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DOES DISTANCE MATTER IN MERGERS AND ACQUISITIONS?

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Abstract

Using a sample of mergers and acquisitions from 1985 to 2014, we examine the impact of proximity between target and acquirer as a measure of information asymmetry. We find geographic distance has a significant impact on acquisitions premiums and time to completion, conditional on the size of the target firm. Small targets receive lower premiums and have a faster time to completion the closer they are to their acquirer. Conversely, large targets have a slower time to deal completion the closer their proximity. We conclude geographic distance has a substantial impact on acquisitions.

JEL Classification: G34

I. Introduction

Acquisitions are an important, but controversial, channel for firm growth. Acquirers use estimated synergies and technological needs (e.g., Andrade, Mitchell, and Stafford 2001; Bena and Li 2014; Higgins and Rodriguez 2006) to justify external growth. However, growth through acquisition often leads to substantial wealth destruction for the acquirer's shareholders (e.g., Morck, Schleifer, and Vishny 1990; Moeller, Schlingemann, and Stulz 2005; Malmendier and Tate 2008). Poor performance resulting from external growth is not surprising given its cost. Betton, Eckbo, and Thorburn (2008) show the median acquisition premium paid is 39% higher than the target's market value. Understanding the factors that influence acquisition premiums has become vital to understanding what makes a more successful acquisition.

A considerable literature examines the determinants of acquisition premiums, focusing on the role of managers and board members. For instance, the characteristics of acquirer CEOs, such as overconfidence and personal connections, often increase the acquisition premium (e.g., Higgins and Rodriguez 2006; El-Khatib, Fogel, and

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Jandik 2015).[1] However, asymmetric information between the acquirer and target also has a substantial impact on acquisition premiums (e.g., Moeller, Schlingemann, and Stulz 2007; Officer, Poulsen, and Stegemoller 2009; Zhu and Jog 2012).

A growing literature has identified geographic proximity as a factor that might mitigate information asymmetry for a subset of investors. Coval and Moskowitz (2001) suggest local investors possess an informational advantage when trading local assets. Ragozzino and Reuer (2011) find that acquirers closer to targets are better positioned to assess the resources of target firms and have a lower risk of adverse selection in an acquisition. The authors suggest that remote acquirers are more likely to "lack key relationships and find appraisals of such soft information problematic" (p. 879). This suggests geographic distance between acquirer and target, by mitigating information asymmetry for the acquirer, may influence several facets of the acquisition, including the premium and time to completion.

In this study, we examine how geographic distance between the headquarters of a target and its acquirer influences acquisitions. Dionne, La Haye, and Bergeres (2015) find that the presence of informed bidders in acquisitions may either increase or decrease acquisition premiums, depending on the magnitude of information asymmetry around the target firm. When the target firm has low information asymmetry (private knowledge of the firm is not much higher than common, shared knowledge of the firm in the market) informed bidders have only a small marginal advantage over uninformed bidders, and the uniformed bidders know this. The uninformed bidders therefore bid vigorously and drive the final price (premium) higher.[2] Large firms, due to analyst coverage and high investor attention, have relatively high common knowledge (see, e.g., Frankel and Li 2004). Therefore, we expect informed bidders (close proximity) to hold little advantage when bidding, resulting in higher premiums when they acquire large firms.

Conversely, Dionne, La Haye, and Bergeres (2015) find that acquisition premiums are lower when there are informed bidders in an acquisition of a target with high information asymmetry (low common knowledge). Uninformed bidders know little about the target relative to the informed bidder and are aware of this informational deficit. The winner's curse becomes a very real concern for the uninformed bidder (see, e.g., Kagel and Levin 1986), and they either choose not to bid or do not bid aggressively. The result is the informed bidder is more likely to win the auction and will pay a lower premium for the target when they do. Small firms, with less analyst coverage and lower investor attention, have relatively low common knowledge. Therefore, we expect informed bidders (close proximity) to hold a considerable informational advantage, resulting in lower premiums when they acquire small firms.

Given the amount of common knowledge of all firms has increased over time, we additionally examine the relation between informed bidders and premiums over time.

[1] Additionally, Datta, Iskandar-Datta, and Raman (2001) find managers with low equity-based compensation also pay larger premiums, and Huang et al. (2014) find that investment bankers on the acquirer's board reduce premiums.

[2] In other words, uninformed bidders, facing both the winner's curse and loser's curse, find the loser's curse much more severe than the winner's curse when the difference between their common knowledge and the informed bidder's private knowledge is low.

The digital age allows information retrieval with ease. For corporate disclosures, the norm before the early 1990s was to issue paper reports and filings to investors and the Securities and Exchange Commission (SEC). By the mid 1990s, SEC mandates ensured that all disclosures were in a digital format allowing for easy retrieval and mass dissemination of disclosures. The mid 2000s saw increased disclosures from the requirements of Sarbanes–Oxley and changes in listing requirements. Increasing disclosures improves the information environment and reduces information asymmetry (e.g., Diamond and Verrecchia 1991; Healy and Palepu 2001). We therefore expect any reduction in premiums caused by informed acquirers of small firms to weaken over time.

Similar to our study, Uysal, Kedia, and Panchapangesan (2008) explore distance in mergers and acquisitions (M&A) by examining acquirer announcement returns conditional on being local (less than 100 kilometers distance). They find that acquirers in close proximity have twice the announcement returns as acquirers further away. They attribute the difference in returns to a local information advantage. Our study complements Uysal, Kedia, and Panchapangesan by examining the characteristics of the acquisition, both the acquisition premium and the time to deal completion, and how the effect of distance on them changes over time. Additionally, we examine multiple measures of distance (both continuous and discrete).

Using a sample of completed acquisitions from 1985 to 2014, we study the effects of informed acquirers (close proximity) on the premiums paid during an acquisition. We find lower acquisition premiums for smaller targets when an acquirer is closer to the target. As suggested by Dionne, La Haye, and Bergeres (2015), we attribute the lower premiums for closer acquisitions to an informational advantage held by local bidders in a high-information-asymmetry environment. This effect weakens over time, consistent with the effect being attenuated by common knowledge of the target firm. In addition to lower premiums, we observe that the time to deal completion is shorter for smaller target firms with closer proximity. This is consistent with geographically close acquirers being informed bidders. Overall, we conclude that both information asymmetry and the presence of informed bidders are important to acquisitions.

II. Literature Review

When acquiring a firm, the bidder generally pays a premium in excess of the current share price to obtain the target. The explanations for this acquisition premium include divergent opinions concerning the target's value, appropriation of the control premium by the target's shareholders, strategic bargaining during the preannouncement negotiations, or simply behavior biases of the managers of the bidder. Additionally, premiums are affected by information asymmetries about the participants in the deal. Information asymmetry affects the offer made by potential bidders (Betton and Eckbo 2000) and shapes the deal structure (Eckbo, Giammarino, and Heinkel 1990).

The takeover premium may reflect information not readily available to the casual investor. The information gathering and evaluation process generates an informational disconnect between insiders and outsiders. The ex ante premium and structure of the acquisition decision potentially reflects a suboptimal deal until further

information release (Myers and Majluf 1984). However, the information asymmetry and probable postacquisition performance incentivizes bidders to pay a takeover premium to optimize the deal structure and ease deal completion. Prior studies (Dong et al. 2006; Ang and Cheng 2006) find that higher target valuations allow a greater likelihood of equity (rather than cash) as a means of payment and more responsive acquisition process.

In the presence of information asymmetry, the bidder may aggressively pursue the target and pay too much for the target firm in line with managerial hubris (Roll 1986). The hubris causes the bidder to suffer from "the winner's curse," where the premium exceeds the expected or realized gain from the acquisition (Varaiya and Ferris 1987). Hayward and Hambrick (1997) find evidence of wealth-destroying, managerial hubris. In their study of 106 large acquisitions from 1989 to 1992, they find that measures of hubris, when coupled with a lack of board vigilance, lead to greater acquisition premiums and destruction of shareholder wealth as measured by one-year postacquisition returns.

The findings in Schwert (1996) conflict with the hubris hypothesis, revealing no relation between the run-up in a target's price and the acquirer's price at deal completion. Premiums are a function of prebid run-up and postbid markup. The run-up accounts for several potential bidders and the markup reflects the valuation by the bidder. Multiple bidders may account for some of the premium offered to a target firm. Schwert (2000) suggests in cases of hostile takeovers that the acquisition has a higher probability of resulting from an auction. He attributes most of the negotiation in hostile deals to strategic bargaining by the target's management. The movement from negotiation to auction regardless of reason by target management seeks to involve an increased number of informed bidders with less information asymmetry.

Information asymmetry has a substantial impact on asset prices in auctions. The asset pricing literature generally considers information asymmetry to reduce asset prices (e.g., Easley and O'Hara 2004; Easley, Hvidkjaer, and O'Hara 2010).[3] However, the auction literature demonstrates an ambiguous relation between information asymmetry and asset prices. In sealed-bid auctions the presence of informed bidders drives away uninformed bidders, reducing the price at which an informed bidder wins the auction (e.g., Hendricks and Porter 1988). In English auctions, considered by several researchers to be similar to the firm acquisition process (e.g., Fishman 1988; Ravid and Spiegel 1999), the presence of informed bidders either drives up asset prices or lowers them, depending on the magnitude of information asymmetry surrounding the asset. In the presence of low cross-sectional dispersion in information across bidders, uninformed bidders are unconcerned with the winner's curse and place high bids, driving up the asset's price. In the presence of high cross-sectional dispersion in information, the winner's curse discourages uninformed traders from bidding, lowering the asset's price. Dionne, La Haye, and Bergeres (2015) test this prediction on acquisitions made by

[3] Additionally, the extent to which adverse selection affects liquidity (e.g., Huang and Stoll 1997) would also cause information asymmetry to reduce the price bidders are willing to pay for assets (e.g., Amihud and Mendelson 1986)

blockholders (vs. nonblockholders) and find a lower acquisition premium in the presence of informed bidders (blockholders).

In exploring the effects of information asymmetry on corporate decisions, distance has become a common proxy for differences in culture and information flow. Closer proximity allows for more "soft information" flow and increases potential gains. When seeking loans, small firms will find credit extended when in closer proximity to its bank's branch. The bank will tend to use the proximity to the borrower to acquire private information and therefore enhance loan quality (Agarwal and Hauswald 2010). Investment managers fall victim to proximity bias and allow the bias to influence investment decisions, trusting that less information asymmetry exists for firms headquartered in closer proximity (Coval and Moskowitz 1999).

Information asymmetry in an acquisition can lead to potential litigation (Gong, Lewis, and Sun 2008). Thus, the impact of proximity affects familiarity and corporate decisions. Acquirers tend to realize higher earnings when purchasing targets within closer proximity to the bidder's corporate headquarters (e.g., Uysal, Kedia, and Panchapagesan 2008; Basu and Chevrier 2011). Chakrabarti and Mitchell (2013) focus acquisitions in the chemical industry and examine how proximity affects acquisition targets, finding that serial acquirers prefer targets in close proximity to each other. They find that the selection of targets within close proximity persists over time.

For firms going through an acquisition, the time to completion can be critical. Increased time to completion increases the uncertainty surrounding the deal and can adversely affect the deal. Thus, additional time to completion is more costly to both the acquirer and the target. To balance against the uncertainty and costliness of a prolonged acquisition, increased time to completion can reduce information asymmetry. For bank acquisitions, the slow time to completion due to regulatory delays allows a degree of protection for both the target and the acquirer with respect to valuation. For stock deals, the target is protected against any postagreement adverse changes in the acquirer's value (Houston and Ryngaert 1997).

III. Data

We start with the universe of M&A data from Thomson Financial SDC for 1985 to 2014. Because we are interested in the effects of distance on M&A decisions, we limit our sample to U.S. firms for both the acquirer and the target. The acquisition value must be at least $10 million, with the acquirer seeking at least a 50% ownership stake in the target.

To calculate the distance between the acquirer and target, we use the zip codes of the headquarters of each to calculate distance between the two firms. The distance in miles is calculated from the two closest points of the two zip codes.[4] This method results in firms with neighboring zip codes to have a distance of zero. We recognize that our distance measure underestimates the true distance between the acquirer and the target and potentially adds noise to our variable of interest. However, any noise from our

[4] Later in Section IV we examine two alternate distance measurement methods.

method should not systematically bias our results. Because distance is the primary variable of interest, we require that acquirers and targets have zip codes in the SDC database. These requirements result in a sample of 19,939 deals.

We merge the SDC data with Compustat for firm data and Center for Research in Security Prices (CRSP) for returns data. Because Compustat and CRSP data sets are required for explanatory variables and/or dependent variables in the test, we keep only deals that can be matched to both data sets. Because the calculation of acquisition premiums requires market data, we are limited to acquisitions of publicly traded firms. Our final sample sizes are 4,251 and 3,652 deals for testing acquisition premium and number of days to deal completion, respectively.

Table 1 presents definitions of all dependent and independent variables, and Table 2 summarizes the descriptive statistics for the dependent and independent variables in our sample.[5] Figure I illustrates the trend of increasing distance between target and bidder over our sample period. We find the mean acquisition premium across our data set is 33.6%, along the lines of the 39% found in Betton, Eckbo, and Thorburn (2008).

TABLE 1. Variable Definitions.

Variable	Definition
Ac_CAR3	Acquirer's three-day cumulative abnormal return around deal announcement [−1, 1] window
Ac_HHI	Acquirer's Herfindahl index in the fiscal year before the deal announcement
Ac_MarketLeverage	Acquirer's total liability divided by its market value of equity
Ac_MB	Acquirer's market-to-book value of equity
Ac_Size	Log of acquirer's total assets
AcqPrem	Target's abnormal return summed from 40 trading days before the announcement date to the completion date
CompetitionFlag	Equals 1 if there is more than one acquirer for the same target
DaysToComplete	Date of completion − date of announcement
Distance	Distance between the acquirer and target firm as measured by the straight line distance between the closest point relative to each's zip code in miles
DivFF12Flag	Equals 1 if the acquirer and the target have different Fama–French 12 industry codes
FriendlyFlag	Equals 1 if the deal is a friendly deal
LogDist	Log of 1 + distance
MatchAdvFlag	Equals 1 if at least one of the top three advisors for the acquirer is the same as one of the top three advisors of the target
SameIndFlag	Equals 1 if the acquirer and the target are in the same Fama–French 12 industries
SmallTargetFlag	Equals 1 if the target size is in the lowest decile of target firms that year
SomeCashFlag	Equals 1 if the acquirer paid for the target with some cash
StockOnlyFlag	Equals 1 if the acquirer paid 100% in stock for the deal
T_HiTechFlag	Equals 1 if the target is a high-tech firm
T_MarketLeverage	Target's total liability divided by its market value of equity
T_MB	Target's market-to-book value of equity
T_PrivateFlag	Equals 1 if the target is marked as target in the SDC database
T_Size	Log of target's total assets
ToeholdFlag	Equals 1 if acquirer has at least 5% of target before the announcement, 0 otherwise

Note: The Fama--French 12 industry codes were obtained from Kenneth French's website, http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_12

[5] To reduce the impact of outliers on our analyses we winsorize all variables at the 1st and 99th percentiles.

TABLE 2. Summary Statistics.

Variable	*N*	Mean	Median	Std. Dev.	25th Pctl	75th Pctl
Distance	4,381	742.547	441.000	795.090	66.000	1,137.000
LogDist	4,381	5.368	6.091	2.277	4.205	7.037
AcqPrem	4,184	0.336	0.301	0.355	0.128	0.507
Ac_CAR3	4,381	–0.010	–0.008	0.068	–0.041	0.021
DaysToComplete	4,353	142.311	125.000	88.529	83.000	178.000
Ac_Size	4,381	7.689	7.695	2.110	6.240	9.217
Ac_MarketLeverage	4,381	2.135	0.667	3.188	0.253	2.653
Ac_MB	4,381	1.966	1.402	1.559	1.090	2.164
T_Size	4,381	5.700	5.637	1.841	4.361	6.905
T_MarketLeverage	4,381	3.004	0.798	5.355	0.243	3.535
T_MB	4,381	1.753	1.250	1.370	1.032	1.867
T_HiTechFlag	4,381	0.131	0.000	0.338	0.000	0.000
SmallTargetFlag	4,381	0.097	0.000	0.296	0.000	0.000
T_PrivateFlag	4,381	0.008	0.000	0.089	0.000	0.000
CompetitionFlag	4,381	0.050	0.000	0.219	0.000	0.000
FriendlyFlag	4,381	0.971	1.000	0.167	1.000	1.000
DivFF12Flag	4,381	0.214	0.000	0.410	0.000	0.000
SomeCashFlag	4,381	0.572	1.000	0.495	0.000	1.000
CashOnlyFlag	4,381	0.283	0.000	0.451	0.000	1.000
StockOnlyFlag	4,381	0.352	0.000	0.478	0.000	1.000
Ac_HHI	3,618	0.001	0.000	0.005	0.000	0.000
MatchAdvFlag	4,381	0.005	0.000	0.069	0.000	0.000
ToeholdFlag	4,381	0.082	0.000	0.274	0.000	0.000

Note: This table states the summary statistics of all variables used in the regressions. The sample spans 30 years, from 1985 through 2014. The sample is filtered by the following: both acquirers and targets must be U.S. firms, acquirers must be publicly traded, and the acquisition value must be at least $10 million with the acquirer seeking at least a 50% ownership stake in the target. All variables are winsorized at the 1st and 99th percentiles. Variable definitions are listed in Table 1.

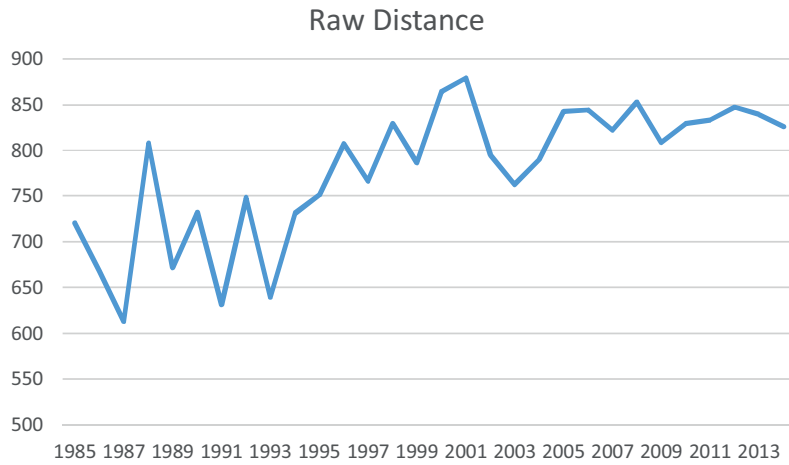

Figure I. Average Distance between Target and Acquirer (1985–2014). This figure illustrates the annual average distance between target and bidder for each year.

IV. Results

Acquisition Premium

Table 3 demonstrates the effect of distance on acquisition premiums controlling for acquirer and target characteristics as well as terms of acquisition. As defined in Table 1, *AcqPrem* represents the abnormal return of the target firm from 40 trading days before the announcement until the completion of the acquisition. Regression (1) in Table 3 shows that across our entire sample the impact of distance on the acquisition premium is insignificant. However, when including an interaction between distance and the small target firm dummy variable (regression (2)), the impact of distance becomes apparent. The interaction variable *LogDist∗SmallTargetFlag* represents the relative impact of distance on the acquisition premium when the target firm is small.

To fully understand the impact of distance on small firm premiums, one must look at the linear combination of the level effect (*LogDist*) and the interaction (*LogDist∗SmallTargetFlag*). The interaction variable for the effect of distance on the acquisition premium for small target firms is positive and significant at the 95% confidence level when combined with the base variable *LogDist*. Our findings imply that when information asymmetry is high (as would be the case for the acquisition of a small firm), increased distance results in a higher acquisition price. These results are consistent with Dionne, La Haye, and Bergeres (2015).[6] Small firms are surrounded by greater information asymmetry than large firms. Acquirers closer to targets are more likely to be informed, and as suggested by Dionne, La Haye, and Bergeres, their participation results in lower acquisition premiums than if they acquired small firms farther away.

Table 4 examines how the impact of distance between target and acquirer on acquisition premiums shifts over time. Our expectation is that the distance effect should change over time because of increases in information-sharing technology and tighter reporting requirements. Petersen and Rajan (2002) demonstrate that "hard" information is more critical in small commercial lending than "soft" information. As technology increases over time and reporting requirements have tightened, the availability of hard information has improved. Therefore, the impact of additional soft information due to geographic proximity is likely to weaken across time. We find results consistent with this expectation. Dionne, La Haye, and Bergeres (2015) suggest that if information asymmetry is low enough, informed bidders could drive acquisition premiums up. Looking at the linear combinations of regression (1) we see that for all target firms, the relation between distance and acquisition premium is 0.005 from 1985 to 1994, −0.003 from 1995 to 2004, and −0.007 from 2005 to 2014. The results for 2005–2014 are significant at the 95% confidence level, suggesting that in the most recent period, acquirers paid higher premiums on average for closer targets.

[6] In untabulated results, we test an additional definition of acquisition premium: the percent increase in target price from four weeks before the announcement date to the announcement date. The regression results for acquisition premium are materially the same for both measures.

TABLE 3. Effect of Distance on Acquisition Premium.

	(1)	(2)
Intercept	0.421***	0.382***
	(.000)	(.000)
LogDist	−0.002	−0.003
	(.415)	(.213)
LogDist∗SmallTargetFlag		0.014***
		(.003)
Ac_Size	0.035***	0.035***
	(.000)	(.000)
Ac_MB	0.028***	0.028***
	(.000)	(.000)
Ac_MarketLeverage	−0.002	−0.002
	(.390)	(.441)
T_Size	−0.056***	−0.050***
	(.000)	(.000)
T_MB	−0.049***	−0.046***
	(.000)	(.000)
T_MarketLeverage	0.010***	0.009***
	(.000)	(.000)
T_HiTechFlag	0.034*	0.033*
	(.081)	(.088)
DivFF12Flag	−0.003	−0.002
	(.856)	(.904)
ToeholdFlag	−0.101***	−0.100***
	(.000)	(.000)
SomeCashFlag	0.062***	0.061***
	(.005)	(.005)
StockOnlyFlag	0.044**	0.044*
	(.050)	(.052)
FriendlyFlag	−0.062**	−0.063**
	(.026)	(.026)
CompetitionFlag	0.070***	0.069***
	(.002)	(.002)
MatchAdvFlag	−0.064	−0.063
	(.207)	(.217)
Year and industry fixed effects	Yes	Yes
No. of obs.	4,251	4,251
R^2	0.165	0.168

Note: This table explores the effect of distance on the acquisition premium. Acquisition premium is defined as the target's abnormal return summed from 40 trading days before the announcement date to the completion date. *LogDist* is the log of 1 + distance in miles between the target and the acquirer. *SmallTargetFlag* equals 1 if the target firm size is in the smallest decile of all targets that calendar year, and 0 otherwise. *Size* is defined as the equity value of a firm in the fiscal year before the merger and acquisition (M&A) announcement. *RelativeSmallTarget-Flag* equals 1 if the size of the target firm is less than or equal to 10% of the size of the acquirer in the fiscal year before the M&A announcement, and 0 otherwise. If target size is not available, value of the deal is used as the target size when calculating relative size. All other independent variables are defined in Table 1. The *p*-values are reported in parentheses for each regression.

***Significant at the 1% level.

**Significant at the 5% level.

*Significant at the 10% level.

TABLE 4. Effects of Distance on Acquisition Premiums across Time.

	(1)	(2)
Intercept	0.449***	0.378***
	(.000)	(.000)
LogDist	−0.007*	−0.005
	(.098)	(.107)
LogDist∗Yr95_04	0.004	0.003
	(.439)	(.238)
LogDist∗Yr85_94	0.013**	0.003
	(.039)	(.365)
LogDist∗Yr05_14∗SmallTargetFlag		0.006
		(.521)
LogDist∗Yr95_04∗SmallTargetFlag		0.012*
		(.066)
LogDist∗Yr85_94∗SmallTargetFlag		0.022**
		(.018)
Ac_Size	0.035***	0.038***
	(.000)	(.000)
Ac_MB	0.028***	0.033***
	(.000)	(.000)
Ac_MarketLeverage	−0.002	−0.005*
	(.436)	(.073)
T_Size	−0.056***	−0.051***
	(.000)	(.000)
T_MB	−0.049***	−0.048***
	(.000)	(.000)
T_MarketLeverage	0.010***	0.012***
	(.000)	(.000)
T_HiTechFlag	0.033*	0.031
	(.086)	(.121)
DivFF12Flag	−0.002	−0.004
	(.862)	(.808)
ToeholdFlag	−0.100***	−0.091***
	(.000)	(.000)
SomeCashFlag	0.061***	0.068***
	(.005)	(.002)
StockOnlyFlag	0.044*	0.042*
	(.053)	(.061)
FriendlyFlag	−0.062**	−0.064**
	(.027)	(.020)
CompetitionFlag	0.071***	0.064***
	(.002)	(.005)
MatchAdvFlag	−0.066	−0.069
	(.189)	(.187)
Industry fixed effects	Yes	Yes
No. of obs.	4,251	4,251
R^2	0.166	0.121

Note: This table explores the effect of distance and time on the acquisition premium. Acquisition premium is defined as the target's abnormal return summed from 40 trading days before the announcement date to the completion date. *LogDist* is the log of 1 + distance in miles between the target and the acquirer. *SmallTargetFlag* equals 1 if the target firm size is in the smallest decile of all targets that calendar year, and 0 otherwise. *Size* is defined as the equity value of a firm in the fiscal year before the merger and acquisition (M&A) announcement. *RelativeSmallTargetFlag* equals 1 if the size of the target firm is less than or equal to 10% of the size of the acquirer in the fiscal year before the M&A announcement, and 0 otherwise. If target size is not available, value of the deal is used as the target size when calculating relative size. *Yr85_94* equals 1 if the announcement date is within 1985 to 1994, and 0 otherwise. *Yr95_04* equals 1 if the announcement date is within 1995 to 2004, and 0 otherwise. *Yr05_14* equals 1 if the announcement date is within 2005 to 2014, and 0 otherwise. All other independent variables are defined in Table 1. The *p*-values are reported in parentheses for each regression.

***Significant at the 1% level.

**Significant at the 5% level.

*Significant at the 10% level.

The magnitude of this time-series variation is different for small and large targets. Regression (2) in Table 4 separates out small firms by including a small firm indicator variable, as in Table 3. We find the positive relation between distance and small target premiums exists only in the earliest period (1985–1994). The effect between distance and premium is positive (0.020) and significant at the 95% confidence level in the first period and shrinks monotonically across time.[7] The relation shrinks to a statistically insignificant 0.010 in the second period and 0.001 in the most recent period. The decrease in significance suggests that the reduction in information asymmetry around small firms over our sample period eliminates the advantage informed bidders (geographically close acquirers) possess when acquiring. Informed bidders cease driving acquisition premiums down.

Days to Completion

The results from the tests of the impact of distance on the acquisition premium appear to be consistent with the idea that distance serves as a proxy for information asymmetry. Therefore, as an additional test, we examine the impact of distance on time to completion. If increased distance measures decreased information on the part of informed acquirers, we expect that the acquisition process would be more drawn out as distance between target and acquirer increases, particularly for smaller target firms. Smaller firms with a potential for greater asymmetry due to increased distance between parties ought to require additional assurances for both the target and acquirer than required in the acquisition of a larger firm. The assurances result in an expected increase in time to deal completion. Therefore, to measure the effect of asymmetry on the acquisition process, we look at the time to deal completion in Table 5. We include additional controls for market reaction to the deal announcement (acquirer cumulative abnormal return) as well as a measure of market concentration (Herfindahl–Hirschman index).

Regression (1) in Table 5 looks at the raw impact of the log of distance. Surprisingly, a greater distance between target and acquirer leads to a shorter time to completion. However, as with the acquisition premium, informed bidders may only affect time to deal completion for smaller target firms. Therefore, regression (2) looks at the impact of distance on time to completion with interaction terms allowing comparisons between firm sizes and distance. Conditioned on firm size, the influence of distance on deal completion becomes clearer. The linear combinations for regression (2) show that small target firms require a greater number of days from announcement to completion when distance, and by extension information asymmetry, increases. However, the unexpected negative impact on time to completion remains for larger firms. Surprisingly, distance decreases the time to completion for larger target firms and the result is significant at the 95% confidence level. Although the negative coefficient for large firms is counterintuitive, the positive and significant effect of increased distance on time to completion is further evidence that the

[7] We calculate the triple linear combination as −0.005 from *LogDist* plus 0.003 for *LogDist∗Yr85_94* plus 0.022 for *LogDist∗Yr85_94∗SmallTargetFlag* to get the 0.020 value.

TABLE 5. Effect of Distance on the Time to Deal Completion.

	(1)	(2)
Intercept	139.310***	126.830***
	(.000)	(.000)
LogDist	−1.116*	−1.492**
	(.082)	(.020)
LogDist∗SmallTargetFlag		4.038***
		(.000)
Ac_Size	−6.802***	−6.630***
	(.000)	(.000)
Ac_MB	−1.013	−0.953
	(.310)	(.335)
Ac_MarketLeverage	2.431***	2.516***
	(.001)	(.001)
Ac_HHI	1,378.551***	1,333.344***
	(.004)	(.005)
Ac_CAR3	5.662	5.003
	(.759)	(.785)
T_Size	10.229***	11.929***
	(.000)	(.000)
T_MB	−0.124	0.501
	(.906)	(.637)
T_MarketLeverage	1.112***	0.686*
	(.001)	(.054)
T_HiTechFlag	1.976	1.753
	(.603)	(.644)
T_PrivateFlag	4.729	5.550
	(.735)	(.698)
ToeholdFlag	24.463***	24.828***
	(.001)	(.000)
SomeCashFlag	−18.277***	−18.061***
	(.001)	(.001)
StockOnlyFlag	−2.243	−1.939
	(.691)	(.730)
FriendlyFlag	−14.023	−13.892
	(.225)	(.226)
CompetitionFlag	17.826**	18.067**
	(.017)	(.015)
MatchAdvFlag	25.937	26.268
	(.367)	(.366)
SameIndFlag	11.238***	11.094***
	(.002)	(.002)
SameIndFlag∗Ac_HHI	−1,342.580**	−1,335.459**
	(.029)	(.029)
Year and industry fixed effects	Yes	Yes
No. of obs.	3,652	3,652
R^2	0.273	0.277

Note: This table explores the effect of distance on the time to deal completion. Time to deal completion (*DaysToComplete*) is defined as the number of days from the deal announcement to the deal completion, both as reported in SDC. *LogDist* is the log of 1 + distance in miles between the target and the acquirer. *SmallTargetFlag* equals 1 if the target firm size is in the smallest decile of all targets that calendar year, and 0 otherwise. *Size* is defined as the equity value of a firm in the fiscal year before the merger and acquisition (M&A) announcement. *RelativeSmallTargetFlag* equals 1 if the size of the target firm is less than or equal to 10% of the size of the acquirer in the fiscal year before the M&A announcement, and 0 otherwise. If target size is not available, value of the deal is used as the target size when calculating relative size. All other independent variables are defined in Table 1. The *p*-values are reported in parentheses for each regression.

***Significant at the 1% level.

**Significant at the 5% level.

*Significant at the 10% level.

TABLE 6. Effect of Distance on the Time to Deal Completion across Time.

	(1)	(2)
Intercept	144.773***	134.734***
	(.000)	(.000)
LogDist	−1.833**	−2.160***
	(.013)	(.004)
LogDist∗Yr95_04	0.259	0.204
	(.605)	(.691)
LogDist∗Yr85_94	3.576***	3.487***
	(.000)	(.000)
LogDist∗Yr05_14∗SmallTargetFlag		2.354*
		(.099)
LogDist∗Yr95_04∗SmallTargetFlag		4.257***
		(.000)
LogDist∗Yr85_94∗SmallTargetFlag		5.590*
		(.055)
Ac_Size	−6.694***	−6.542***
	(.000)	(.000)
Ac_MB	−1.118	−1.102
	(.247)	(.252)
Ac_MarketLeverage	2.449***	2.593***
	(.001)	(.000)
Ac_HHI	1,299.045***	1,248.654***
	(.006)	(.008)
Ac_CAR3	6.423	5.594
	(.723)	(.757)
T_Size	10.187***	11.773***
	(.000)	(.000)
T_MB	−0.072	0.555
	(.945)	(.596)
T_MarketLeverage	1.008***	0.623*
	(.003)	(.074)
T_HiTechFlag	1.235	1.002
	(.743)	(.789)
T_PrivateFlag	9.984	10.553
	(.465)	(.451)
ToeholdFlag	24.042***	24.754***
	(.001)	(.000)
SomeCashFlag	−18.767***	−18.881***
	(.001)	(.001)
StockOnlyFlag	−2.384	−2.173
	(.670)	(.697)
FriendlyFlag	−14.961	−15.257
	(.192)	(.181)
CompetitionFlag	17.234**	17.456**
	(.021)	(.019)
MatchAdvFlag	19.936	20.441
	(.471)	(.465)
SameIndFlag	11.803***	11.690***
	(.001)	(.001)
SameIndFlag∗Ac_HHI	−1,283.417**	−1,268.851**
	(.035)	(.037)

(Continued)

TABLE 6. Continued.

	(1)	(2)
Industry fixed effects	Yes	Yes
No. of obs.	3,652	3,652
R^2	0.268	0.273

Note: This table explores the effect of distance and time on the time to deal completion. Time to deal completion (*DaysToComplete*) is defined as the number of days from the deal announcement to the deal completion, both as reported in SDC. *LogDist* is the log of 1 + distance in miles between the target and the acquirer. *SmallTargetFlag* equals 1 if the target firm size is in the smallest decile of all targets that calendar year, and 0 otherwise. *Size* is defined as the equity value of a firm in the fiscal year before the merger and acquisition (M&A) announcement. *RelativeSmallTargetFlag* equals 1 if the size of the target firm is less than or equal to 10% of the size of the acquirer in the fiscal year before the M&A announcement, and 0 otherwise. If target size is not available, value of the deal is used as the target size when calculating relative size. *Yr85_94* equals 1 if the announcement date is within 1985 to 1994, and 0 otherwise. *Yr95_04* equals 1 if the announcement date is within 1995 to 2004, and 0 otherwise. *Yr05_14* equals 1 if the announcement date is within 2005 to 2014, and 0 otherwise. All other independent variables are defined in Table 1. The *p*-values are reported in parentheses for each regression.
***Significant at the 1% level.
**Significant at the 5% level.
*Significant at the 10% level.

increased distance results in greater informational asymmetries between acquirer and target.

Table 6 documents the shifting impact of relative distance on time to completion over time. As with the acquisition premium, we expect that the impact of distance weakens in more recent years. The linear combination results confirm that distance effects on time to deal completion weaken over time. The unexpected effect of greater distance between target and acquirer resulting in more rapid deal completion appears to only hold for the two most recent periods, 1995–2004 and 2005–2014. The monotonically decreasing nature of the impact of distance on time to completion for large firms demonstrates that information asymmetries caused by distance have decreased over time. The negative impact of distance more recently may be evidence of a higher level of preannouncement discussions in M&A activity involving a large target firm across greater distance. As may be expected, small target firms also show a monotonically declining trend in the importance of distance over time. The impact of increased distance (and, therefore, increased informational asymmetries) has gone from 6.917 significant at the 95% confidence level) in 1985–1994, to 2.300 (significant at the 90% confidence level) in 1995–2004, and finally to a statistically insignificant 0.194 in 2005–2014. As expected, levels of information asymmetry decrease; due to decreased distance between target and acquirer or improvements in information flow as technology improves over time, the effect is weakened. This appears to be further evidence that distance is a proxy for increased information asymmetries between target and acquirer.

Alternative Distance Measurement

To ensure that our results are not driven by our choice to measure distance continuously as the log of the miles between the target and the acquirer, we examine two additional

TABLE 7. Effect of Alternate Distance Measurement on Acquisition Premium.

	(1)	(2)	(3)	(4)
Intercept	0.417***	0.387***	0.394***	0.357***
	(.000)	(.000)	(.000)	(.000)
DistFlag	−0.009	−0.016	−0.009	−0.016
	(.431)	(.185)	(.559)	(.313)
DistFlag∗SmallTargetFlag		0.083***		0.082***
		(.008)		(.004)
Ac_Size	0.035***	0.035***	0.035***	0.035***
	(.000)	(.000)	(.000)	(.000)
Ac_MB	0.028***	0.028***	0.028***	0.028***
	(.000)	(.000)	(.000)	(.000)
Ac_MarketLeverage	−0.002	−0.002	−0.003	−0.002
	(.397)	(.460)	(.371)	(.438)
T_Size	−0.056***	−0.051***	−0.056***	−0.051***
	(.000)	(.000)	(.000)	(.000)
T_MB	−0.049***	−0.047***	−0.049***	−0.047***
	(.000)	(.000)	(.000)	(.000)
T_MarketLeverage	0.010***	0.009***	0.011***	0.010***
	(.000)	(.000)	(.000)	(.000)
T_HiTechFlag	0.033*	0.033*	0.031	0.031
	(.082)	(.084)	(.102)	(.108)
DivFF12Flag	−0.003	−0.002	−0.009	−0.008
	(.852)	(.886)	(.553)	(.590)
ToeholdFlag	−0.100***	−0.100***	−0.095***	−0.095***
	(.000)	(.000)	(.000)	(.000)
SomeCashFlag	0.062***	0.061***	0.070***	0.069***
	(.005)	(.005)	(.002)	(.002)
StockOnlyFlag	0.044**	0.044*	0.048**	0.048**
	(.050)	(.051)	(.035)	(.037)
FriendlyFlag	−0.062**	−0.063**	−0.052*	−0.052*
	(.026)	(.025)	(.072)	(.071)
CompetitionFlag	0.070***	0.069***	0.068***	0.067***
	(.002)	(.002)	(.003)	(.003)
MatchAdvFlag	−0.065	−0.064	−0.066	−0.065
	(.199)	(.204)	(.196)	(.206)
Year and industry fixed effects	Yes	Yes	Yes	Yes
No. of obs.	4,251	4,251	4,083	4,083
R^2	0.165	0.168	0.169	0.172

Note: This table explores the effect of alternate definitions of distance on the acquisition premium. In columns (1) and (2), *DistFlag* equals 1 if the target and acquirer are greater than 100 kilometers apart, and 0 otherwise. In columns (3) and (4), *DistFlag* equals 1 if the target and acquirer are not located within the same metropolitan statistical area (MSA), and 0 otherwise. Deals in New York, Chicago, and Los Angeles are removed from the MSA sample. Acquisition premium is defined as the target's abnormal return summed from 40 trading days before the announcement date to the completion date. *LogDist* is the log of 1 + distance in miles between the target and the acquirer. *SmallTargetFlag* equals 1 if the target firm size is in the smallest decile of all targets that calendar year, and 0 otherwise. *Size* is defined as the equity value of a firm in the fiscal year before the merger and acquisition (M&A) announcement. *RelativeSmallTargetFlag* equals 1 if the size of the target firm is less than or equal to 10% of the size of the acquirer in the fiscal year before the M&A announcement, and 0 otherwise. If target size is not available, value of the deal is used as the target size when calculating relative size. All other independent variables are defined in Table 1. The *p*-values are reported in parentheses for each regression.

***Significant at the 1% level.

**Significant at the 5% level.

*Significant at the 10% level.

TABLE 8. Effects of Alternate Distance Measurement on Acquisition Premiums across Time.

	(1)	(2)	(3)	(4)
Intercept	0.430***	0.380***	0.390***	0.377***
	(.000)	(.000)	(.000)	(.000)
DistFlag	−0.027	−0.025	−0.005	−0.031
	(.224)	(.118)	(.844)	(.101)
DistFlag∗Yr95_04	0.013	0.017	−0.015	0.018
	(.638)	(.252)	(.660)	(.208)
DistFlag∗Yr85_94	0.048	0.014	0.019	0.017
	(.132)	(.441)	(.636)	(.348)
DistFlag∗Yr05_14∗SmallTargetFlag		0.040		0.036
		(.511)		(.507)
DistFlag∗Yr95_04∗SmallTargetFlag		0.065		0.068*
		(.125)		(.078)
DistFlag∗Yr85_94∗SmallTargetFlag		0.146**		0.120**
		(.021)		(.045)
Ac_Size	0.035***	0.038***	0.035***	0.038***
	(.000)	(.000)	(.000)	(.000)
Ac_MB	0.028***	0.033***	0.028***	0.033***
	(.000)	(.000)	(.000)	(.000)
Ac_MarketLeverage	−0.002	−0.005*	−0.003	−0.005*
	(.427)	(.080)	(.373)	(.085)
T_Size	−0.056***	−0.052***	−0.056***	−0.053***
	(.000)	(.000)	(.000)	(.000)
T_MB	−0.049***	−0.048***	−0.049***	−0.048***
	(.000)	(.000)	(.000)	(.000)
T_MarketLeverage	0.010***	0.012***	0.011***	0.012***
	(.000)	(.000)	(.000)	(.000)
T_HiTechFlag	0.033*	0.031	0.031	0.028
	(.085)	(.117)	(.106)	(.160)
DivFF12Flag	−0.002	−0.004	−0.009	−0.009
	(.870)	(.807)	(.555)	(.548)
ToeholdFlag	−0.100***	−0.090***	−0.094***	−0.086***
	(.000)	(.000)	(.000)	(.000)
SomeCashFlag	0.061***	0.068***	0.069***	0.073***
	(.005)	(.002)	(.002)	(.001)
StockOnlyFlag	0.044*	0.042*	0.048**	0.044*
	(.053)	(.059)	(.036)	(.055)
FriendlyFlag	−0.063**	−0.065**	−0.052*	−0.055*
	(.026)	(.018)	(.074)	(.052)
CompetitionFlag	0.070***	0.064***	0.068***	0.063***
	(.002)	(.005)	(.002)	(.006)
MatchAdvFlag	−0.066	−0.070	−0.068	−0.070
	(.190)	(.180)	(.184)	(.182)
Industry fixed effects	Yes	Yes	Yes	Yes
No. of obs.	4,251	4,251	4,083	4,083
R^2	0.166	0.121	0.169	0.122

Note: This table explores the effect of distance and time on the acquisition premium. In columns (1) and (2), *DistFlag* equals 1 if the target and acquirer are greater than 100 kilometers apart, and 0 otherwise. In columns (3) and (4), *DistFlag* equals 1 if the target and acquirer are not located within the same metropolitan statistical area (MSA), and 0 otherwise. Deals in New York, Chicago, and Los Angeles are removed from the MSA sample. Acquisition premium is defined as the target's abnormal return summed from 40 trading days before the announcement date to the completion date. *LogDist* is the log of 1 + distance in miles between the target and the acquirer. *SmallTargetFlag* equals 1 if the target firm size is in the smallest decile of all targets that calendar year, and 0 otherwise. *Size* is defined as the equity value of a firm in the fiscal year before the merger and acquisition

(M&A) announcement. *RelativeSmallTargetFlag* equals 1 if the size of the target firm is less than or equal to 10% of the size of the acquirer in the fiscal year before the M&A announcement, and 0 otherwise. If target size is not available, value of the deal is used as the target size when calculating relative size. *Yr85_94* equals 1 if the announcement date is within 1985 to 1994, and 0 otherwise. *Yr95_04* equals 1 if the announcement date is within 1995 to 2004, and 0 otherwise. *Yr05_14* equals 1 if the announcement date is within 2005 to 2014, and 0 otherwise. All other independent variables are defined in Table 1. The *p*-values are reported in parentheses for each regression.
***Significant at the 1% level.
**Significant at the 5% level.
*Significant at the 10% level.

TABLE 9. Effect of Alternate Distance Measurement on the Time to Deal Completion.

	(1)	(2)	(3)	(4)
Intercept	137.732***	126.160***	136.457***	124.232***
	(.000)	(.000)	(.000)	(.000)
DistFlag	−5.880*	−8.269***	−3.658	−5.684
	(.061)	(.009)	(.393)	(.185)
DistFlag∗SmallTargetFlag		27.188***		24.008***
		(.000)		(.000)
Ac_Size	−6.815***	−6.653***	−6.618***	−6.492***
	(.000)	(.000)	(.000)	(.000)
Ac_MB	−1.060	−0.991	−0.893	−0.831
	(.288)	(.316)	(.377)	(.407)
Ac_MarketLeverage	2.442***	2.533***	2.723***	2.820***
	(.001)	(.001)	(.000)	(.000)
Ac_HHI	1,380.442***	1,332.158***	1,322.010***	1,277.940***
	(.004)	(.005)	(.007)	(.009)
Ac_CAR3	6.137	5.416	−2.440	−2.844
	(.739)	(.768)	(.895)	(.877)
T_Size	10.276***	11.860***	10.256***	11.854***
	(.000)	(.000)	(.000)	(.000)
T_MB	−0.125	0.426	−0.331	0.189
	(.906)	(.689)	(.755)	(.860)
T_MarketLeverage	1.117***	0.686*	1.236***	0.815**
	(.001)	(.057)	(.000)	(.029)
T_HiTechFlag	1.922	1.794	2.494	2.402
	(.612)	(.635)	(.513)	(.528)
T_PrivateFlag	4.523	5.540	5.463	6.749
	(.746)	(.699)	(.703)	(.646)
ToeholdFlag	24.507***	24.895***	24.467***	24.950***
	(.000)	(.000)	(.001)	(.001)
SomeCashFlag	−18.424***	−18.332***	−16.972***	−16.746***
	(.001)	(.001)	(.003)	(.003)
StockOnlyFlag	−2.270	−2.028	−0.753	−0.394
	(.687)	(.718)	(.894)	(.944)
FriendlyFlag	−14.154	−14.032	−16.894	−16.541
	(.221)	(.222)	(.155)	(.162)
CompetitionFlag	17.785**	17.945**	17.095**	17.295**
	(.017)	(.016)	(.025)	(.024)
MatchAdvFlag	24.943	24.795	26.080	26.066
	(.381)	(.387)	(.363)	(.369)
SameIndFlag	11.239***	11.160***	12.159***	12.002***
	(.002)	(.002)	(.001)	(.001)

(Continued)

TABLE 9. Continued.

	(1)	(2)	(3)	(4)
SameIndFlag∗*Ac_HHI*	−1,348.880**	−1,335.494**	−1,214.934*	−1,201.533*
	(.028)	(.029)	(.056)	(.059)
Year and industry fixed effects	Yes	Yes	Yes	Yes
No. of obs.	3,652	3,652	3,525	3,525
R^2	0.273	0.277	0.274	0.278

Note: This table explores the effect of distance on the time to deal completion. In columns (1) and (2), *DistFlag* equals 1 if the target and acquirer are greater than 100 kilometers apart, and 0 otherwise. In columns (3) and (4), *DistFlag* equals 1 if the target and acquirer are not located within the same metropolitan statistical area (MSA), and 0 otherwise. Deals in New York, Chicago, and Los Angeles are removed from the MSA sample. Time to deal completion (*DaysToComplete*) is defined as the number of days from the deal announcement to the deal completion, both as reported in SDC. *LogDist* is the log of 1 + distance in miles between the target and the acquirer. *SmallTargetFlag* equals 1 if the target firm size is in the smallest decile of all targets that calendar year, and 0 otherwise. *Size* is defined as the equity value of a firm in the fiscal year before the merger and acquisition (M&A) announcement. *RelativeSmallTargetFlag* equals 1 if the size of the target firm is less than or equal to 10% of the size of the acquirer in the fiscal year before the M&A announcement, and 0 otherwise. If target size is not available, value of the deal is used as the target size when calculating relative size. All other independent variables are defined in Table 1. The *p*-values are reported in parentheses for each regression.

***Significant at the 1% level.

**Significant at the 5% level.

*Significant at the 10% level.

measures of distance as robustness tests. Our first alternative measure is an indicator variable that equals 1 if the target and acquirer are greater than 100 kilometers apart, and 0 otherwise (e.g., Coval and Moskowitz 1999; Malloy 2005; Uysal, Kedia, and Panchapangesan 2008). The second alternative measure, from Meshcheryakov and Winters (2016), is an indicator variable that equals 1 if the target and acquirer are not located within the same metropolitan statistical area (MSA), and 0 otherwise. Consistent with Meshcheryakov and Winters, we exclude the largest MSAs containing New York, Chicago, and Los Angeles.[8] These three MSAs (referred to as "urban" in Meshcheryakov and Winters 2016) are removed as information flow in such densely populated areas may be low, given potential isolation between different zones, confounding the "local" effect. In Tables 7 through 10, regressions using the first alternative definition (greater than 100 kilometers) are shown in columns (1) and (2), and regressions using the second alternative definition (within the same MSA) are shown in columns (3) and (4).

Overall, the results are qualitatively unchanged for both alternative measures of distance between target and acquirer. Table 7 shows a lower acquisition premium for smaller firms that are local. In Table 8 this small acquisition effect is stronger in 1985–1994, weakens in 1995–2004, and no longer exists for both measures in 2005–2014. Turning to time to completion, we find in Table 9 that local small firm

[8] As additional tests in the spirit of Meshcheryakov and Winters (2016), we run regressions on the full sample without removing any MSAs and regressions removing MSAs from the sample with the largest concentrations of deals, by number of deals containing both target and acquirer (Houston, Santa Clara, and New York). The results are materially unchanged regardless of whether we include all MSAs or remove these three by mergers in a given MSA.

TABLE 10. Effect of Alternative Distance Measures on the Time to Deal Completion across Time.

	(1)	(2)	(3)	(4)
Intercept	144.219***	134.729***	140.754***	131.370***
	(.000)	(.000)	(.000)	(.000)
DistFlag	−9.415**	−11.220***	−8.763*	−10.001**
	(.018)	(.006)	(.070)	(.042)
DistFlag∗Yr95_04	0.907	0.389	2.763	1.895
	(.788)	(.910)	(.385)	(.564)
DistFlag∗Yr85_94	22.406***	21.353***	22.385***	20.809***
	(.000)	(.000)	(.000)	(.000)
DistFlag∗Yr05_14∗SmallTargetFlag		14.196		8.277
		(.166)		(.328)
DistFlag∗Yr95_04∗SmallTargetFlag		28.406***		26.492***
		(.000)		(.000)
DistFlag∗Yr85_94∗SmallTargetFlag		41.488**		41.396**
		(.035)		(.032)
Ac_Size	−6.767***	−6.630***	−6.577***	−6.482***
	(.000)	(.000)	(.000)	(.000)
Ac_MB	−1.179	−1.166	−1.001	−0.979
	(.222)	(.226)	(.306)	(.316)
Ac_MarketLeverage	2.485***	2.633***	2.703***	2.880***
	(.001)	(.000)	(.000)	(.000)
Ac_HHI	1,302.387***	1,245.241***	1,249.406***	1,195.620**
	(.006)	(.009)	(.009)	(.013)
Ac_CAR3	6.705	5.998	−3.169	−4.102
	(.712)	(.740)	(.861)	(.821)
T_Size	10.183***	11.664***	10.176***	11.672***
	(.000)	(.000)	(.000)	(.000)
T_MB	−0.095	0.469	−0.274	0.274
	(.928)	(.656)	(.793)	(.795)
T_MarketLeverage	1.011***	0.626*	1.165***	0.803**
	(.003)	(.075)	(.001)	(.028)
T_HiTechFlag	1.171	1.033	1.963	1.857
	(.756)	(.783)	(.605)	(.623)
T_PrivateFlag	10.713	11.695	11.152	12.401
	(.434)	(.406)	(.431)	(.394)
ToeholdFlag	24.444***	25.199***	24.230***	25.216***
	(.000)	(.000)	(.001)	(.001)
SomeCashFlag	−19.140***	−19.339***	−17.205***	−17.394***
	(.001)	(.000)	(.002)	(.002)
StockOnlyFlag	−2.542	−2.323	−0.617	−0.306
	(.650)	(.677)	(.912)	(.956)
FriendlyFlag	−15.491	−15.836	−17.993	−18.280
	(.177)	(.165)	(.128)	(.120)
CompetitionFlag	17.031**	17.189**	16.538**	16.693**
	(.022)	(.021)	(.030)	(.029)
MatchAdvFlag	19.737	19.774	19.464	19.870
	(.483)	(.486)	(.476)	(.474)
SameIndFlag	11.706***	11.656***	12.917***	12.763***
	(.001)	(.001)	(.000)	(.001)
SameIndFlag∗Ac_HHI	−1,281.884**	−1,258.684**	−1,176.855*	−1,149.968*
	(.035)	(.038)	(.061)	(.068)
Industry fixed effects	Yes	Yes	Yes	Yes
No. of obs.	3,652	3,652	3,525	3,525
R^2	0.267	0.273	0.269	0.274

Note: This table explores the effect of distance on the time to deal completion. In columns (1) and (2), *DistFlag* equals 1 if the target and acquirer are greater than 100 kilometers apart, and 0 otherwise. In columns (3) and (4), *DistFlag* equals 1 if the target and acquirer are not located within the same metropolitan statistical area (MSA), and

0 otherwise. Deals in New York, Chicago, and Los Angeles are removed from the MSA sample. Time to deal completion (*DaysToComplete*) is defined as the number of days from the deal announcement to the deal completion, both as reported in SDC. *LogDist* is the log of 1 + distance in miles between the target and the acquirer. *SmallTargetFlag* equals 1 if the target firm size is in the smallest decile of all targets that calendar year, and 0 otherwise. *Size* is defined as the equity value of a firm in the fiscal year before the merger and acquisition (M&A) announcement. *RelativeSmallTargetFlag* equals 1 if the size of the target firm is less than or equal to 10% of the size of the acquirer in the fiscal year before the M&A announcement, and 0 otherwise. If target size is not available, value of the deal is used as the target size when calculating relative size. *Yr85_94* equals 1 if the announcement date is within 1985 to 1994, and 0 otherwise. *Yr95_04* equals 1 if the announcement date is within 1995 to 2004, and 0 otherwise. *Yr05_14* equals 1 if the announcement date is within 2005 to 2014, and 0 otherwise. All other independent variables are defined in Table 1. The *p*-values are reported in parentheses for each regression.
***Significant at the 1% level.
**Significant at the 5% level.
*Significant at the 10% level.

acquisitions are faster. In Table 10 this effect again weakens over time and disappears in 2005–2014. Regardless of the exact measure used, it appears that geographic distance does have a significant impact on acquisition premiums and time to completion. Additionally, it appears that this impact is conditional on the size of the target firm. Furthermore, the impact has shifted across time as technology has improved the transfer of information and regulation has resulted in more thorough corporate disclosures.

V. Conclusion

The geographic distance between two firms can play a significant role in the level of asymmetric information present between them. A greater distance between firms is likely to lead to a lesser degree of familiarity among upper management, a decrease in information flow, and so on. The resulting increased information asymmetry between firms may affect the execution of M&A, particularly in the acquisition of small firms.

In this study, we examine the impact of distance between target and acquirer on M&A execution. Specifically, we study the impact on premiums received by the target and the time to deal completion. Using a large sample of M&A activity in the United States over a 30-year period (1985–2014), we find that distance has a significant impact, particularly on smaller target firms.

Consistent with theory, the premium paid for small target firms increases as the distance between target and acquirer increases. Furthermore, the time to completion increases for activity involving a smaller target firm as the distance between firms increases. We attribute the increased time to completion to greater information asymmetry caused by additional distance between the firms involved. Unexpectedly, the time to completion for deals involving large target firms decreases with additional distance between firms in 2005–2014.

In addition to the impact of distance on acquisition premiums and time to deal completion, we examine how the impact of distance changes over time. We find that the effects on both the acquisition premium and time to completion decrease over the 30 years in our sample. Overall, we conclude that geographic distance has a substantial impact on M&A activity.

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