with a greater number of exclusions are associated with fewer terminations and fewer renegotiations. Moreover, arbitrage spreads are significantly larger in acquisitions for which the MAC clause contains fewer MAE exclusions, these spreads change significantly when the structure of MACs is revealed to market participants through the filing of the merger agreement, and the change in spreads from the day prior to the day following the merger filing is negatively related to the number of MAE exclusions.

Collectively, these findings support the view that MACs have an economically important impact on the dynamics of the acquisition process and that this impact is reflected in target share prices. In addition, we report evidence that target

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[24]These results are robust to the inclusion of other contractual mechanisms (i.e., termination fees by the acquirer, collars, and lockup options).

firms receive higher offer premiums when the MAC structure contains fewer MAE exclusions. Although it is difficult to establish causation due to the fact that MAE exclusions and offer premiums are jointly negotiated, this finding is consistent with the view that acquirers are willing to offer a higher ex ante premium when they have a stronger option to abandon (or renegotiate) the acquisition ex post.

Our findings add to a growing body of literature that analyzes contractual features of merger agreements. These features include lockup provisions, termination fees, collars, and earnouts.[25] To some degree, these features all allocate risks between the target and acquiring firms during and following the acquisition period. Our study shows that MAC clauses are the most common among these contractual mechanisms, they are highly customized, and they have a substantial impact on acquisition dynamics.

Appendix A. Example of MAC Structure and Negotiation in Merger Agreements

Richey Electronics (the Target) filed this DEF14A on 12/04/98

Agreement and Plan of Merger, dated as of September 30, 1998, by and among Arrow Electronics, Inc., a New York corporation ("Arrow"), Lear Acquisition Corp., a Delaware corporation ("Acquisition Corp.") and Richey Electronics

A1.1 Conditions to Completion of the Merger

A1.2 Definition of Material-Adverse-Effect (MAE exclusions)

A1.3 Extracts of Negotiation paths: MACs vs. Price (Background of the merger)

A1.1 Conditions to Completion of the Merger

The obligations of Parent and Sub to effect the Merger are subject to the satisfaction of the following conditions, unless waived by Parent and Sub:

(a) REPRESENTATIONS AND WARRANTIES; PERFORMANCE OF OBLIGATIONS. Except as otherwise contemplated or permitted by this Agreement,
(i) the representations and warranties of the Company contained in this Agreement or in any certificate or document delivered to Parent pursuant hereto shall as of the Closing Date, (x) to the extent qualified by Company **Material Adverse Effect**, be true in all respects . . .

(e) **MATERIAL ADVERSE CHANGE**. Since the date hereof, there shall not have been any events, changes or occurrences which have had, or are reasonably likely to have, individually or in the aggregate, a Company **Material Adverse Effect**.

A1.2 Definition of Material-Adverse-Effect (2 MAE exclusions)[26]

For the purposes of this Agreement, "Company **Material Adverse Effect**" shall mean a **Material Adverse Effect** on the financial condition, assets, liabilities (contingent or

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[25]See the studies referenced in footnote 3.

[26]In brackets and italics I show the classification used to count the number of MAE exclusions recorded for this example.

otherwise), results of operation, business or business prospects of the Company and its Subsidiaries, if any, taken as a whole. For purposes of this Agreement, a Company **Material Adverse Effect** shall not include a **Material Adverse Effect** on the financial condition, assets, liabilities (contingent or otherwise), results of operation, business or business prospects of the Company as a result of

(i) [1-*Economic changes*]: changes in the conditions or prospects of the Company and its Subsidiaries taken as a whole which are consistent with general economic conditions or

(ii) [2-*Industry changes*]: general changes affecting the electronic component distribution or electronics assembly industries,

A1.3 Extracts of Negotiation: MACs vs. Price (Background of the merger)

On December 25, 1997, . . . Mr. Rosenbaum and Mr. Warnock discussed business conditions in the electronics distribution industry and the continuing trend toward consolidation among distributors.
. . .
On September 11, Milbank, Tweed, Hadley & McCloy LLP ("Milbank"), Arrow's outside counsel, distributed a draft purchase agreement to the parties. After consultation with Mr. Rosenbaum and Mr. Blumenthal, Dewey Ballantine marked up the Milbank draft and returned it to Milbank on September 15. During the next several days, Mr. Rosenbaum expressed to Mr. Klatell certain reservations Richey had concerning the Milbank draft, particularly those provisions related to a post-closing purchase price adjustment based upon a physical inventory and the proposed definition of a **Material Adverse Change** and related closing conditions.
Mr. Rosenbaum urged Mr. Klatell to take whatever time was needed to complete due diligence and then sign an agreement, rather than ask Richey to sign such an open ended document as had been proposed.
. . .
On September 22, representatives of Richey and Arrow met at the offices of Milbank in New York. When Richey representatives again stated their concerns regarding a potential purchase price adjustment and the definition of **Material Adverse Effect** as it related to closing conditions, Mr. Klatell agreed to have Ms. Morris meet with Mr. Berger later in the week to resolve all outstanding due diligence issues. . . . Mr. Blumenthal, Mr. Rosenbaum and Mr. Klatell then agreed upon a framework for addressing the **Material Adverse Change** issue in the agreement.
. . .
    On September 28, Mr. Klatell and Mr. Rosenbaum spoke by telephone several times in an attempt to reach agreement on the transaction. As a result, Arrow agreed to pay $10.50 in cash per share of Richey Common Stock and also agreed in concept to a definition of **Material Adverse Change** that would allow Arrow not to close the transaction. Throughout the day of September 29, revised drafts of the agreement were negotiated and exchanged.
    Late in the day on September 29, Mr. Cacciatore convened a special meeting of Richey's Board of Directors via telephone conference. Also participating in the meeting were Mr. Berger, representatives of Jefferies, Dewey Ballantine and McGladrey & Pullen LLP. Mr. Rosenbaum reported to Richey's Board of Directors that, since the last meeting of September 25**, three issues had been isolated with respect to the Arrow transaction: arriving at a final price, a fair definition of what constitutes a Material Adverse Change and agreeing upon a fee which would be paid to Arrow in the event another bidder emerged for Richey and Richey's Board of Directors agreed to accept such other bid**. Mr. Rosenbaum informed Richey's Board of Directors that a price of $10.50 per share had been agreed to, Richey's definition of **Material Adverse Change** had been accepted, and a breakup fee of $5.5 million plus $1.5 million for expenses had been set.
    Representatives from Jefferies then presented to Richey's Board of Directors an analysis that concluded that the price of $10.50 per share in cash was fair, from a financial

point of view, to Richey's Stockholders. Richey's Board of Directors . . . passed a formal resolution authorizing the execution of **the definitive purchase agreement** with Arrow. . . . Final adjustments were made to the documents during the day of September 30 and the merger agreement was executed after sundown on that day.

Appendix B. Definitions of the Main Variables Used in This Study

Throughout the paper, we employ data from a wide variety of sources. In Table B1, we provide a detailed description of each variable and identify the source for each data item.

TABLE B1

Variable Definitions

In Table B1 we define the main variables used in the analysis and list the sources of the information. We categorize the variables as follows: MACs contractual mechanisms (Panel A), characteristics of the takeover processes (Panel B), transaction attributes (Panel C), and characteristics of the target and the acquirer (Panel D).

Variable	Description	Source
Panel A. MACs Contractual Mechanisms		
MAC	Material adverse change clause for Target	SEC filings
MAE	Material adverse event	SEC filings
MAE exclusions	Number of MAE exclusions in MAC	SEC filings
Walk-away right for acquirer (MACs in merger agreement)	Dummy for "Acquirer can terminate the acquisition in case of an MAE." 1 = Yes, 0 = No	SEC filings
MAE exclusions	Number of MAE exclusions	SEC filings
Market-Wide MAE exclusions	Number of Market-Wide MAE exclusions	SEC filings
Firm-Specific MAE exclusions	Number of Firm-Specific MAE exclusions	SEC filings
Above-median # MAE exclusions	Dummy for "Above-median # MAE exclusions." 1 = Yes, 0 = No	SEC filings
Structure of MACs known at Announcement Date? ("sametime")	Binary variable. 1 = merger agreement is filed at the same time the acquisition is announced. 0 = merger agreement is filed after the announcement date.	SEC filings, Factiva
Panel B. Characteristics of the Takeover Processes		
Due diligence by Acquirer	Dummy for the due diligence conducted by the acquirer according to what is reported in the "background of the merger" section in the merger agreement. 1 = Yes, 0 = No	SEC filings
log(Days Due Diligence by Acquirer)	log of the days of due diligence conducted by the acquirer according to what is reported in the "background of the merger" section in the merger agreement. 1 = Yes, 0 = No	SEC filings
Arb-spreads	Following Mitchell and Pulvino (2001), the arbitrage spread is defined to be the offer price minus the target price divided by the target price.	CRSP, SEC filings, Factiva, SDC, LivEdgar M&A database
Panel C. Transaction Attributes		
Premium offered	Offer premium compared to target's stock price 4 weeks before the announcement date	SEC filings, SDC, LivEdgar M&A database (check prices with CRSP)
Tender offer	Binary variable. 1 = if SDC classifies the acquisition as a tender offer	SDC, SEC filings, Factiva
Target	Binary variable. 1 = Acquirer submits or starts a takeover process after a previous acquisition has already been announced or is in process.	SEC filings, Factiva, SDC, LivEdgar M&A database
Completed acquisition	Binary variable. 1 = Acquisition is completed.	SEC filings, SDC, Factiva

TABLE B1 (continued)

Variable Definitions

Variable	Description	Source
Terminated acquisition	Binary variable. 1 = Acquisition is terminated.	SEC filings, SDC, Factiva
Renegotiated acquisition	Binary variable. 1 = Acquisition is renegotiated. Acquisition is renegotiated if the original terms of the acquisition change after the first announcement date. In some cases, the price does not change, but only the method of payment changes. Acquisitions in which changes in exchange ratios occur within the negotiated range of an original collar provision are not labeled as renegotiated.	SEC filings, Factiva, LivEdgar M&A database
Cash-only payment	Offered price is 100% in cash	SEC filings, SDC, LivEdgar M&A database
Panel D. Characteristics of the Target and the Acquirer		
log(MV Assets Target)	Log of market value of Target's assets. Compustat data: Market Value of Assets = (book_value_assets – book_common_equity + (common_shares_ outstanding × price_at_closing_date_of_Fiscal_Year)) = data6 – data60 + data25 × data199	Compustat
log(MV Assets Acquirer)	Log of market value of Acquirer's assets. Compustat data (Estimation: same as above for Target)	Compustat
Relative Size (MV Assets)	MVAssets Target/MVAssets Acquirer	Compustat
Diversified Acquisition	Different Industry, using all SIC4	SDC, Compustat
Std. deviation of Target Stock return prior year	Standard deviation of Target's stock return in year prior to announcement	CRSP
Target Regulated Industry	We follow Barclay and Smith (1995) and Boone and Mulherin (2008) regulated industry classification and apply it to the Fama-French 48 industries. A firm is classified as Regulated if the main industry of the target is classified as Defense, Petroleum and Natural Gas, Utilities, Communication, Banking, Insurance or Trading.	Compustat SIC to estimate the 48 Fama-French (1997) industries
Target Technology Industry	Fama-French 48 industries are classified as Technology if the main industry of the target is classified as Medical Equipment, Pharmaceutical Products, Machinery, Electrical Equipment, Defense, Computers, Electronic Equipment, or Measuring and Control Equipment.	Compustat SIC to estimate the 48 Fama-French (1997) industries
Target R&D/Sales	Ratio of Research and Development to total sales	Compustat
Volatility Index (VIX)	VOLATILITY S&P 500 (Chicago Options: VIX). Average of the daily VIX on the 6 months prior to the Announcement Date.	Yahoo Finance

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