PAYMENT METHOD AND PUBLIC ACQUIROR RETURNS

EVIDENCE FROM THE U.S. MARKET FOR CORPORATE CONTROL

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Bachelor Thesis
Stockholm School of Economics
2023

Payment Method and Public Acquiror Returns : Evidence from the U.S. Market for Corporate Control

Abstract:

This thesis examines the relationship between method of payment, financial stress, and acquiror abnormal returns using a sample of 676 acquisitions by NYSE, NYSE American, and Nasdaq listed non-financial, non-utility firms. In normal market conditions the results are generally consistent with previous findings, with stock acquisitions of private targets generating the highest abnormal returns. However, acquiring firm shareholders no longer experience significant losses in stock acquisitions of public targets. In addition, when the Kansas City Financial Stress Index (KCFSI)—a proxy for capital markets uncertainty—exceeds two standard deviations above its average, acquisition announcements consistently generate negative or insignificant negative abnormal returns regardless of the method of payment used. I show that the negative effect of financial stress on acquiror abnormal returns is most pronounced for acquisitions of public targets. In such acquisitions, a one standard deviation increase in KCFSI is associated with 1.08% lower abnormal returns on the day of the announcement. For acquisitions of private targets, higher liquidity discounts in periods of financial stress may partly offset the costs of issuing more expensive sources of financing. I also find no evidence that the effect of financial stress on acquiror abnormal returns differs by payment method. The results are consistent with predictions derived from pecking order theory and an agency model developed by Jung, Kim & Stulz (1996).

Keywords:

Mergers & Acquisitions, Public Acquiror, Payment Method, Financial Stress, Abnormal Return

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Bachelor Thesis
Bachelor Program in Business & Economics
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1. Introduction

Over the last 20 years, mergers and acquisitions have become an increasingly important source of growth for the modern corporation. Largely owing to a highly active and dynamic market for corporate control, the vast resources under the control of corporate managers can quickly and efficiently be allocated across borders and into new industries, allowing firms to access new markets, obtain the latest technologies, and maximize the value created for shareholders and society. A closer look at the economic significance of only a small sample of selected major U.S. acquisitions reveals that over the last 25 years, there has not been a single 3-year period without average monthly deal values reaching at least several billion dollars. The largest individual deals by non-financial, non-utility acquirors listed on three major U.S. exchanges—NYSE, NYSE American, and Nasdaq—reach into the tens of billions (see Figure 1).

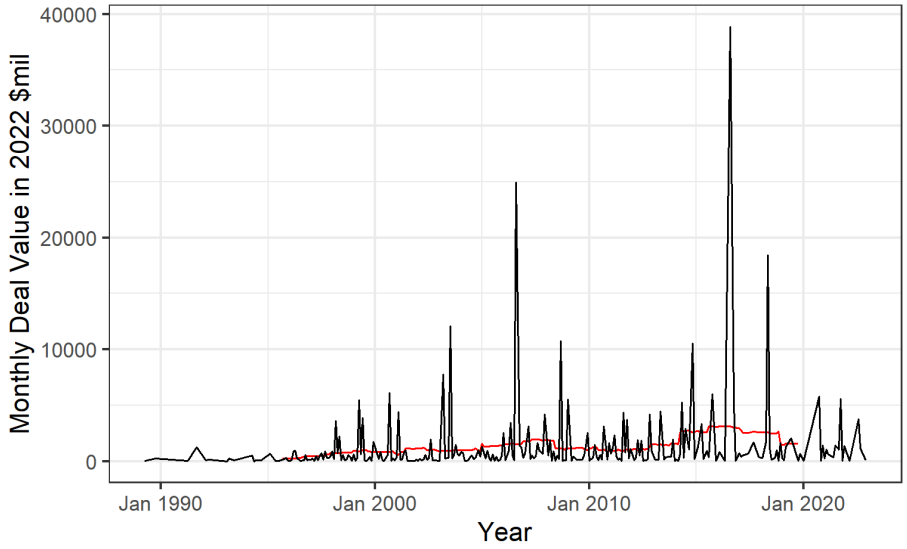

Figure 1. Total Monthly Value of Selected Major U.S. Acquisitions
This figure shows the total monthly deal values of selected U.S. acquisitions by NYSE, NYSE American, and Nasdaq listed non-financial, non-utility firms in millions of constant 2022 dollars. The deal value in 2022 $ is the nominal deal value deflated by the U.S. Bureau of Economic Analysis GDP price deflator. The red line is a 3-year moving average of the monthly time series.

The consistent stream of M&A transactions has provided a fruitful testing ground for the kinds of questions that shareholders, managers, employees, and society at large may have about the market for corporate control. Most notably, the literature documents that, on average, acquiring firm shareholders retain only a small share, if any, of the combined gains available to the acquiror and target firms surrounding an acquisition announcement (Moeller, Schlingemann & Stulz, 2004). Researchers have also established that the ex-ante success of an acquisition depends on various deal characteristics, including the method of payment choice and the target's public status. For example, Travlos (1987) and Fuller, Netter & Stegemoller (2002) find that acquiring firm shareholders experience negative cumulative abnormal returns (CARs) following the announcement of a stock acquisition and either positive or no abnormal returns following the announcement of a cash acquisition. On average, the market reacts

most positively to announcements of stock acquisitions of private targets and most negatively to announcements of stock acquisitions of public targets (Chang, 1998; Fuller et. al., 2002).

In this thesis, I contribute to the literature with a repeated attempt at establishing a relationship between method of payment and abnormal returns to acquiring firm shareholders. The baseline results provide a test of the sensitivity of previous findings to a sample of 676 successful acquisitions by NYSE, NYSE American and Nasdaq listed non-financial non-utility acquirors, including more than 30 years of data (1989-2022). Just as in previous studies, acquisitions are grouped by both method of payment and target public status, with CARs from a symmetric five-day event window surrounding the acquisition announcement reported for each type of acquisition. In further analysis, I explore whether the Kansas City Financial Stress Index (KCFSI) — a proxy for capital markets uncertainty — accounts for differences in CAR overall, by method of payment, as well as target public status. A unique feature of the more recent sample period is that there are two periods in which the Kansas City Financial Stress Index exceeds two standard deviations above its long-term average (see Figure 2). The first, from July 2008 to May 2009, is classified as an extreme left-tail event in the financial markets, in which the Kansas City Financial Stress Index exceeds four standard deviations above its mean for several months. The second, in March 2020, is a shorter and less pronounced period of high financial stress associated with the 2020 stock market crash. A sufficient number of acquisitions being announced during these two periods of high financial stress enables me to explore whether the effect of financial stress on acquiror abnormal returns is stronger for certain methods of payment, and weaker for others.

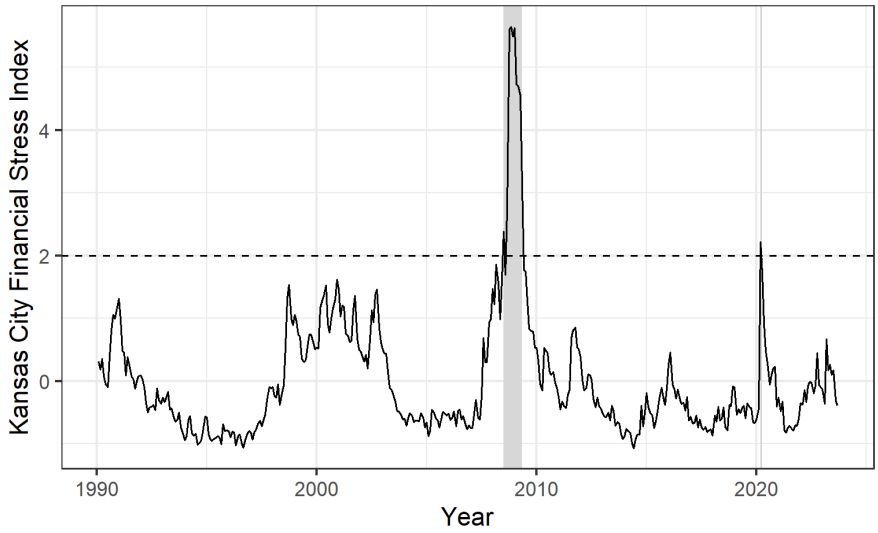

Figure 2. The Kansas City Financial Stress Index (KCFSI)
This figure shows a monthly time series of the Kansas City Financial Stress Index, a composite measure of disruption to the normal functioning of financial markets. KCFSI includes the following variables: several measures of credit spreads (AAA-10Y Treasury, Baa-Aaa); uncertainty about fundamental asset values (aggregate stock market volatility); and stress in the banking industry (bank stock volatility and cross-sectional dispersion of returns), among others. Periods of high financial stress, defined as 2-sigma or higher financial stress events, are highlighted in gray.

Specifically, I exploit the familiar notion that the market's reaction on the days surrounding an acquisition announcement should reflect the impact of all new information contained in the announcement on the acquiror's equity market value. Grouping the acquisitions by method of payment, target public status, and financial stress therefore enables me to study the relationship between these defining characteristics and acquiror abnormal returns. Ideally, to isolate the impact of the method of payment on the abnormal returns to acquiring firm shareholders, any extraneous variables (including confounders) that may materially influence the outcome are held constant, as in a controlled experiment. However, using the traditional event study methodology, it is not entirely possible to do so, making it difficult to distinguish between the market reactions to individual components of the newly released information (Fuller et. al., 2002). An endogeneity problem may also complicate the estimation of the impact of the method of payment choice on acquiror abnormal returns. First, a simultaneity bias may arise if there is two-way causality between the method of payment choice and acquiror abnormal returns. For example, if the acquiror's method of payment choice is dependent on past realizations of abnormal returns, then the non-random nature of the decision introduces causal ambiguity with respect to the relationship between the two variables (Rigobon & Sack, 2004). Second, omitted variable bias may arise if both the method of payment and acquiror abnormal returns are jointly determined by a third variable, such as various unobserved acquiring firm characteristics. In summary, unresolved issues with estimation suggest that the results that follow should be interpreted with caution.

My results reinforce the relationship between method of payment and acquiror abnormal returns found in previous studies. To begin with, the announcement of an acquisition is associated with significantly positive acquiror abnormal returns of approximately 2% on average, with the positive market reaction largely concentrated on the day of the announcement. Interestingly, there are no significant gains or losses associated with cash or combination acquisitions, with the exception of cash deals involving private targets, which generate positive gains for acquiring firm shareholders. In addition, stock acquisitions overall generate significantly positive abnormal returns in the 5.5% to 8% range. As in Chang (1998), this finding is primarily driven by stock acquisitions of private targets, which, in contrast to stock acquisitions of public targets, generate positive and significant acquiror abnormal returns of approximately 7%. At the same time, stock acquisitions of public targets no longer produce significantly negative acquiror abnormal returns, which stands in contrast to both previous findings and the negative drift observed following seasoned equity offerings.

My results also offer new evidence with respect to acquiring firm stock returns following acquisitions announced in periods of high financial stress. High financial stress acquisitions generate negative or insignificant negative abnormal returns as opposed to the positive abnormal returns observed in normal market conditions. By method of payment, the worst performing deals in periods of high financial stress are stock deals, with negative and significant abnormal returns on average in the -4% to -7% range. This is a clear divergence from the performance of stock deals in normal market conditions when stock deals generate positive abnormal returns on average. Cash deals and combination deals in periods of high financial stress do not perform much better, with negative cumulative abnormal returns of -9% and -4% respectively,

although there is no evidence that these estimates significantly differ from zero. A cross-sectional analysis of announcement day acquiror abnormal returns confirms that a higher level of financial stress is associated with lower acquiror abnormal returns. A one standard deviation increase in KCFSI is associated with significantly lower abnormal returns of 1.08% for acquisitions of public targets and insignificantly lower abnormal returns of 0.45% for acquisitions of private targets. For both public and private targets, there is no evidence that financial stress has a statistically significant differential impact on abnormal returns based on the method of payment. However, the signs of the coefficients make economic sense. For example, in a 2-sigma or higher financial stress event, acquirors of public targets experience at least 1.52% lower abnormal returns in cash deals, 2.68% lower abnormal returns in combination deals, and 3% lower abnormal returns in stock deals. Similarly, acquirors of private targets experience at least 1.52% higher abnormal returns in cash deals, 1.60% lower abnormal returns in combination deals, and 3.66% lower abnormal returns in stock deals. The differing market reactions to acquisitions announced in periods of high financial stress are consistent with two theoretical models: an agency model developed by Jung, Kim & Stulz (1996) and standard pecking order theory.

The remainder of my thesis is organized as follows. In the next section, I review the evidence on acquiror abnormal returns and the method of payment choice. In section 3, I provide a detailed overview of the data and methodology, showing that grouping acquisitions by method of payment and target public status produces a more homogeneous sample. In section 4, I report the event study results and explore the relationship between method of payment, financial stress, and acquiror abnormal returns. Finally, section 5 offers some conclusions.

2. Literature Review and Predictions

My thesis is primarily related to two strands of literature: the role of payment method in explaining abnormal returns to acquiring firm shareholders and the determinants of financing choice in mergers and acquisitions. I also draw on a number of insights from the literature on financing choice in financial crises to derive predictions for the abnormal performance of acquisitions in periods of high financial stress.

2.1. The Relationship Between Payment Method and Public Acquiror Returns

In mergers and acquisitions, payment method is perhaps the most important strategic choice for the acquiring firm, with potential capital structure, tax, and corporate governance implications; besides having to consider the target shareholders' own preferences. Unlike other strategic choices available to the acquiror, the choice of payment method may require that both the acquiror and target make unpleasant tradeoffs in favor of reaching an agreement (Bruner & Perella, 2004).

Travlos (1987) is the first to study the relationship between method of payment and acquiror stock returns, finding that acquiring firm shareholders experience abnormal losses following the announcement of a stock acquisition and normal returns following the announcement of a cash acquisition. This observation is consistent with the negative drift seen after seasoned equity issues which, according to the signaling hypothesis, reveal that the equity in the acquiring firm is overvalued. Chang (1998) examines acquiror stock returns following announcements of acquisitions of privately held targets, and finds positive abnormal returns for the acquiring firm in stock deals and no abnormal returns in cash deals. There are two possible explanations for this result, and why it stands in stark contrast to the findings in Travlos (1987). First, a highly concentrated ownership structure among privately held firms results in the transfer of a large block of shares in stock deals. Chang (1998) argues that these new block shareholders (blockholders) create value in the acquiring firm by carrying out an important corporate governance function, monitoring the performance of managers, and exposing management to a higher level of external market discipline. Second, the willingness of target shareholders to accept a stock offer may be a positive signal of the firm's equity value.

Fuller et. al. (2002) contribute by investigating acquisition-announcement abnormal returns in a sample of "frequent acquirors", firms with five or more successful acquisitions in a short period of time. This approach enables the authors to control for acquiring firm characteristics. Consistent with the findings in Travlos (1987) and Chang (1998), Fuller et. al. (2002) report significant variation in cumulative abnormal returns (CARs) by method of payment. For acquisitions of public targets, acquiring firm shareholders experience significantly negative CARs in stock deals (-1.92%) and do not significantly gain in cash deals (0.38%). For acquisitions of private targets, acquiring firm shareholders significantly gain in both stock deals (1.53%) and cash deals (2.47%).

The authors additionally find that for stock deals, as the relative size of the deal increases, CARs tend to decrease for acquisitions of public targets (larger losses) and increase for acquisitions of private targets (larger gains). The main explanation offered by the authors for higher abnormal returns associated with acquisitions of private targets is a liquidity discount. Fuller et. al. (2002) conclude by offering an additional explanation for the higher returns for stock acquisitions of private targets than for stock acquisitions of public targets, namely that there are benefits to making a stock offer in a transaction when the target has better information about the value of its assets and investment opportunities than the acquiror.

2.2. The Determinants of Financing Choice in Mergers & Acquisitions

An even closer look at the method of payment choice available to acquirors reveals a much broader range of underlying financing choices than is implied by a simpler categorization. For example, a cash deal may be financed by internally generated cash-flows or cash raised from a senior debt issue. It may also be financed by junior debt or other more information-sensitive forms of payment with more in common with a new issue of stock than internally generated resources (Bruner & Perella, 2004). Unfortunately, the strand of literature dealing with the relationship between method of payment and acquiror abnormal returns offers very little with respect to these more granular categories, instead focusing on three basic types of acquisitions: cash deals, stock deals, and combination deals.[1] There is, nevertheless, much to be learned from an analysis of financing choices, especially in the context of acquisitions undertaken in periods of high financial stress. Martin (1996) makes a unique contribution in this respect by analyzing the financing choices in 846 U.S. acquisitions as a function of the investment opportunities available to the acquiror, financing costs under information asymmetry, and overall business cycle considerations. Empirically, Martin (1996) finds support for the following relationships: improved investment opportunities increase the likelihood of a stock acquisition and firms follow a financing hierarchy in which a higher cash balance relative to deal value increases the likelihood of a cash acquisition.

[1] There are several possible reasons for there being no distinction in the literature between internal and external financing of cash deals:

a) The SDC does not report separately the debt or equity financed portions of cash consideration.
b) Cash deals are signals of undervalued equity except in the rare case they are equity financed.
c) In accounting terms, debt-financed acquisitions result in identical expected after-tax profitability consequences and almost identical financial position consequences relative to internally financed cash acquisitions. For example, ROE remains the same to the extent that additional after-tax interest expense from taking on new debt is equivalent to the after-tax interest foregone by spending the cash (ceteris paribus). The only distinction is that in a debt-financed cash acquisition, the acquired portion of the target equity is replaced by acquiror liabilities, while in an internally generated cash acquisition, the acquired portion of the target equity is replaced by lower cash reserves. The financing choice is therefore likely to result in a differential impact on the financial position of the consolidated entity dependent on the relative size of the acquisition. As the relative size of the acquisition increases, the negative differential in leverage between choosing debt over cash financing grows (Schuster, 2017).

The Investment Opportunities Explanation

The investment opportunities explanation is based on an agency model developed by Jung, Kim & Stulz (1996) in which the optimal amount of firm leverage is a function of agency costs of managerial discretion and agency costs of debt under information asymmetry. A firm with debt capacity and more profitable investment opportunities issues equity to circumvent the higher marginal agency costs of debt relative to an otherwise equivalent equally leveraged firm with poor investment opportunities. A firm with debt capacity and poor investment opportunities issues equity to maintain a level of management discretion allowing management to invest in poor projects, including potentially value-destroying acquisitions. Absent managerial discretion, a firm without debt capacity and poor investment opportunities issues debt rather than equity to maximize shareholder wealth. A debt issue exposes the firm to a higher degree of debtholder monitoring and requires management to repay debt rather than invest in poor projects. These agency costs of managerial discretion are reflected in the equity market's reaction to new stock offerings. The abnormal stock price adjustment associated with new issues of equity is more negative for firms with poor investment opportunities than for firms with more profitable investment opportunities (Jung et. al., 1996).

There are several implications for acquisitions undertaken in periods of high financial stress. First, consider an economy with one firm. If the firm has less promising investment opportunities in periods of high financial stress, it faces a decrease in the marginal agency cost of debt, because firm value is less sensitive to being unable to invest in less profitable projects. In other words, the debt overhang problem is no longer as costly for shareholders of the firm in periods of high financial stress. Second, less promising investment opportunities increase goal incongruence between shareholders and managers, increasing the marginal agency costs of managerial discretion (Jung et. al., 1996). Put differently, poorer investment opportunities imply that managers are more likely to act in their own self-interest by taking on poor projects to the detriment of shareholders. Overall, less promising investment opportunities in periods of high financial stress should therefore increase optimal leverage and make equity issuance less attractive than debt issuance. However, an exogenous limit to debt issuance associated with a supply-driven credit crunch and increased asset volatility may limit managements' ability to finance acquisitions with debt (Ivashina & Scharfstein, 2010).

The combination of a recession with poorer investment opportunities and financial stress limiting the supply of credit may produce an interesting outcome. Namely, the prevailing market conditions may motivate managers of the acquiring firm to undertake a stock deal, moving the firm further away from optimal leverage and further exacerbating agency problems associated with managerial discretion. Similarly, the effect of financial stress on the abnormal returns in stock deals is predicted to be more negative than for cash or combination deals because cash or combination entail either a movement towards optimal leverage, or no substantial change in leverage. All else equal, a stock deal in periods of financial stress should generate a more negative (less positive) market reaction. This theoretical prediction is in line with existing empirical evidence on seasoned equity issues which suggests that the average negative price reaction to the announcement of a seasoned stock offering is significantly more negative

in contractionary periods (Choe, Masulis & Nanda, 1993). Choe et. al. (1993) cite a stronger adverse selection effect associated with lower profitability of new investments and increased asset valuation uncertainty in recessions as a theoretical explanation for their findings. My prediction is not much different from theirs, except that it also considers the agency costs of managerial discretion in line with Jung et. al. (1996).

The Financing Hierarchy Explanation

The financing hierarchy explanation is based on standard pecking order theory, which states that under information asymmetry, firms' financing choices follow a financing hierarchy. Managers prefer to finance investments in order of the cost of financing and based on availability, with cash being the first option, debt second, and equity as a last resort. Martin (1996) confirms that the availability of cash and debt capacity determine whether cash is used as a method of payment in acquisitions. There is also evidence that large firms substitute among financing sources in a credit supply shock according to the pecking order (Leary, 2009). Specifically, large firms substitute away from bank debt and toward nonbank debt in their debt financing structure. In addition, due to the limited availability of debt capital and a relatively higher price of debt during a credit crunch, large firms also substitute away from debt and toward either internal sources of financing (i.e. asset sales, retained earnings) or external equity financing (Leary, 2009). Prevailing credit conditions captured by the Kansas City Financial Stress Index should therefore serve as important determinants of the use and signaling implication of stock as a method of payment as well as the underlying source of financing when cash is used as a method of payment.

For stock acquisitions in periods of high financial stress, pecking order theory implies that equity in the acquiring firm is overvalued, but also that firm fundamentals have deteriorated so that the company is unable to finance the acquisition with cash or debt. In this sense, the pecking order theory prediction for the market's reaction to stock acquisitions in periods of high financial stress is not directionally different from the agency theory prediction. For cash acquisitions in periods of financial stress, predictions derived from the financing hierarchy differ based on the underlying source of financing. Because risky securities can be sold for more than they are worth when management has better information than investors, the market reaction is predicted to be more negative for cash acquisitions financed with risky debt than for cash acquisitions financed with safe debt (e.g. secured bank debt). According to the pecking order, if the acquiring firm has cash or liquid assets available to finance its cash bid, it uses these internal sources of financing before relying on the debt markets. If instead bidders are cash constrained and must use external sources of financing, limited access to capital markets in periods of financial stress may depress bidding as in Vladimirov (2015). In this case, the market's reaction to a stock acquisition or cash acquisition financed with risky debt reveals information about the lower bid premia benefits of depressed bidding as well as the effect of financing the bid with a more costly source of financing. For both stock and cash acquisitions, the market reaction may also reflect forward-looking investor concerns about undertaking a stock or risky debt acquisition in a period of high financial stress, when the same acquisition could be undertaken using alternative

(cheaper) financing options following a return to normal market conditions.[2] My prediction is that if the negative effects of issuing more costly sources of financing exceed the lower bid premia benefits of depressed bidding, then financial stress has a negative impact on abnormal returns for cash acquisitions, combination acquisitions, and stock acquisitions.

[2] Forward-looking concerns do not necessarily reflect that management made a suboptimal decision to the detriment of shareholders, only that the market evaluates the announcement negatively given the information available when it learns of the acquisition announcement.

3. Data & Methodology

3.1. Data

In this thesis, I use daily return data collected from the Center for Research in Securities Prices (CRSP) database and data on acquisitions collected from the Securities Data Company (SDC) Platinum Mergers & Acquisitions database. The following selection criteria are applied for the construction of the sample:

1) The announcement date of the M&A transaction falls between January 1, 1984 and December 31, 2022.[3]

2) The ownership in the target by the acquiring firm before the announcement date does not exceed 50% (no ownership/minority investment), and ownership after the announcement date is ≥50% (controlling interest/full ownership).[4]

3) The deal is completed, and the transaction value is disclosed, exceeding $1M and 1% of the acquiring firm's market value of equity 4 weeks prior to the announcement date.[5]

4) The acquiring firm is listed on the NYSE, NYSE American, or Nasdaq stock exchanges, with CRSP daily return data available in the estimation window [-200, -20] as well as the event window [-2, 2].

5) The acquiring firm does not primarily operate in Utilities or in Finance & Insurance (North American Industry Classification System sectors 22, 52).

6) The target is either public, private, or a subsidiary of a public or private firm.

Apart from a small degree of variability, these sample selection criteria are typical for research on acquisition announcement returns.[6] However, the lack of detailed information on the specific transaction types included in previous research complicates my efforts to construct a comparable sample. To deal with this issue, I use sample size

[3] Fuller et. al. (2002) report that the announcement dates provided by SDC are exact for more than 90% of observations. For the remaining <10%, the announcement dates reported by SDC are within 2 days of the actual announcement dates. These reporting inaccuracies are immaterial to the analysis for several reasons:

a) First, Barnes, Harp & Oler (2014) find that in cases where the announcement dates reported by SDC differ from the researchers' own hand collected announcement dates, the official announcement date is usually replaced by the date of a "strong rumor" appearing in the public domain.
b) Second, for a large sample, any upward or downward bias to the abnormal return estimates induced by small reporting inaccuracies for a small number of observations should not affect the informativeness of the sample as a whole.

[4] While an ownership stake in the target exceeding 50% does not always correspond to a change of control, it is a good approximation in the U.S. due to the relative infrequency of dual class share structures with unequal voting rights (Howell, 2017).

[5] Deal value and relative size lower bounds ensure that the acquisitions are economically meaningful.

[6] See Chang (1998), Fuller et. al. (2002), Moeller et. al. (2004) and Travlos (1987).

information and other criteria disclosed by the authors to infer the undisclosed transaction types, selecting the most reasonable transaction types until the sample size closely matches. The resulting sample includes traditional M&A transactions such as leveraged buyouts, exchange offers, and tender offers, and excludes repurchases, spinoffs, recapitalizations, self-tenders, and privatizations (see Appendix A).

Acquisitions by firms primarily operating in utilities are excluded because the industry is highly regulated with lengthy approval processes. A longer approval process prolongs the interim period between the acquisition announcement and its completion and may entail substantial costs to the acquiring firm. For utility acquirors, abnormal returns surrounding the acquisition announcement date therefore capture regulatory risks and uncertainties to a higher degree than in other industries (Becher, Mulherin & Walkling, 2012). Acquisitions by firms primarily operating in finance & insurance are excluded for the same reason, in addition to the following. Acquirors in finance & insurance, apart from participating in the market for corporate control, also act as intermediaries, providing underwriting services and advising acquirors and their targets on the terms of the deal. Despite being responsible for a large number of acquisitions, these companies also often have vastly different objectives compared to more strategic non-financial buyers. One such objective unique to financial acquirors includes creating value in the target and selling after a shorter period of time. Finally, the exclusion of these acquisitions from the sample does not rule out that utility or financial companies participate in the bidding process for the targets included in the sample (Boone & Mulherin, 2008). It only excludes deals in which these firms are the winning bidders. As a result, the sample of completed acquisitions implicitly accounts for the important price-setting role of utility and financial bidders.

In terms of issues with the data, a small number of deals in the SDC database are recorded multiple times with different information. Barnes. et. al. (2014) show that these duplicates are the result of errors in SDC's data updating process. Moreover, there are no reliable methods for distinguishing between the original observation and its updated versions. Out of 1438 observations in the raw data, I identify zero duplicates based on the "SDC Deal Number" variable and ten pairs of duplicates (20 observations) based on the "Target CUSIP" variable. I retain four pairs of duplicates for which no errors were found, and remove one to two observations from each of the remaining six pairs of duplicates, for a total of seven observations removed from the sample.[7] I also exclude a large number of observations as a result of the matching process, for a final sample of 676 observations.[8] The vast majority of the observations excluded in the matching process are acquisitions announced from 1984 to 1989, meaning that the

[7] Some duplicates based on the Target CUSIP variable are separate acquisitions (e.g. the original acquirer divests from the target firm) whereas others are clearly errors (e.g. acquisition of partial/remaining interest is misclassified as acquisition of majority interest). For each duplicate, I confirm whether to remove any observations by cross-referencing with press releases.

[8] When matching the acquisition announcement data from SDC with the daily stock return data from CRSP, inconsistencies between the acquiror CUSIP (SDC) and the NCUSIP (CRSP) cause certain observations to be completely dropped (no match) and others to be partially missing. For example, if the NCUSIP in CRSP changes before the event date, there may be data for the estimation window but not for the event window. Since these are errors in the SDC database unrelated to the other observed variables in the dataset, I assume that missing observations are randomly missing. Thus, removing them should not bias the results.

sample period effectively encompasses deals announced from 1989 to 2022 and is more or less complete during this time (Barnes et. al., 2014).

Table 1 reports summary statistics for all the acquisitions in the sample (Panel A), as well as for acquisitions grouped by method of payment (Panel B) and target public status (Panel C). Variable definitions are provided in Appendix B. The majority of deals in the sample are friendly acquisitions, with a slightly lower number of cross-border deals and a relatively even split between same industry and diversifying (conglomerate) acquisitions. For acquisitions grouped by method of payment, there are no significant differences in means for the deal values and acquiror equity market capitalizations. In addition, there are no significant differences in proportions for the deal attitudes (cash acquisitions are no more likely to be hostile than stock acquisitions), and same industry deals (cash acquisitions are no more likely to be in the same major industry sector than stock acquisitions). Any differences in cumulative abnormal returns by method of payment can therefore be attributed to other acquiror, deal, or target characteristics. For example, the mean values for relative size and proportions for target public status are significantly different for at least one payment method pair. As a result, a difference in cumulative abnormal returns by method of payment may reflect differences in relative size and the type of target being acquired. Similarly, Table 1 Panel C shows that for acquisitions grouped by target public status, there is a higher percentage of cash and stock consideration for acquisitions of public targets, and a higher percentage of a combination of different forms of consideration for acquisitions of private targets. As a result, a difference in cumulative abnormal returns by target public status may reflect differences in the payment method choice. In summary, Table 1 shows significant differences in proportions of private, public, and subsidiary targets for different payment methods and significant differences in means of stock, cash, and combination consideration between acquisitions of public and private targets. Table 1 therefore provides a motivation for grouping the event study results by two variables: first by method of payment and second by target public status. It also provides an additional motivation for controlling for relative size in the cross-sectional analysis of acquiror abnormal returns.

Figure 3A shows the total number of deals in the sample over time grouped by method of payment, and figure 3B shows the deal value in millions of constant 2022 dollars over time grouped by method of payment. There appears to be a downward trend in the number of deals by NYSE, NYSE American, and Nasdaq listed non-financial, non-utility firms, following a large runup during the merger wave of the late 1990s. However, total deal values have remained resilient despite the downward trend in the number of transactions in the last 25 years. With respect to the composition of deals by method of payment, a notable trend in recent years is that the proportion of combination deals relative to the total has steadily declined with the share of cash deals rising. Stock deals are rare but at times account for a disproportionate share of total deal value, with the peak in the late 1990s driven by high stock market valuations (Shleifer & Vishny, 2003).

Table 1. Summary Statistics for Acquisitions in the Event Study

This table presents summary statistics for the acquisitions in the sample. AcquirorMVE is defined as the equity market value of the acquiring firm 4 weeks before the acquisition announcement. RelativeSize is defined as the deal value as a fraction of the AcquirorMVE. PercentCash, PercentStock, and PercentCombination are defined as the respective percentages of consideration paid in cash, stock, and combinations of cash and stock. Stock acquisitions are deals in which more than 50% of the total consideration transferred consists of an exchange of the acquiror's equity (or other forms of equity consideration) for the target's equity. Cash acquisitions include debt financed deals and cash financed deals, or any combination of the two, exceeding 50% of total consideration. Finally, combination acquisitions are financed by a combination of stock, cash, and other forms of consideration. Panel A reports the mean, standard deviation, 25th percentile, median and 75th percentile for all acquisitions in the sample. Panel B and Panel C report summary statistics for acquisitions sorted by method of payment and target public status, respectively. Summary statistics for numeric variables are in the format Mean (SD) and all categorical variables are reported in the format Number of Observations (%). For Panel B and Panel C, hypothesis tests are also performed on the differences in proportions for categorical variables (continuity corrected chi-squared test) and differences in means for continuous variables (three-group ANOVA test). All Panel B three-group differences are significant at the $p<0.05$ level except for DealValue, AcquirorMVE, DealAttitude, SameIndustry, and CrossBorderDeal. All Panel C differences are significant at the $p<0.05$ level except for SameIndustry.

Panel A: Summary Statistics for Pooled Sample

	Mean	Std.Dev	Q1	Median	Q3
DealValue ($ mil)	387.82	1708.87	13.75	46.75	189.33
AcquirorMVE ($ bil)	5.41	18.62	0.18	0.72	2.86
RelativeSize	0.51	6.73	0.03	0.07	0.17
PercentCash	43.54	45.64	0	21.7	100
PercentStock	10.37	26.52	0	0	0
PercentCombination	37.22	48.33	0	0	100
NumberofBidders	1.02	0.17	1	1	1

Panel B: Summary Statistics by Method of Payment

		Cash	Stock	Combination	All
N		301	59	316	676
DealValue ($ mil)		429.38(1271.69)	794.99(4224.18)	272.20(1177.23)	387.82 (1708.87)
AcquirorMVE ($ bil)		5.82 (16.50)	3.19 (10.50)	5.44 (21.50)	5.41 (18.62)
RelativeSize		0.20 (0.47)	3.81 (22.64)	0.19 (0.51)	0.51 (6.73)
PercentCash		92.46 (13.84)	8.90 (15.84)	3.41 (10.41)	43.54 (45.64)
PercentStock		3.87 (10.46)	89.75 (16.64)	1.74 (7.55)	10.37 (26.52)
PercentCombination		0.00 (0.00)	0.00 (0.00)	79.63 (40.23)	37.22 (48.33)
TargetPublicStatus (%)					
	Priv.	143 (47.5)	29 (49.2)	174 (55.1)	346 (51.2)
	Public	83 (27.6)	20 (33.9)	39 (12.3)	142 (21.0)
	Sub.	75 (24.9)	10 (16.9)	103 (32.6)	188 (27.8)
DealAttitude (%)					
	Friendly	285 (94.7)	56 (94.9)	306 (96.8)	647 (95.7)
	Hostile	3 (1.0)	0 (0.0)	0 (0.0)	3 (0.4)
	Neutral	12 (4.0)	3 (5.1)	10 (3.2)	25 (3.7)
	Unsolic.	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.1)
SameIndustry = Yes (%)		167 (55.5)	35 (59.3)	170 (53.8)	372 (55.0)
CrossBorderDeal = Yes (%)		126 (41.9)	24 (40.7)	118 (37.3)	268 (39.6)
NumberofBidders		1.04 (0.24)	1.03 (0.18)	1.00 (0.00)	1.02 (0.17)

Table 1. (Continued)

Panel C: Summary Statistics by Target Public Status				
	Private	Public	Subsidiary	All
N	346	142	188	676
DealValue ($ mil)	180.67 (947.77)	849.62 (3168.70)	420.24 (1034.70)	387.82 (1708.87)
AcquirorMVE ($ bil)	3.12 (15.40)	9.35 (23.69)	6.67 (19.16)	5.41 (18.62)
RelativeSize	0.18 (0.55)	1.74 (14.63)	0.18 (0.39)	0.51 (6.73)
PercentCash	40.98 (45.12)	55.54 (46.14)	39.17 (44.92)	43.54 (45.64)
PercentStock	9.97 (25.60)	16.59 (33.58)	6.41 (20.86)	10.37 (26.52)
PercentCombination	40.74 (49.19)	20.21 (40.11)	43.61 (49.71)	37.22 (48.33)
TargetPublicStatus (%)				
Priv.	346 (100.0)	0 (0.0)	0 (0.0)	346 (51.2)
Public	0 (0.0)	142 (100.0)	0 (0.0)	142 (21.0)
Sub.	0 (0.0)	0 (0.0)	188 (100.0)	188 (27.8)
DealAttitude (%)				
Friendly	333 (96.2)	128 (90.1)	186 (98.9)	647 (95.7)
Hostile	0 (0.0)	3 (2.1)	0 (0.0)	3 (0.4)
Neutral	13 (3.8)	10 (7.0)	2 (1.1)	25 (3.7)
Unsolic.	0 (0.0)	1 (0.7)	0 (0.0)	1 (0.1)
SameIndustry = Yes (%)	186 (53.8)	84 (59.2)	102 (54.3)	372 (55.0)
CrossBorderDeal = Yes (%)	124 (35.8)	75 (52.8)	69 (36.7)	268 (39.6)
NumberofBidders	1.00 (0.05)	1.08 (0.35)	1.00 (0.00)	1.02 (0.17)

Note: NumberofBidders understates the degree of bidder competition because it excludes private bids for the target, which is an important element of the auction process (Boone & Mulherin, 2008).

In periods of high financial stress, there is a slight decline in the total number of deals but not in the total deal value (see Figure 3). In addition, the proportion of stock, cash, and combination deals do not markedly differ from the surrounding years with no financial stress. There is no clear evidence in Figure 3 for the substitution of cash for combination or combination for stock as a share of the number of deals in periods with high financial stress. However, the proportion of deal value in the combination category does rise at the expense of the proportion of deal value in the cash category during the peak of the 2008 financial stress event. The substitution of cash consideration for other forms of consideration in the deal value structure may suggest that, apart from possible variation in the financing of cash and combination deals, NYSE, NYSE American, and Nasdaq listed non-financial non-utility acquirors also exhibit a pecking order preference. Alternative explanations for the substitution of cash for combination include that high financial stress may reduce debt capacity so that acquiring firm managers curtail borrowing, or that high financial stress limits the amount of new lending. Given increased asset volatility and a substantial supply-driven decline in new bank lending during the financial crisis, both factors are likely to combine to reduce debt financing (Ivashina & Scharfstein, 2010).

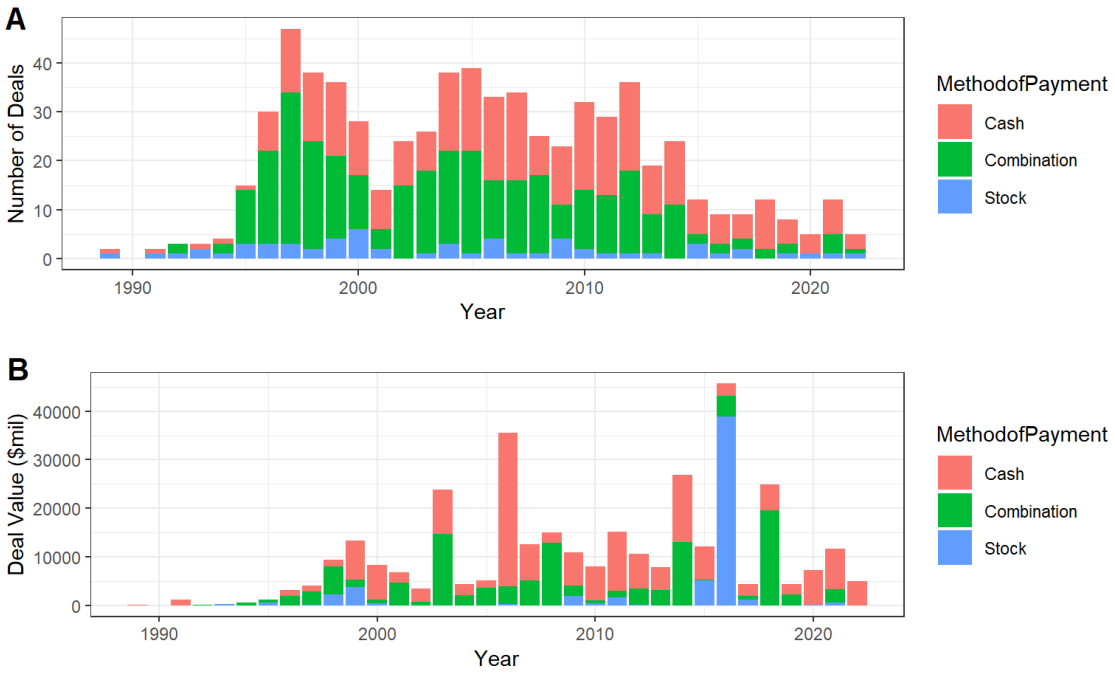

Figure 3. Total Number of Deals and Deal Value by Method of Payment
Figure 3A shows the total annual number of selected acquisitions by NYSE, NYSE American, and Nasdaq listed non-financial, non-utility firms grouped by method of payment. Figure 3B shows the total annual deal values of the same acquisitions in millions of constant 2022 $ grouped by method of payment. The deal value in 2022 $ is the nominal deal value deflated by the U.S. Bureau of Economic Analysis GDP price deflator.

3.2. Methodology

In an acquisition announcement event study framework, abnormal returns are an estimate of the difference between the return conditional on information revealed by the event, and the expected return conditional on information available before the event (Kothari & Warner, 2007).

$$AR_{i,t} = R_{i,t} - \mathrm{E}\left[R_{i,t}\right] \quad (1)$$

The information revealed by the event may be completely unexpected, in which case a readily interpretable measure of the acquisition announcement abnormal return is obtained. However, not all new information is inherently unexpected. A portion of the information revealed by the announcement may have already been priced in by market participants. As a result, a positive acquiror abnormal return estimate may not be an indication of a value-creating acquisition. Instead, it may be an indication that the acquisition is less value-destroying than the market expected (Kaplan, 2000). Similarly, a negative acquiror abnormal return for a particular acquisition may imply that the market had high expectations initially, but that the acquisition generated less value than anticipated. Figure 4 illustrates the challenge of attributing abnormal returns to the ex-ante success or failure of a particular acquisition.

Figure 4. Interpreting the Abnormal Performance of an Acquisition.
This figure plots initial market expectations against the unexpected change in market expectations generated by an acquisition announcement. There are four possible scenarios. For acquirors in quadrants 1 & 3, the acquisition announcement is associated with negative abnormal returns. For acquirors in quadrant 2 & 4, the acquisition announcement is associated with positive abnormal returns. The figure omits completely unexpected acquisitions, for which there are no initial market expectations. These acquisitions are interpreted as value-destroying or value-creating if the respective abnormal returns are positive and negative.

In light of these considerations, the event study specification used in this thesis relies on the assumption that the representative acquisition in the sample is an unexpected event.[9] This assumption allows for a straightforward interpretation of the direction of the abnormal return and cumulative abnormal return estimates. Moreover, even though there may be individual acquisitions in the sample for which this assumption does not hold, the focus of the study is not on the deal-specific estimates but on the first moment of the abnormal return and cumulative abnormal return distributions.

$$\widehat{AR}_t = \frac{1}{N}\sum_{i=1}^{N}(R_{i,t} - \mathrm{E}[R_{i,t}]) \tag{2}$$

$$\widehat{CAR}_t = \sum_{t}\widehat{AR}_t \tag{3}$$

As a result, any idiosyncrasies in abnormal return estimates associated with individual acquisitions (see Figure 4) should not affect the informativeness or reliability of estimates for a large sample of acquisitions (Kaplan, 2000).

While the informativeness of abnormal return estimates in isolation is important, the objective is also to reconcile differences in abnormal returns by method of payment and target public status. As discussed in Section 2, it is well understood that differences in abnormal performance can be attributed to various defining characteristics of certain

[9] Faccio, McConell & Stolin (2006) observe no significant differences in predictability when it comes to acquisitions grouped by size, target public status, or method of payment.

types of acquisitions. For example, when comparing cash and stock acquisitions of private targets, the transfer of a large block of shares to target shareholders in the former leads to a positive abnormal return absent in the latter (Chang, 1998). When making these comparisons it is also important to be aware of differences along less salient dimensions. One such dimension discussed by Faccio, McConell & Stolin (2006) is the probability of an acquisition succeeding conditional on the acquisition being announced, denoted as $P(DealClosing|AcquisitionAnnounced)$.[10] If this probability varies across different types of acquisitions, say when comparing cash acquisitions with stock acquisitions, abnormal return estimates may be biased, affecting comparability. Specifically, Faccio et. al. (2006) show that if acquisitions are ex-ante NPV positive, there is an upward bias to the abnormal return estimates for the group with a higher deal closing probability relative to the group with a lower deal closing probability. I do not control for variation in $P(DealClosing)$, aside from noting that the magnitude (but not the direction) of abnormal return estimates should be interpreted with caution, especially where there is only a small difference between different types of acquisitions.

Another methodological concern in the context of acquisition announcement event studies is to establish an appropriate time frame to measure the economic impact of the event. Both short-horizon (daily/weekly) and long-horizon (monthly/yearly) acquisition-announcement event studies have been conducted in the past. However, long-run event studies are more susceptible to a lower power (probability of detecting a true non-zero abnormal return), as well as a higher sensitivity to the return generating process used (Kothari & Warner, 2007). In addition, the longer the event window, the more likely it is to be contaminated by confounding events such as earnings announcements and other price-relevant news (Armitage, 1995). Since there are no available methods to overcome all these issues, long-run event studies remain unreliable indicators of abnormal performance. To reduce the likelihood of misspecification, I follow the literature in setting a symmetric five-day event window including two trading days before and after the event day, denoted as [-2, 2]. Including the two trading days before the acquisition announcement accounts for any anticipation of the event. Including the two trading days after the acquisition announcement accounts for the fact that the market reaction may not be concentrated on a single day. In other words, there may be a market underreaction to the acquisition announcement on the first trading day (event date), which is subsequently corrected.

Despite the consistency of results obtained in event studies focusing only on the days surrounding the event, it remains standard practice to test their sensitivity to alternative return-generating processes (Brown & Warner, 1985). Some commonly used specifications for estimating the expected returns in the absence of treatment $E[R_{i,t}]$ include the market-adjusted model, market model, and the Fama-French 3 factor model (FF3 model).

The first approach simply assumes that the normal return is the market return so that:

[10] The relationship between the abnormal return estimates and $P(DealClosing|AcquisitionAnnounced)$ is a consequence of the sample selection criteria used in acquisition announcement event studies — namely, that the focus is on completed deals, omitting deals that were announced but not closed (Faccio et. al., 2006).

$$Market - Adjusted\ Model\ \ E[R_{i,t}] = R_{m,t}$$

The second and third approaches are factor models, and thus require an estimation window, a designated period before the event for estimating the return-generating parameters. Once more, I follow the literature in setting an estimation window 200 trading days before the event up to 20 trading days before the event, denoted as [-200, -20].[11] The gap between the end of the estimation window [-20] and the beginning of the event window [-2] ensures that the estimates are not contaminated by any leakage of information prior to the acquisition announcement. The expected returns in the event window are estimated using the intercept terms and factor loadings, so that:

$$Market\ Model\ E[R_{i,t}] = \hat{a}_i + \hat{\beta}_i R_{m,t}$$

$$FF3\ Model\ E[R_{i,t}] = r_f + \hat{\beta}_{i,m}(R_{m,t} - r_f) + \hat{\beta}_{i,SMB} SMB_t + \hat{\beta}_{i,HML} HML_t$$

For the remainder of this thesis, unless stated otherwise, the emphasis is on abnormal return estimates generated by the market-model with the market-adjusted model and Fama-French 3 factor models reported for robustness.[12] Rewriting equation 1 with market-model expected return for clarity:

$$AR_{i,t} = R_{i,t} - (\hat{a}_i + \hat{\beta}_i R_{m,t})$$

In Appendix C, I perform a simple robustness check which shows that the cumulative abnormal return estimates are not sensitive to the choice of equally-weighted over value-weighted market returns. As a placebo test, I *partially* mimic a procedure proposed by Brown & Warner (1985) in which the abnormal performance estimates are simulated by assigning a placebo event date to each acquisition in the sample (see Appendix D). The placebo test provides evidence that the observed abnormal returns are driven by the event itself rather than by other factors, as the simulation generates no significantly positive or negative abnormal returns on average (Kothari & Warner, 2007). In Appendix E, I attempt to replicate the results in Fuller et. al. 2002 using the sample selection criteria described in Appendix A while restricting the sample period to January 1, 1990 to December 31, 2000. The sample is equivalent to Fuller et. al. (2002), except that it does not consider only frequent acquirors. I show that the estimates in my sample are generally consistent in terms of direction, magnitude, and significance with the abnormal returns to frequent acquirors in Fuller et. al. (2002). Finally, the table reported in Appendix F checks that the baseline results are not biased by the inclusion of large deals with a DealValue>$200M in the sample. Appendix F confirms that the baseline results are robust and generalizable to deals with a DealValue>$200M.

[11] Armitage (1995) reports that results are not sensitive to the length of the estimation window as long it exceeds approximately 100 days. Including an excessively long estimation window is also not recommended, as the bias from confounding events may exceed any benefits from improved precision.

[12] The market-model and FF3 model parameter estimates for the intercept term $\hat{\alpha}_i$ and factor loadings $\hat{\beta}_i$ are time-invariant. They are calculated only once in relation to the event date, not multiple times in relation to each day in the event window. The market-adjusted model assumes that $\alpha_i = 0$ and $\beta_i = 1$.

4. Results

4.1. Baseline Results

Table 2 presents results for the average cumulative abnormal returns to acquiring firm shareholders in a symmetric five-day window surrounding the announcement of 676 acquisitions by NYSE, NYSE American, and Nasdaq listed non-financial, non-utility acquirors. The results are grouped by method of payment with a total of 301 cash deals, 59 stock deals, and 316 deals involving a combination of cash, stock, and other forms of consideration. Panel A contains results for the full sample of acquisitions. On average, acquiring firm shareholders gain a significantly positive 2% following the announcement of an acquisition. This result is almost indistinguishable from the result reported by Fuller et. al. (2002) for a January 1990 to December 2000 sample of frequent acquirors. The average gains to acquiring firm shareholders do not appear to have changed over time, but that does not exclude the possibility that there has been variation over time in abnormal performance by method of payment. Figure 5 shows that the market reaction is largely concentrated on the day of the announcement, lending credence to the idea that acquisition announcements deliver meaningful new information to the equity markets most of which is quickly priced in, and that the average abnormal return estimates (see Equation 2) do not capture noise – random variation that contaminates the value of the signal. Figure 5 also suggests that the market underreacts to the information contained in acquisition announcements on the day of the event, pricing in an additional 0.5% gain in the two trading sessions that follow.

Grouping the results for all acquisitions (Panel A) by method of payment reveals that stock acquisitions create the most wealth on average, with significantly positive acquiror CARs ranging from 5.6% according to the market model to almost 8% according to the market-adjusted model. At the same time, the market does not view cash acquisitions or combination acquisitions as favorably, as there are no significant abnormal returns associated with these acquisitions. The finding of no abnormal returns for cash acquisitions overall is consistent with the results in Travlos (1987) yet inconsistent with the Fuller et. al. (2002) sample, in which frequent acquirors experience positive abnormal gains in cash acquisitions. Although it is difficult to distinguish between various explanations for this result, there are several possible factors that may contribute. First, the abnormal returns for cash acquisitions in the different sample periods may reflect the availability of profitable acquisition investment opportunities over time. Other possibilities include that frequent acquirors are systematically better at identifying profitable acquisitions, or that less unexpected adverse information regarding payout policy is released in subsequent cash acquisitions. Finally, the acquisitions in the sample may differ in other ways such as the proportion of cash deals by target public status. Grouping the acquisitions in Table 2 Panel A by target public status, with acquisitions of public targets reported in Panel B and acquisitions of private targets reported in Panel C allows me to explore this question further.

Table 2. Public Acquiror Cumulative Abnormal Returns by Method of Payment

This table presents cumulative abnormal return (CAR) estimates (see Equation 3) for 676 acquisitions by NYSE, NYSE American, and Nasdaq listed non-financial, non-utility firms. Panel A reports the CARs for all acquisitions in the sample grouped by method of payment. Panels B and C report the CARs for acquisitions of public targets and acquisitions of private targets grouped by method of payment. The abnormal returns are estimated using the Market Model, Market-Adjusted Model, and Fama-French 3 Factor Model (FF3). Market Model and FF3 parameters are estimated over a [-200, -20] estimation window. Abnormal returns are cumulated over a five-day [-2, 2] event window. If the acquisition announcement date is a non-trading day (e.g. a weekend or holiday), the event date is assumed to be the first subsequent trading day. Stock acquisitions are deals in which more than 50% of the total consideration transferred consists of an exchange of the acquiror's equity (or other forms of equity consideration) for the target's equity. Cash acquisitions include debt financed deals and cash financed deals, or any combination of the two, exceeding 50% of total consideration. Finally, combination acquisitions are financed by a combination of stock, cash, and other forms of consideration.

Panel A: All Acquisitions Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	0.056 (1.99)	0.0766** (3.26)	0.0704** (2.97)
Cash	0.0095 (0.98)	0.0181** (2.98)	0.0136 (1.75)
Combination	0.0177 (1.57)	0.0209 (1.94)	0.0156 (1.36)
All	0.0172* (2.37)	0.0242*** (3.93)	0.0192** (2.83)
Panel B: Acquisitions of Public Targets Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	0.038 (0.58)	0.096** (2.21)	0.0787 (1.70)
Cash	-0.0277 (-0.96)	-0.0028 (-0.23)	-0.0213 (-1.06)
Combination	0.0377 (1.99)	0.0362 (2.01)	0.0417* (2.32)
All	-0.0007 (-0.03)	0.0209 (1.98)	0.0094 (0.65)
Panel C: Acquisitions of Private Targets Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	0.0679* (2.64)	0.0741* (2.78)	0.07** (2.61)
Cash	0.0301** (3.04)	0.0309** (3.20)	0.0316**(3.16)
Combination	0.0164 (0.83)	0.0228 (1.2037)	0.016 (0.79)
All	0.0262* (2.37)	0.0302** (2.83)	0.0267* (2.37)

Note: t-statistics in parentheses.
* p<0.05; ** p<0.01; *** p<0.001

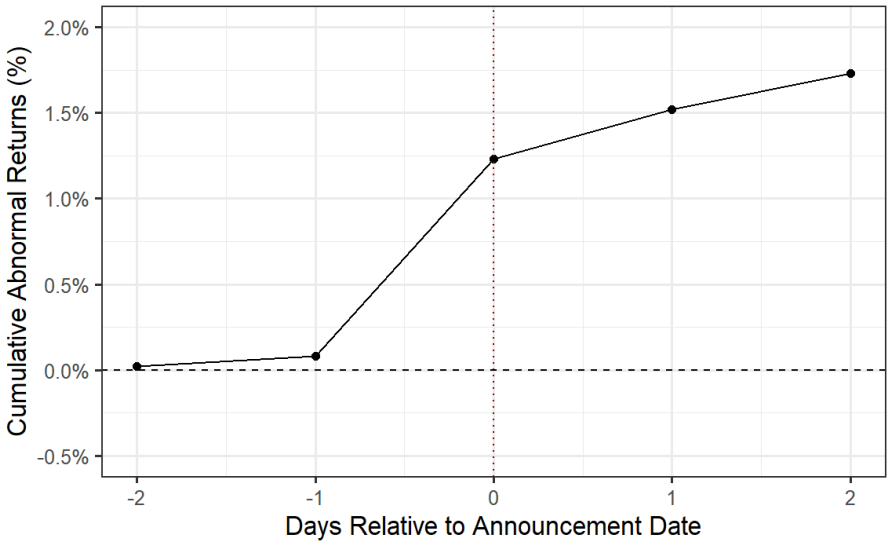

Figure 5. Public Acquiror Cumulative Abnormal Returns for All Acquisitions
This figure plots the mean public acquiror cumulative abnormal returns at the end of each trading day in the [-2, 2] event window for all acquisitions in the sample. It shows that the market reaction to acquisition announcements is largely concentrated on the day of the announcement.

Table 2 Panel B shows that acquiring firm shareholders experience normal returns surrounding announcements of acquisitions of public targets, while Panel C shows that acquisitions of private targets generate significantly positive cumulative abnormal returns of 2.62% on average. Both results are insensitive to the use of alternative return generating models. Comparing these results to the sample of frequent acquirors in Fuller et. al. (2002), the negative differential in abnormal performance between acquisitions of public targets and acquisitions of private targets remains of a similar magnitude, although acquisitions of public targets no longer destroy wealth on average in my sample. The precise reason for acquisitions of public targets no longer destroying wealth is unclear, but it appears to be a consequence of the sample selection criteria, as my sample does not include only frequent acquirors (see Appendix E Panel B). Interpreting the difference in ex-ante performance between acquisitions of public targets and acquisitions of private targets is more straightforward, however. First, as documented by Officer (2007), private markets are less liquid, which increases the bargaining power of the acquiring firm vis-à-vis privately held targets. As a result, private targets are forced to sell at significant discounts to market value of approximately 15-30% on average. Given that the average relative size of acquisitions of private targets in my sample is 18% on average, a 15-30% discount implies an additional gain to acquiring firm shareholders in the 2.7% to 5.4% range. Interestingly, assuming that public targets are acquired at market value, an average liquidity discount of 15% corresponds almost exactly to the observed difference in abnormal performance between acquisitions of public targets and acquisitions of private targets. Empirically, since public targets sell for a premium, the difference in abnormal performance is consistent with a lower average discount for private targets (Officer, 2007).[13] However,

[13] To see this relationship more clearly, a premium to market value for public targets implies a decrease in acquiror abnormal returns for acquisitions of public targets (all else equal). To maintain the same differential in abnormal returns between acquisitions of public targets and acquisitions of private targets, the discount in acquisitions of private targets must decrease for the discount related gains to decrease.

that implies that the discount is the only explanation for the observed difference, which is not well supported by the evidence.

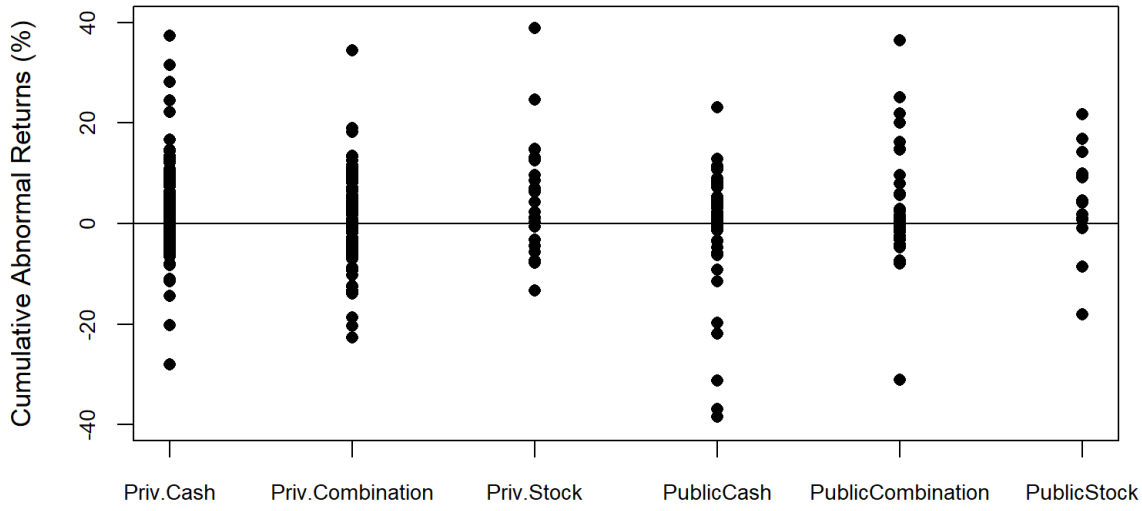

Figure 6. Dot Plot of Public Acquiror Cumulative Abnormal Returns Grouped by Target Public Status and Method of Payment
This figure plots cumulative abnormal returns for individual acquisitions grouped by target public status and method of payment. The abnormal returns for each acquisition (dot) are cumulated over a five day [-2, 2] event window.

To see why, Figure 6 illustrates the distributions of acquiror cumulative abnormal returns for acquisitions grouped by both target public status and method of payment. Each dot represents the cumulative abnormal returns for a specific acquisition. Comparing acquisitions of public targets and acquisitions of private targets reveals that there is significant variation in abnormal returns by target public status, holding method of payment constant. For example, a small number of very poor cash acquisitions of public targets shown in Figure 6 generate extremely negative cumulative abnormal returns as low as -40%. Figure 6 also shows that the underperformance of cash acquisitions of public targets relative to cash acquisitions of private targets is not only the result of a small number of acquisitions with large losses. Instead, the distribution of cumulative abnormal returns for cash acquisitions of public targets appears to be more negatively skewed, especially when compared to acquisitions of public targets using other payment methods. On the other hand, the distribution for cash acquisitions of private targets is more symmetrical to positively skewed, with some deals generating outsized gains for acquiring firm shareholders in the 20% to 40% range.

Another notable finding is that there is a large difference in abnormal performance between stock deals involving private targets and stock deals involving public targets. Stock acquisitions of private targets generate the highest cumulative abnormal returns on average out of any type of acquisition grouped by method of payment and target

public status. Specifically, the average cumulative abnormal returns surrounding stock acquisitions of private targets range from 6.79% according to the market model to 7.41% according to the market-adjusted model. The distribution for stock acquisitions of private targets in Figure 6 also exhibits favorable characteristics relative to the distribution for other types of acquisitions. The mean is clearly positive (the overwhelming majority of CARs are positive) and there is also a noticeable positive skew. The same does not apply for stock acquisitions of public targets, for which most CARs are clustered around 0. This result is consistent with several explanations. According to Chang (1998), privately held targets are more likely to be owned by one or a few large shareholders. When a public acquiror makes a stock acquisition of a private target, a highly concentrated ownership structure in the target implies that a large block of acquiring firm shares is transferred to target shareholders, resulting in the creation of new block shareholders. In contrast, when a public acquiror makes a stock acquisition of a public target, there is no transfer of a large block of shares since ownership in public targets is more dispersed on average. Chang (1998) identifies several distinct block shareholder characteristics that are conducive to long-term value creation in the acquiring firm. First, block shareholders play a crucial role in external governance of the firm by influencing major decisions and holding management accountable for its performance. Second, new block shareholders expose management to a greater threat emanating from the market for corporate control, which works to reduce the agency costs of managerial discretion. Finally, the willingness of block shareholders to accept a stock offer may reveal their confidence in gaining participation in the future success of the acquiring firm, a positive signal for the firm's equity value. The striking benefits created in stock acquisitions of privately held targets can also be seen when comparing stock acquisitions of private targets to acquisitions of private targets using cash (see Figure 7).

Despite the underperformance of stock deals involving public targets relative to stock deals involving private targets, there is some good news for acquiring firm shareholders even with respect to the former. In particular, stock acquisitions of public targets no longer produce significantly negative acquiror abnormal returns, which stands in contrast to both previous findings and the negative drift observed following seasoned equity offerings (Choe et. al., 1993; Fuller et. al., 2002; Travlos, 1987). A possible explanation is that the synergy benefits in stock acquisitions of public targets are high enough in my sample to offset the negative signaling implications of using stock as a medium of exchange. In addition, stock deals offer target shareholders a valuable tax deferral option not available in cash deals, which appears as a discount in stock deals relative to the price that would have been paid in an otherwise equivalent cash deal (Fuller et. al., 2002).

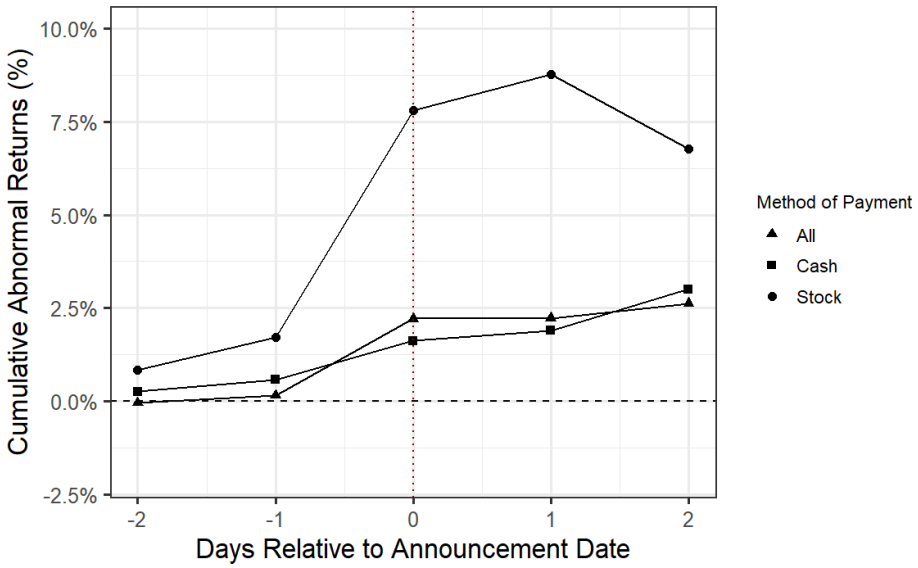

Figure 7. Public Acquiror Cumulative Abnormal Returns for Acquisitions of Private Targets

This figure plots the mean public acquiror CAR at the end of each trading day in the [-2, 2] event window for acquisitions of private targets. It shows that the cumulative abnormal returns associated with acquisitions of private targets using stock as a medium of exchange are higher than for cash deals and acquisitions of private targets in general. All plotted values are statistically significant ($p<0.05$).

4.2. High Financial Stress Acquisitions

Table 3 presents results for the average acquiror CARs in 22 high financial stress acquisitions by NYSE, NYSE American, and Nasdaq listed non-financial, non-utility acquirors. High financial stress acquisitions are defined as deals undertaken during 2-sigma or higher financial stress events, where the Kansas City Financial Stress Index (KCFSI) exceeds two standard deviations above its mean in the month of the acquisition announcement. More specifically, there are two periods in which KCFSI exceeds 2: July 2008 to May 2009 and March 2020. The first high financial stress event encompasses the deep recession associated with the Global Financial Crisis, while the second is a less pronounced period of high financial stress associated with the 2020 stock market crash. Figure 8 shows that the market reaction to acquisition announcements in periods of high financial stress is more volatile than in normal market conditions, with significant price adjustments even in the trading days surrounding the announcement date.[14] The market also underreacts to high financial stress acquisition announcements on the day of the event, pricing in an additional 2% loss in the two subsequent trading days. Altogether, high financial stress acquisitions generate negative or insignificant negative abnormal returns of -3% to -6% in a symmetrical five-day event window surrounding the announcement (see Table 3). This result stands in contrast to the positive abnormal returns observed for all acquisitions in normal market conditions (see Figure 8).

[14] Note that from this point forward I refer to the baseline results as the results for normal market conditions. In Appendix G, I confirm that the baseline results do not materially change when high financial stress acquisitions are removed from the sample. Where the results do differ, the baseline results show lower acquiror gains, therefore allowing for more conservative comparisons.

Table 3. Public Acquiror Returns for High Financial Stress Acquisitions

This table presents cumulative abnormal return (CAR) estimates (see Equation 3) for high financial stress acquisitions. High financial stress acquisitions are defined as deals undertaken during 2-sigma or higher financial stress events, where the Kansas City Financial Stress Index (KCFSI) exceeds two standard deviations above its mean in the month of the acquisition announcement. Panel A reports the CARs for all acquisitions in periods of high financial stress grouped by method of payment. Panels B reports the CARs for all acquisitions in period of high financial stress grouped by target public status. The abnormal returns are estimated using the Market Model, Market-Adjusted Model, and Fama-French 3 Factor Model (FF3). Market Model and FF3 parameters are estimated over a [-200, -20] estimation window. Abnormal returns are cumulated over a five-day [-2, 2] event window. If the acquisition announcement date is a non-trading day (e.g. a weekend or holiday), the event date is assumed to be the first subsequent trading day. Stock acquisitions are deals in which more than 50% of the total consideration transferred consists of an exchange of the acquiror's equity (or other forms of equity consideration) for the target's equity. Cash acquisitions include debt financed deals and cash financed deals, or any combination of the two, exceeding 50% of total consideration. Finally, combination acquisitions are financed by a combination of stock, cash, and other forms of consideration.

	Market Model	Market-Adjusted Model	FF3
Stock	-0.0691*** (-2.7468)	-0.066*** (-2.8065)	-0.0391* (-1.8498)
Cash	-0.0907 (-0.1965)	-0.085 (0.0808)	-0.0791 (-0.3959)
Combination	-0.0433 (-1.43)	-0.005 (-0.066)	-0.0385 (-0.3842)
All	-0.0571** (-2.2236)	-0.0297 (-1.0037)	-0.0487 (-1.167)

Note: Generalized RANK test-statistic in parentheses. * p<0.10; ** p<0.05; *** p<0.01
The RANK test is robust to event-induced volatility, which may be especially pronounced in periods of elevated market uncertainty and idiosyncratic volatility. It is also well-specified for all three return-generating models (Kolari & Pynnonen, 2011).

Grouping the high financial stress acquisitions by method of payment reveals that acquiror CARs in periods of high financial stress are negative regardless of the payment method used (see Table 3). Cash acquisitions generate insignificant negative abnormal returns of approximately -8.5% in periods of high financial stress compared to insignificant positive abnormal returns of approximately 1.5% in normal market conditions. Similarly, combination acquisitions in periods of high financial stress generate insignificant negative abnormal returns of approximately -3% averaged across specifications. On the other hand, in normal market conditions, combination acquisitions create wealth on average with insignificantly positive cumulative abnormal returns in the 1.5% to 2% range. The most strikingly different result by method of payment is for stock acquisitions in periods of high financial stress. As shown in Figure 9, stock acquisitions generate significantly positive abnormal returns to acquiring firm shareholders in normal market conditions. However, in periods of financial stress, stock acquisitions destroy wealth for acquiring firm shareholders on average, with negative cumulative abnormal returns as low as -7%. The difference in stock acquisition CARs between normal market conditions and high financial stress conditions varies from 10.95% according to the Fama-French 3 factor model up to 14.26% according to the

market model. As I will clarify, such a difference is in line with the predictions derived from models of financing choice in Section 2.

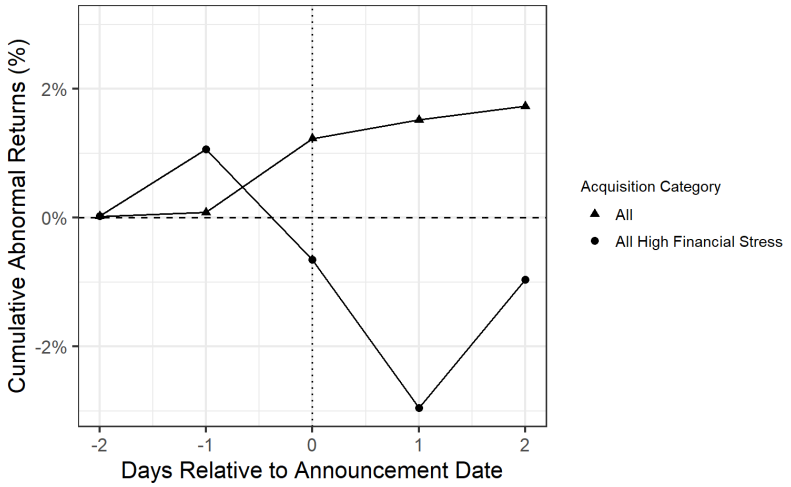

Figure 8. Public Acquiror Cumulative Abnormal Returns for All Acquisitions and Acquisitions in Periods of High Financial Stress

This figure plots the mean public acquiror cumulative abnormal returns at the end of each trading day in the [-2, 2] event window for all acquisitions in the sample and for all acquisitions in periods of high financial stress (Kansas City Financial Stress Index>2). It shows that all acquisitions generate a positive abnormal return to acquiring firm shareholders. However, all acquisitions in periods of high financial stress generate negative abnormal returns to acquiring firm shareholders. All plotted values are statistically significant ($p<0.05$).

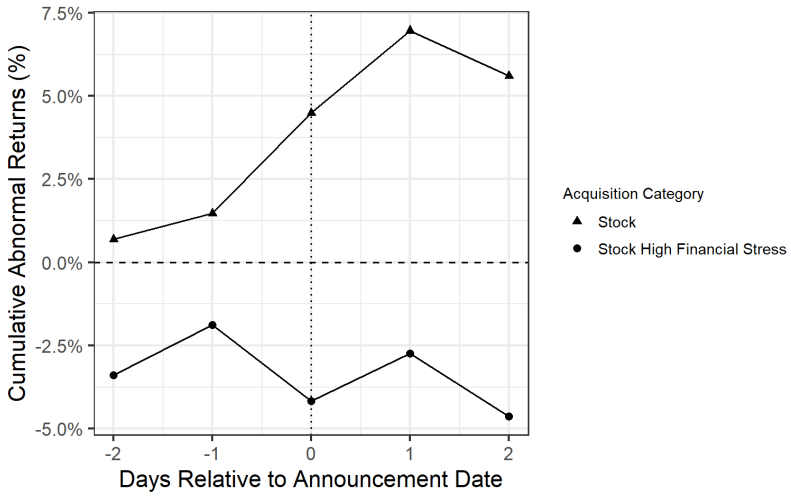

Figure 9. Public Acquiror Cumulative Abnormal Returns for Stock Acquisitions in the Full Sample and in Periods of High Financial Stress

This figure plots the mean public acquiror cumulative abnormal returns at the end of each trading day in the [-2, 2] event window for all stock acquisitions and for stock acquisitions in periods of high financial stress (Kansas City Financial Stress Index>2). It shows that stock acquisitions generate a positive abnormal return to acquiring firm shareholders. However, stock acquisitions in periods of high financial stress generate negative abnormal returns to acquiring firm shareholders. All plotted values are statistically significant ($p<0.05$).

There are two competing explanations for why acquiror gains in normal market conditions turn into acquiror losses in periods of high financial stress. First, as discussed in Section 2, less profitable investment opportunities in recessionary periods worsen the agency conflict between managers and shareholders, shifting the marginal agency costs of managerial discretion curve in Figure 10 up and to the right. Essentially, poorer investment opportunities incentivize management to pursue private benefits by investing in poor projects rather than acting in the best interest of shareholders. Less profitable investment opportunities also shift the marginal agency costs of debt curve in Figure 10 down and to the right. Holding leverage constant, the poorer the investment opportunities available to the firm, the lower the cost of not being able to invest in these projects due to debt overhang issues (Jung et. al., 1986). Overall, according to the agency model in Figure 10, the optimal amount of leverage (L*) should increase in periods of high financial stress. If that is the case, the model suggests that the optimal payment method in periods of financial stress is cash and that the cash bid should be financed using debt. However, recall from Section 2 that periods of high financial stress are characterized by a contraction in the credit supply, increasing the cost at which firms can borrow (Ivashina & Scharfstein, 2010). Self-interested managers respond to the prevailing market conditions by increasing the share of stock consideration or financing the bid entirely with stock.[15] For combination deals, the effect on leverage is ambiguous. However, stock deals almost certainly move the firm further away from optimal leverage. According to the agency model, announcements of stock acquisitions in periods of high financial stress therefore contain more negative information than stock acquisitions in normal market conditions, which is consistent with the results.

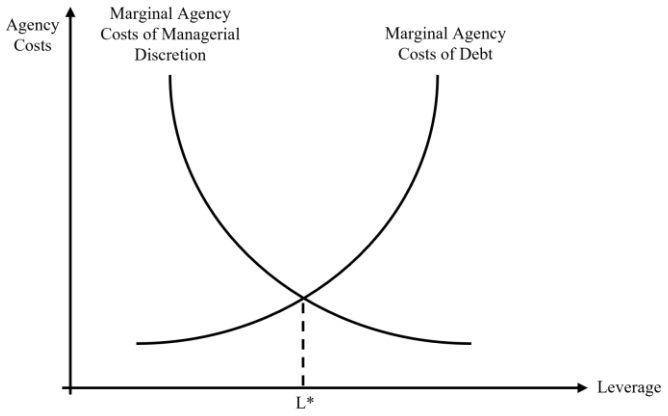

Figure 10. Marginal Agency Costs of Debt/Managerial Discretion
This figure, adopted from Jung et. al. (1996), plots the marginal agency costs of debt and the marginal agency costs of managerial discretion as a function of leverage. The optimal amount of leverage is denoted as L*. At this point, the marginal agency costs of debt are exactly offset by the marginal agency costs of managerial discretion, minimizing total agency costs. When leverage falls below L*, the marginal agency costs of debt are more than offset by the marginal agency costs of managerial discretion, leading to an increase in total agency costs.

[15] This observation is consistent with Figure 3, which shows that as a fraction of the total number of deals and total deal value, there is a higher share of combination in 2008 than in the surrounding years. Nonetheless, an increase in the share of stock consideration is not required to make inferences about the market reaction to acquisitions that do occur in periods of high financial stress.

The second explanation, referred to in Section 2 as the financing hierarchy explanation, states that managers seek to maximize shareholder value, preferring less costly sources of financing. At face value, undertaking a stock deal in periods of high financial stress is a negative signal about firm fundamentals, because it indicates that the firm is not in the position to finance the acquisition using cash or debt. Increased stock price volatility in periods of high financial stress also generates a more severe information asymmetry problem between the firm and investors in equity, allowing acquiring firm managers to issue overvalued securities (Faccio & Masulis, 2005). As a result, the announcement of a stock acquisition is a more negative signal about the firm's equity value in periods of high financial stress. However, in this case there is also a countervailing economic force. Because managers seek to maximize shareholder value, costly debt financing associated with a credit crunch may cause them to leave the market for corporate control entirely. If they do remain, managers may bid less aggressively to adjust for the higher costs of financing. Depressed bidding may therefore generate lower bid premia benefits to the extent that the acquiror obtains a larger share of the gains available in the transaction (Vladimirov, 2015). Only if the costs associated with issuing more expensive sources of financing exceed the lower bid premia benefits will financial stress have a negative impact on acquiror abnormal returns in stock acquisitions. The fact that stock acquisitions destroy wealth on average in periods of high financial stress is in line with this prediction.

The financing hierarchy explanation also performs better than the agency model when it comes to accounting for the underperformance of cash and combination acquisitions in periods of high financial stress. Specifically, the signaling implication of a cash bid or combination bid depends on the proportions of cash, safe debt, risky debt, and equity financing. If the acquiring firm is more cash constrained in periods of high financial stress, it may substitute among financing sources. For example, Leary (2009) finds that firms substitute away from safe bank debt toward risky nonbank debt and equity during a credit crunch. Yet, even safe debt is more expensive in periods of high financial stress (Ivashina & Scharfstein, 2010). As a result, even without substitution of financing sources, cash bids are on average likely to be more expensive to finance. If the lower bid premia benefit in cash and combination acquisitions is more than offset by the costs associated with issuing more expensive sources of financing, financial stress will have a negative impact on the ex-ante success of cash and combination acquisitions. The finding of insignificant negative abnormal returns in cash and combination acquisitions in periods of financial stress as opposed to insignificant positive abnormal returns in normal market conditions is consistent with this prediction.

To examine the relationship between method of payment, financial stress, and abnormal returns further, I perform a cross-sectional analysis with announcement date acquiror abnormal returns in % as the dependent variable. Table 4 reports estimates from four OLS regression specifications in total, two for acquisitions of public targets and two for acquisitions of private targets. The regression specifications are based on a procedure for unbalanced observational data proposed by Nieuwenhuis, Grotenhuis & Pelzer (2017), in which the authors model an interaction between a mean centered continuous variable and a weighted effect coded factor variable. In Table 4, the interaction is between the mean centered continuous variable Kansas City Financial Stress Index (KCFSI) and wecMOP, a weighted effect coded factor variable with three categories:

cash (wecCash), stock (wecStock), and combination (wecCombo). A mean centered version of RelativeSize (RSCentered) is included as a control variable in all 4 specifications. For robustness, I also include additional weighted effect coded control variables wecForeign and wecSameIndustry. The former is a factor variable with the category foreign and the omitted category domestic, which accounts for whether the target is domestic or foreign. The latter is a factor variable with the category SameIndustry and the omitted category DifferentIndustry, which accounts for whether the target is in the same industry as the acquiror. Detailed variable definitions are provided in Appendix B. Using weighted effect coded factor variables and interactions as well as mean-centered continuous variables has the advantage of changing the reference category to the sample mean (Nieuwenhuis, Grotenhuis & Pelzer, 2017). This procedure allows for a more convenient interpretation of the main effects and interaction effects compared to a dummy coded specification. The coefficients of the weighted effect coded categories (wecCash, wecStock, wecCombo) represent how much higher or lower the average abnormal returns are for each category relative to the sample mean abnormal return at the means of the continuous variables KCFSI and relative size. In addition, the interaction term coefficients represent to what extent the effect of KCFSI on abnormal returns differs from the main effect of KCFSI for stock, cash, and combination acquisitions.

In the first regression of the sample of public targets, the coefficients on cash deals, combination deals, KCFSI, and RSCentered are negative and significant. The same coefficients are significant in the second regression, with an even more negative estimate for KCFSI after controlling for whether the target is foreign and whether the target is in the same industry as the acquiror. For acquisitions of public targets, cash deals significantly underperform with announcement day abnormal returns -1.22% lower than the sample average 0.43%. Stock deals outperform with 1.52% higher abnormal return than the sample average, although the coefficient is insignificant. Finally, combination deals involving public targets create significantly more wealth on the day of the announcement, with a 1.74% higher abnormal return than the 0.43% sample average. In addition, the higher the relative size of the deal (RSCentered), the lower the abnormal return in acquisitions of public targets. The negative impact of relative size on acquiror abnormal returns is partly consistent with the results in Fuller et. al. (2002), in which the coefficient is negative and significant for acquisitions of public targets. In Fuller et. al. (2002), the coefficient reflects larger losses the higher the relative size of the target. However, since acquisitions of public targets in my sample create wealth on average, the coefficient may reflect that there is overpayment in deals with a higher relative size, decreasing the acquiring firm's share of gains from the transaction.

In terms of the effect of financial stress on abnormal returns, the average decrease in abnormal returns for acquisitions of public targets is 1.08% for a one standard deviation increase in KCFSI. In periods of high financial stress, the abnormal return is therefore at least 2.16% lower. It is also more than 4.32% lower on average when the Kansas City Financial Stress Index exceeds four standard deviations above its mean as in 2007-2008.

Table 4. OLS Regression Analysis of Acquiror Announcement Date Abnormal Returns

This table reports the estimates from OLS regressions of the announcement day acquiror abnormal returns in % for each acquisition as the dependent variable. For acquisitions announced on non-trading days, I consider abnormal return estimates for the first trading day following the announcement. The categorical variables wecMop (wecCash, wecStock, wecCombo), wecForeign and wecSameIndustry are weighted-effect coded according to the procedure in Nieuwenhuis, Grotenhuis & Pelzer (2017). The Kansas City Financial Stress Index (KCFSI) is a composite measure of disruption to the normal functioning of financial markets. The interaction is between KCFSI and the weighted-effect coded categorical variable wecMop. RSCentered represents the mean centered relative size of the deal. wecForeign controls for whether the target is foreign, and wecSameIndustry controls for whether the target is in the same industry as the acquiror.

$$(Public)\ AR_i = \alpha + \beta_1 wecCash + \beta_2 wecStock + \beta_3 wecCombo + \beta_4 KCFSI + \beta_5 FSCash + \beta_6 FSStock + \beta_7 FSCombo + \beta_8 RSCentered$$

$$(Public)\ AR_i = \alpha + \beta_1 wecCash + \beta_2 wecStock + \beta_3 wecCombo + \beta_4 KCFSI + \beta_5 FSCash + \beta_6 FSStock + \beta_7 FSCombo + \beta_8 RSCentered + \beta_9 wecForeign + \beta_{10} wecSameIndustry$$

$$(Private)\ AR_i = \alpha + \beta_1 wecCash + \beta_2 wecStock + \beta_3 wecCombo + \beta_4 KCFSI + \beta_5 FSCash + \beta_6 FSStock + \beta_7 FSCombo + \beta_8 RSCentered$$

$$(Private)\ AR_i = \alpha + \beta_1 wecCash + \beta_2 wecStock + \beta_3 wecCombo + \beta_4 KCFSI + \beta_5 FSCash + \beta_6 FSStock + \beta_7 FSCombo + \beta_8 RSCentered + \beta_9 wecForeign + \beta_{10} wecSameIndustry$$

	Public	Public	Private	Private
(Intercept)	0.42	0.43	2.16	2.14
	(0.55)	(0.55)	(1.18)	(1.19)
wecCash	-1.23 **	-1.22 *	-0.95	-0.99
	(0.46)	(0.47)	(1.22)	(1.23)
wecStock	1.56	1.52	4.17	4.24
	(1.44)	(1.45)	(3.54)	(3.59)
wecCombo	1.74*	1.74*	0.14	0.15
	(0.86)	(0.86)	(0.99)	(0.99)
KCFSI	-1.04 *	-1.08 *	-0.48	-0.45
	(0.44)	(0.44)	(0.97)	(0.98)
FSCash	0.29	0.32	1.19	1.21
	(0.41)	(0.41)	(1.44)	(1.44)
FSStock	-0.31	-0.42	-1.45	-1.38
	(0.66)	(0.67)	(2.47)	(2.50)
FSCombo	-0.38	-0.26	-0.33	-0.35
	(1.02)	(1.03)	(0.88)	(0.89)
RSCentered	-0.33 *	-0.33 *	0.47	0.39
	(0.15)	(0.15)	(1.84)	(1.85)
wecForeign		0.33		-0.76
		(0.51)		(1.45)
wecSameIndustry		-0.34		-0.40
		(0.45)		(1.00)
N	128	128	328	328
R2	0.12	0.13	0.01	0.01

Note: Heteroskedasticity robust standard errors in parentheses, clustered at the deal level.
* p<0.05, ** p<0.01, *** p<0.001

The interaction terms indicate that the effects of KCFSI on abnormal returns by method of payment do not significantly differ from the main effect of KCFSI. However, the interaction terms are positive for cash acquisitions and negative for stock and combination acquisitions of public targets. Acquiring firm shareholders therefore lose more from a combination deal or stock deal in periods of high financial stress, while losing less from a cash deal. More specifically, when controlling for whether the target is foreign or in the same industry as the acquiror, the effect of KCFSI on abnormal returns is -0.76% in cash deals, -1.34% in combination deals, and -1.50% in stock deals (calculated by adding the main effect to the interaction effect). In periods of high financial stress, this corresponds to a lower bound of 1.52% lower abnormal returns in cash deals, 2.68% lower abnormal returns in combination deals, and 3% lower abnormal returns in stock deals. This result is consistent with the financing hierarchy explanation in which the costs associated with issuing more expensive sources of financing exceed the lower bid premia benefits associated with depressed bidding. It is also partly consistent with the agency model, considering that lower investment opportunities imply more negative signaling implications for stock deals in periods of high financial stress. In addition, because the firm moves closer to optimal leverage in a cash deal, the lower losses in cash deals involving public targets are consistent with the agency model.

In the regressions of acquisitions of private targets, the results differ to a considerable extent in terms of significance, although most coefficients have the same signs. The coefficients on cash deals, combination deals, KCFSI, and relative size are no longer significant even after controlling for whether the target is foreign and whether the target is in the same industry as the acquiror. Cash deals insignificantly underperform with 0.99% lower abnormal returns than the sample average 2.14%. On the other hand, stock acquisitions and combination acquisitions of private targets generate insignificantly higher abnormal returns of 4.24% and 0.15% relative to the 2.14% average. The coefficient on RSCentered is insignificantly positive for acquisitions of private targets, so that a one unit increase in relative size is associated with a 0.39% improvement in abnormal performance. As in Fuller et. al. (2002), the gains to acquiring firm shareholders in acquisitions of private targets are increasing in the relative size of the target.

For acquisitions of private targets, the average decrease in abnormal returns associated with a one standard deviation increase in financial stress is -0.45%, although there is no evidence that the effect is different from zero. In periods of high financial stress, the abnormal return for acquisitions of private targets is therefore at least 0.9% lower and more than 1.8% lower on average when KCFSI exceeds four standard deviations above its mean. Since the interaction term coefficients are insignificant, the effect of KCFSI on abnormal returns does not significantly differ for stock, cash, and combination acquisitions. However, despite being insignificant, the coefficients are comparable to those for acquisitions of public targets, with an even more positive interaction for cash deals and a more negative interaction for stock deals. When controlling for whether the target is foreign or in the same industry as the acquiror, the effect of KCFSI on abnormal returns is an insignificant 0.76% in cash deals, -0.80% in combination deals, and -1.83% in stock deals. In periods of high financial stress, this corresponds to a lower bound of 1.52% higher abnormal returns in cash deals, 1.60% lower abnormal

returns in combination deals, and 3.66% lower abnormal returns in stock deals. This result is consistent with several explanations.

In this case, for cash acquisitions of private targets to have higher abnormal returns in periods of high financial stress, the lower bid premia benefits likely exceed the costs associated with more expensive sources of financing. A possible explanation for the outsized lower bid premia benefit is that private targets are typically smaller and more exposed to capital market imperfections, exhibiting higher cyclical variations in financial performance than larger public targets (Gertler & Gilchrist, 1984). As a result, the valuation of smaller private firms in periods of financial stress may disproportionately decrease. In addition, when resources are scarce, shareholders in the private target may have an increased need for cash, causing them to offer larger liquidity discounts especially in cash deals. This may also be a possible reason why KCFSI has no significantly negative impact for acquisitions of private targets in general – gains from larger liquidity discounts in periods of financial stress offset losses associated with issuing more expensive sources of financing.

The agency model shown in Figure 10 is another possible explanation for the insignificant positive relationship between KCFSI and cash deal abnormal returns for acquisitions of private targets, as well as the insignificant negative relationship between KCFSI and stock deal abnormal returns. These findings are consistent with the firm moving closer to optimal leverage in a cash deal and further away from optimal leverage in a stock deal. In other words, the results are consistent with a reduction in agency costs for cash deals and an increase in agency costs for stock deals in periods of high financial stress.

5. Conclusion

In this thesis I examine two interrelated questions: whether the relationship between method of payment and acquiror abnormal returns established in the literature still holds, and whether periods of high financial stress can account for differences in acquiror abnormal returns by method of payment. Using a sample of 676 acquisitions by NYSE, NYSE American, and Nasdaq listed firms, I find that the returns to acquiring firm shareholders are generally consistent with previous findings. On average, acquiring firm shareholders experience an almost 3% gain in acquisitions of private targets and no significant gains or losses in acquisitions of public targets. The difference is attributed to a larger liquidity discount in deals involving private targets as well as several cash deals involving public targets generating outsized losses. A larger liquidity discount is not the only benefit associated with acquisitions of private targets. In particular, the market reacts to stock acquisitions of private targets by pricing in an increased potential for long-term value creation, associated with a transfer of a large block of shares to target shareholders. The most notable departure from previous findings in my sample is that stock acquisitions of public targets no longer destroy wealth on average, indicating both the value of the tax deferral option to target shareholders in stock deals and larger synergy benefits.

In further analysis, I show that the market reaction to acquisitions announced in periods of high financial stress is negative or insignificantly negative for all payment methods. Specifically, a one standard deviation increase in KCFSI is associated with 1.08% lower abnormal returns for acquisitions of public targets. For acquisitions of private targets, the effect is insignificantly negative, suggesting that higher liquidity discounts in periods of financial stress may partly offset the costs of issuing more expensive sources of financing. Finally, for both public and private targets, there is no evidence that the effect of financial stress on abnormal returns differs by method of payment.

The differing market reactions to acquisitions announced in periods of high financial stress are consistent with two theoretical models: an agency model developed by Jung, Kim & Stulz (1996) and standard pecking order theory. According to the agency model, poorer investment opportunities in periods of high financial stress increase the optimal amount of leverage. However, a credit crunch restricts the ability of acquiring firm managers to finance the bid with debt. As a result, self-interested managers undertake a stock deal, moving the firm further away from optimal leverage and exacerbating agency problems associated with managerial discretion. The negative market reaction to stock acquisitions in periods of high financial stress is consistent with this view. The agency model also predicts a more negative market reaction for stock deals than for cash or combination deals because cash or combination entail either a movement towards optimal leverage, or no substantial change in leverage. The insignificantly more positive market reaction to cash acquisitions of private targets in periods of financial stress is consistent with this prediction. However, the agency model fails to explain why financial stress also causes cash acquisitions of public targets and combination acquisitions overall to underperform.

Pecking order theory helps explain these relationships more comprehensively. According to pecking order theory, managers prefer less costly forms of financing, and an information asymmetry problem allows managers to issue overvalued securities. In periods of high financial stress, a higher cost of financing depresses bidding and generates lower bid premia benefits. However, there are also costs associated with financing a bid with more expensive sources of financing in a period with increased information asymmetry. In this view, the negative relationship between financial stress and abnormal returns arises because the costs associated with more expensive sources of financing exceed the lower bid premia benefits of depressed bidding. Since the higher cost of financing affects all payment methods, this prediction helps explain why there are no statistically significant differences in the effect of financial stress by method of payment. In addition, it helps explain why there is no statistically significant negative relationship between financial stress and abnormal returns in acquisitions of private targets – depressed bidding and scarce resources in periods of financial stress induce shareholders of private targets to offer larger liquidity discounts. Especially in cash acquisitions of private targets, the lower bid premia benefits offset losses associated with issuing more expensive sources of financing.

The results have important implications for the method of payment choice in periods of financial stress. To the extent that acquiring firm managers seek to maximize shareholder value, the firm would likely benefit from undertaking an acquisition only after a return to normal market conditions, regardless of the method of payment and especially if the target is public. In addition, shareholders may benefit from improved corporate governance mechanisms if there is concern about the increased agency costs of managerial discretion that arise when self-interested managers undertake a stock deal in a period of high financial stress.

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7. Appendix A – Sample Selection Procedure

Step 1: SDC Data Screen		
Criteria	Obs.	Criteria Description
1		Date Announced: 01/01/1984 to 12/31/2022
2	154005	Acquiror Primary Stock Exchange: A, NM, N
3	5743	Form of the Deal: Acquisition of Majority Interest (AM)
4	2963	Deal Type: 1, 3, 4, 8 (Disclosed Value M&A, Leveraged Buyouts, Exchange Offers, Tender Offers)
5	2433	Deal Status: C, U
6	2233	Deal Value > $1 Mil
7	1963	Percent of Shares Owned After Transaction > 50%
8	1637	Acquiror Primary NAIC ≠ Sector 22 (Utilities) & Sector 52 (Finance and Insurance)
9	1625	Acquiror Public Status: Public
10	1551	Target Primary NAIC ≠ Sector 22 (Utilities) & Sector 52 (Finance and Insurance)
11	1438	Target Public Status: Public, Private, Subsidiary
Step 2: Data Cleaning, Matching, and Additional Criteria		
Criteria	Obs.	Criteria Description
12	1431	Removing Duplicate Observations
13	NA	Match SDC Data with daily return data from CRSP, removing observations with no/partial match (e.g. missing return data in event window or estimation window)
14	NA	Relative Size (Deal Value/Acquiror MVE) > 1%
15	676	FINAL SAMPLE

8. Appendix B – Variable Definitions

Panel A: Summary Statistics	
Variable	Definition
DealValue	Total amount of consideration transferred by the acquiring firm in $ mil.
AcquirorMVE	Total equity market value of the acquiring firm 4 weeks before the acquisition announcement date.
RelativeSize	$\text{RelativeSize} = \frac{DealValue}{Acquiror\ MVE}$
PercentCash	$\text{PercentCash} = \frac{Cash\ Consideration}{DealValue}$
PercentStock	$\text{PercentStock} = \frac{Stock\ Consideration}{DealValue}$
PercentCombination	$\text{PercentCombination} = \frac{Other\ Consideration}{DealValue}$
SameIndustry	A binary variable =YES if the acquiring firm and the target share the same two-digit SIC codes, and =NO otherwise.
CrossBorderDeal	A binary variable =YES if the target firm is non-US based, and =NO otherwise.
Panel B: Cross-Sectional Analysis	
wecMop	A factor variable with three categories: cash (wecCash), stock (wecStock), and combination (wecCombo), weighted effect coded according to the procedure in Nieuwenhuis, Grotenhuis & Pelzer (2017).
RSCentered	A mean centered version of the continuous variable RelativeSize.
KCFSI	A continuous variable Kansas City Financial Stress Index (KCFSI), mean centered by construction. The Kansas City Financial Stress Index is a composite of the following variables: several measures of credit spreads, uncertainty about fundamental asset values (volatility), and stress in the banking industry (bank stock volatility and cross-sectional dispersion), among others (Hakkio & Keeton, 2009).
FSMop	An interaction variable between the weighted-effect coded factor variable wecMop and the mean centered continuous variable KCFSI, interacted according to the procedure in Nieuwenhuis et. al. (2017). The interaction produces three interaction terms: FSCash, FSStock, and FSCombo
wecForeign	A factor variable with two categories: Foreign and the omitted category Domestic, weighted effect coded according to the procedure in Nieuwenhuis et. al. (2017).
wecSameIndustry	A factor variable with two categories: SameIndustry and the omitted category DifferentIndustry, weighted effect coded according to the procedure in Nieuwenhuis et. al. (2017).

Note: Definitions of variables directly from the SDC database are adopted from the SDC definition glossary (Reuters, 2017). These include DealValue, AcquirorMVE, PercentCash, PercentStock, PercentCombination, and CrossBorderDeal.

9. Appendix C – CAR Estimates using Value-Weighted Market Returns

This table presents cumulative abnormal return (CAR) estimates for the acquisitions in the sample, using value-weighted market returns instead of equally-weighted market returns as in Table 2. Panel A reports the CARs for all acquisitions in the sample grouped by method of payment. Panels B and C report the CARs for acquisitions of public targets and acquisitions of private targets grouped by method of payment. The abnormal returns are estimated using the Market Model, Market-Adjusted Model, and Fama-French 3 Factor Model (FF3). Market Model and FF3 parameters are estimated over a [-200, -20] estimation window. Abnormal returns are cumulated over a five-day [-2, 2] event window. If the acquisition announcement date is a non-trading day (e.g. a weekend or holiday), the event date is assumed to be the first subsequent trading day. Refer to Table 2 and Appendix B for definitions of stock, cash and combination acquisitions.

Panel A: All Acquisitions Grouped by Method of Payment			
	Market-Model	Market-Adjusted Model	FF3
Stock	**0.0572* (2.03)**	0.0779** (3.34)	0.0673** (2.69)
Cash	0.0105 (1.20)	0.0175** (2.93)	0.0146 (1.96)
Combination	0.0176 (1.56)	0.0207 (1.92)	0.0154 (1.34)
All	0.0178* (2.52)	0.024*** (3.90)	0.0193** (2.85)
Panel B: Acquisitions of Public Targets Grouped by Method of Payment			
	Market-Model	Market-Adjusted Model	FF3
Stock	0.0398 (0.61)	*0.0968* (2.28)*	0.0674 (1.32)
Cash	-0.0244 (-0.98)	-0.0038 (-0.33)	-0.0192 (-1.02)
Combination	0.0376 (1.99)	**0.0372* (2.08)**	0.042* (2.34)
All	0.0015 (0.08)	0.0207 (1.97)	0.0093 (0.66)
Panel C: Acquisitions of Private Targets Grouped by Method of Payment			
	Market-Model	Market-Adjusted Model	FF3
Stock	0.069* (2.71)	**0.0758** (2.84)**	0.0692** (2.62)
Cash	0.0309** (3.16)	0.0301** (3.16)	0.032** (3.21)
Combination	0.0168 (0.85)	0.0232 (1.22)	0.0157 (0.77)
All	0.0268* (2.42)	0.0302** (2.83)	0.0267* (2.35)

Note: t-statistics in parentheses. The estimates in **bold** have a higher statistical significance level (one additional *) and the estimates in *italics* have a lower statistical significance level (one fewer *), compared to the estimates in Table 2. All results are comparable, both in magnitude and statistical significance, to the original results in Table 2 using equally-weighted market returns.
* p<0.05, ** p<0.01, *** p<0.001

10. Appendix D – Placebo Test Results

This table reports cumulative abnormal return (CAR) estimates generated by *partially* mimicking a procedure proposed by Brown & Warner (1985), in which the estimates are simulated by assigning a placebo event date to each event. As evidence that the observed abnormal returns are driven by the event itself rather than by other factors, the simulation should generate no significantly positive or negative abnormal returns on average (Kothari & Warner, 2007). In this case, each acquisition in the sample is assigned a *single* placebo event date 30 calendar days (approx. 21 trading days) before the acquisition announcement date, corresponding roughly to the end of the estimation window in the original sample. This placebo event date provides a reasonable gap which ensures that the estimates are not contaminated by any leakage of information prior to the acquisition announcement. Panel A reports the simulated CARs for all acquisitions in the sample grouped by method of payment. Panels B and C report the simulated CARs for acquisitions of public targets and acquisitions of private targets grouped by method of payment. The abnormal returns are estimated using the Market Model, Market-Adjusted Model, and Fama-French 3 Factor Model (FF3). Market Model and FF3 parameters are estimated over a [-200, -20] estimation window. Abnormal returns are cumulated over a five-day [-2, 2] event window. If the placebo event date is a non-trading day (e.g. a weekend or holiday), the event date is assumed to be the first subsequent trading day. Refer to Table 2 and Appendix B for definitions of stock, cash and combination acquisitions.

Panel A: All Acquisitions Grouped by Method of Payment			
	Market-Model	Market-Adjusted Model	FF3
Stock	-0.056* (-2.2504)	-0.0278 (-1.8308)	-0.007 (-0.2192)
Cash	-0.008 (-1.0997)	-0.0007 (-0.1599)	-0.0066 (-1.0445)
Combination	0.007 (1.6165)	0.0108* (2.5098)	0.0049 (1.0598)
All	-0.0046 (-1.0539)	0.0027 (0.8758)	-0.0011 (-0.2483)
Panel B: Acquisitions of Public Targets Grouped by Method of Payment			
	Market-Model	Market-Adjusted Model	FF3
Stock	-0.0774 (-1.3531)	-0.0147 (-1.2642)	0.0603 (0.7673)
Cash	-0.0168 (-0.7122)	0.0053 (0.488)	-0.0149 (-0.7743)
Combination	0.0162 (1.2851)	0.0195 (1.5894)	0.0159 (1.1794)
All	-0.0151 (-0.9356)	0.0068 (0.9186)	0.0034 (0.2215)
Panel C: Acquisitions of Private Targets Grouped by Method of Payment			
	Market-Model	Market-Adjusted Model	FF3
Stock	-0.0491 (-1.5906)	-0.0369 (-1.3181)	-0.0414 (-1.2272)
Cash	-0.0004 (-0.0741)	0.001 (0.1776)	0.0003 (0.047)
Combination	0.0047 (0.877)	0.0093 (1.6047)	0.0006 (0.0992)
All	-0.0015 (-0.3523)	0.0023 (0.5264)	-0.0028 (0.6006)

Note: t-statistics in parentheses. All simulated results are statistically insignificant except the Market Model CAR for stock acquisitions and the Market-Adjusted Model CAR for combination acquisitions.
* p<0.05, ** p<0.01, *** p<0.001

11. Appendix E – Replicating Fuller et. al. (2002) Results

This table presents cumulative abnormal return (CAR) estimates for acquisitions announced in the January 1, 1990 to December 31, 2000 period. The sample is equivalent to Fuller et. al. (2002), except that it does not consider only frequent acquirors. Fuller et. al. (2002) report abnormal returns estimated using the Market-Adjusted Model. Panel A reports the CARs for all acquisitions in the sample grouped by method of payment. Panels B and C report the CARs for acquisitions of public targets and acquisitions of private targets grouped by method of payment. The abnormal returns are estimated using the Market Model, Market-Adjusted Model, and Fama-French 3 Factor Model (FF3). Market Model and FF3 parameters are estimated over a [-200, -20] estimation window. Abnormal returns are cumulated over a five-day [-2, 2] event window. If the acquisition announcement date is a non-trading day (e.g. a weekend or holiday), the event date is assumed to be the first subsequent trading day. Stock acquisitions are deals in which more than 50% of the total consideration transferred consists of an exchange of the acquiror's equity for the target's equity. Cash acquisitions include debt financed deals and cash financed deals, or any combination of the two, exceeding 50% of total consideration. Finally, combination acquisitions are financed by a combination of stock, cash, and other forms of consideration.

Panel A: All Acquisitions Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Cash	**0.0397** (2.5782)**	**0.0394** (2.5687)**	**0.0403** (2.5716)**
Stock	*0.0364 (0.7792)*	**0.0765** (2.2051)**	**0.068* (1.8617)**
Combination	*0.0071 (0.7301)*	*0.0119 (1.4448)*	*0.004 (0.3352)*
All	**0.021** (2.2639)**	**0.0285*** (3.5526)**	**0.0233** (2.4509)**
Panel B: Acquisitions of Public Targets Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	*0.0483 (0.2767)*	*0.1971* (2.0759)*	*0.1519 (1.3823)*
Cash	**0.0306 (1.5379)**	**0.0301 (1.4325)**	**0.0232 (1.3199)**
Combination	**0.0525 (1.4769)**	**0.0482 (1.4351)**	**0.0527 (1.5759)**
All	*0.0423 (1.4556)*	*0.0621*** (2.7357)*	*0.0542** (2.4041)*
Panel C: Acquisitions of Private Targets Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	*0.0553 (1.6676)*	**0.0604* (1.8998)**	*0.061 (1.6888)*
Cash	**0.0561* (1.9868)**	**0.0535* (1.9163)**	**0.0605** (2.0726)**
Combination	*-0.0022 (-0.1843)*	*0.007 (0.8745)*	*-0.0056 (-0.3346)*
All	**0.0222* (1.9141)**	**0.0275*** (2.6807)**	*0.0223 (1.6019)*

Note: t-statistics in parentheses. The estimates in **bold** are consistent with the estimates in Fuller et. al. (2002). The estimates in *italics* are inconsistent with the estimates in Fuller et. al. (2002). Notable discrepancies include: no finding of negative significant abnormal returns for stock acquisitions of public targets, no finding of negative and significant abnormal returns for all acquisitions of public targets, and a less robust finding of positive and significant abnormal returns for stock acquisitions of private targets.
* p<0.10; ** p<0.05; *** p<0.01

12. Appendix F – Baseline Results Excluding Large Deals

This table presents cumulative abnormal return (CAR) estimates for the acquisitions in the sample excluding large deals with DealValue≥$200M. Excluding large deals ensures that the results in Table 2 are not sensitive to their exclusion (i.e. that no bias is introduced from their inclusion in the full sample). The results confirm that abnormal returns by method of payment for a sample excluding large deals are not directionally different from abnormal returns by method of payment for all deals. Panel A reports the CARs for all acquisitions grouped by method of payment. Panels B and C report the CARs for acquisitions of public targets and acquisitions of private targets grouped by method of payment. The abnormal returns are estimated using the Market Model, Market-Adjusted Model, and Fama-French 3 Factor Model (FF3). Market Model and FF3 parameters are estimated over a [-200, -20] estimation window. Abnormal returns are cumulated over a five-day [-2, 2] event window. If the acquisition announcement date is a non-trading day (e.g. a weekend or holiday), the event date is assumed to be the first subsequent trading day. Stock acquisitions are deals in which more than 50% of the total consideration transferred consists of an exchange of the acquiror's equity (or other forms of equity consideration) for the target's equity. Cash acquisitions include debt financed deals and cash financed deals, or any combination of the two, exceeding 50% of total consideration. Finally, combination acquisitions are financed by a combination of stock, cash, and other forms of consideration.

Panel A: All Acquisitions Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	0.0535 (1.5874)	**0.0746* (2.655)**	**0.0729* (2.5974)**
Cash	0.0102 (0.768)	0.0216** (2.795)	0.0145 (1.3994)
Combination	0.0203 (1.4693)	0.0239 (1.8029)	0.0178 (1.2663)
All	0.0192* (2.0582)	0.0274*** (3.4897)	**0.0214* (2.4576)**
Panel B: Acquisitions of Public Targets Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	-0.0044 (-0.0433)	0.087 (1.2835)	0.062 (0.8619)
Cash	-0.0453 (-0.8926)	0.0025 (0.1389)	-0.031 (-0.8989)
Combination	0.0321 (1.3211)	0.0326 (1.4325)	**0.037 (1.6328)**
All	-0.0139 (-0.4464)	0.0236 (1.5653)	0.0041 (0.1841)
Panel C: Acquisitions of Private Targets Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	0.0726* (2.7491)	0.0726* (2.6148)	0.0771** (2.8537)
Cash	0.0291** (2.6216)	0.0292** (2.7306)	0.0304** (2.7174)
Combination	0.0186 (0.8276)	0.0255 (1.1808)	0.0183 (0.7945)
All	0.0275* (2.1906)	**0.0311* (2.5676)**	0.0283* (2.2015)

Note: t-statistics in parentheses. The estimates in **bold** have a lower statistical significance level (one fewer *), compared to the estimates in Table 2, and the underlined estimates are no longer significant when compared to the estimates in Table 2. Most results are comparable, both in magnitude and statistical significance, to the original baseline results in Table 2. The findings in Table 2 are therefore generalizable to deals with DealValue<$200M. * p<0.05; ** p<0.01; *** p<0.001

13. Appendix G – Results Excluding High Financial Stress

This table presents cumulative abnormal return (CAR) estimates for the acquisitions in the sample excluding high financial stress acquisitions (i.e. acquisitions announced when the Kansas City Financial Stress Index>2). Excluding high financial stress acquisitions ensures that the results in Table 2 are generalizable to normal market conditions. The results confirm that abnormal returns excluding high financial stress acquisitions are almost the same as the results reported in Table 2. Panel A reports the CARs for the acquisitions grouped by method of payment. Panels B and C report the CARs for acquisitions of public targets and acquisitions of private targets grouped by method of payment. The abnormal returns are estimated using the Market Model, Market-Adjusted Model, and Fama-French 3 Factor Model (FF3). Market Model and FF3 parameters are estimated over a [-200, -20] estimation window. Abnormal returns are cumulated over a five-day [-2, 2] event window. If the acquisition announcement date is a non-trading day (e.g. a weekend or holiday), the event date is assumed to be the first subsequent trading day. Stock acquisitions are deals in which more than 50% of the total consideration transferred consists of an exchange of the acquiror's equity (or other forms of equity consideration) for the target's equity. Cash acquisitions include debt financed deals and cash financed deals, or any combination of the two, exceeding 50% of total consideration. Finally, combination acquisitions are financed by a combination of stock, cash, and other forms of consideration.

Panel A: All Acquisitions Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	**0.0602* (2.072)**	0.0815*** (3.3702)	0.0733** (2.9801)
Cash	0.0104 (1.0634)	0.0194*** (3.2076)	0.0149 (1.9056)
Combination	0.018 (1.5492)	0.0204 (1.8294)	0.0151 (1.271)
All	0.0181** (2.434)	0.0249*** (3.9463)	0.0197** (2.8331)
Panel B: Acquisitions of Public Targets Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	0.0462 (0.6697)	0.1082* (2.4248)	0.0874 (1.8012)
Cash	-0.0246 (-0.8308)	0.0017 (0.1546)	-0.0167 (-0.816)
Combination	**0.0433* (2.2022)**	**0.0395* (2.0874)**	**0.0428* (2.268)**
All	0.0035 (0.1692)	0.0257* (2.4329)	0.0132 (0.8877)
Panel C: Acquisitions of Private Targets Grouped by Method of Payment			
	Market Model	Market-Adjusted Model	FF3
Stock	0.071* (2.6645)	0.077* (2.7882)	0.0708* (2.5289)
Cash	0.0297** (2.939)	0.0307** (3.1131)	0.031** (3.0286)
Combination	0.0173 (0.8557)	0.0223 (1.1498)	0.0163 (0.7866)
All	0.0266* (2.3539)	0.0301** (2.7516)	0.0266* (2.3002)

Note: t-statistics in parentheses. The estimates in **bold** are insignificant in Table 2, but significant here. Otherwise, the results are comparable both in direction, magnitude, and statistical significance to the original baseline results in Table 2. The findings in Table 2 are therefore generalizable to normal market conditions. * p<0.05; ** p<0.01; *** p<0.001