Impact of Leverage on Stock Price Reactions to M&A Announcements

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Abstract:

There are several studies about the impact of different variables on cumulative abnormal returns around mergers and acquisitions (M&A) announcements. However, there is a gap in the literature concerning the effect of both acquirer and target leverage on stock price reactions. With a final main sample of 974 deals in the US between 2000 and 2023, this dissertation studies the impact of both acquirers' and targets' capital structure decisions on the short-term stock price reaction of both acquirers and targets around the announcement date of the transaction. It was found that, on average, a highly leveraged company acquiring a lowly leveraged firm was significantly associated with a positive stock price reaction for acquirers. In the baseline model without controls, it was discovered that the previous relationship also holds for targets and that, on average, a highly leveraged acquirer purchasing a lowly leveraged target was significantly associated with negative cumulative abnormal returns for targets. These findings were subject to further analysis for different event windows, expansion and recession periods, and election and non-election years. The results obtained from these robustness tests are consistent with those derived from the main regressions.

Keywords: mergers and acquisitions; leverage; capital structure; cumulative abnormal returns

Impacto da Alavancagem nas Reações do Preço das Ações a Anúncios de Fusões e Aquisições

Afonso Ilharco Duarte

Resumo:

Existem vários estudos sobre o impacto de diferentes variáveis nos retornos anormais acumulados aquando do anúncio de fusões e aquisições. No entanto, existe uma lacuna na literatura no que respeita ao efeito da alavancagem tanto da empresa adquirente como da empresa alvo nas reações dos preços das ações. Com uma amostra principal final de 974 transações nos EUA entre 2000 e 2023, esta dissertação estuda o impacto das decisões de estrutura de capital das empresas adquirentes e alvo na reação de curto prazo do preço das ações, tanto dos adquirentes como das empresas alvo, em torno da data de anúncio da transação. Verificou-se que, em média, uma empresa altamente alavancada que adquire uma empresa pouco alavancada está significativamente associada a uma reação positiva do preço das ações para as empresas adquirentes. No modelo de base sem controlos, verificou-se que a relação anterior também se aplica às empresas-alvo e que, em média, um adquirente altamente alavancado que compra uma empresa-alvo pouco alavancada está significativamente associado a retornos anormais acumulados negativos para as empresas-alvo. Estas conclusões foram objeto de uma análise mais aprofundada para diferentes janelas do evento, períodos de expansão e recessão, e anos eleitorais e não eleitorais. Os resultados obtidos a partir destes testes de robustez são consistentes com aqueles derivados das regressões principais.

Palavras-chave: fusões e aquisições; alavancagem; estrutura de capital; retornos anormais acumulados

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II. Abbreviations

M&A - mergers and acquisitions

CAR - cumulative abnormal returns

High_High - highly leveraged acquirer acquiring a highly leveraged target

High_Low - highly leveraged acquirer acquiring a lowly leveraged target

Low_Low - lowly leveraged acquirer acquiring a lowly leveraged target

ROA - return on assets

US - United States of America

1. Introduction

Several authors have analyzed the short-term stock price reaction to an M&A announcement in both acquirers and targets. Most have arrived at the same conclusion that targets experience positive and significant cumulative abnormal returns, while acquirers' reactions are inconclusive (Healy et al., 1992; Kellner, 2024; Mulherin and Boone, 2000). Moreover, some researchers focused instead on the factors that could influence this reaction. Many have studied the effect of the payment method on the stock performance around a transaction announcement (De Bodt et al., 2022; Faccio and Masulis, 2005: Travlos, 1987). Others have investigated the influence on the stock price reaction of the M&A type (Lewellen, 1971) or prior experience in transactions (Fuller et al., 2002). However, few have explored the impact of leverage on cumulative abnormal returns. The traditional approach of measuring cumulative abnormal returns around the announcement date of a deal was used to assess the stock price reaction. Therefore, the scope of this dissertation is limited to inspecting the short-term effects instead of delving into the long-term performance.

Therefore, the main objective of this dissertation is to examine the effect of capital structure decisions from both acquirers and targets on both firms' stock price reaction to an M&A announcement. Capital structure theories have been one of the most widely discussed topics in corporate finance since the foundational work of Modigliani and Miller (1958). The debate centers on how firms should balance debt and equity financing to maximize their value. To attain the main goal of this dissertation, leverage was computed by dividing the sum of total debt, composed of long-term debt and debt in current liabilities, by total stockholders' equity. Then, using the median of leverage for acquirers and targets, 4 types of deals were considered in terms of their leverage combination. Thus, in this sample composed of 974 deals in the US from 2000 to 2023, there are highly leveraged acquirers acquiring highly leveraged targets, highly leveraged acquirers acquiring lowly leveraged targets, highly leveraged firms acquiring lowly leveraged firms, and lowly leveraged companies acquiring lowly leveraged companies. As a result, the explanatory variables included in the empirical model consist of 3 dummy variables: the High_High Dummy, the High_Low Dummy, and the Low_Low Dummy.

It was found that the High_Low Dummy coefficient is positive and statistically significant. This indicates that a deal between a highly leveraged acquirer and a lowly leveraged target is associated with a positive stock price reaction. This is consistent with Jensen’s (1986) free cash flow hypothesis, which argues that an increased cost of debt resulting from the financing of an

acquisition forces managers to be more selective, to allocate their resources efficiently, and to focus on high-return investments. Consequently, managerial interests are aligned with those of shareholders, resulting in a positive reaction by the market. When adding control variables, one can observe that this finding still holds for acquirers, but the coefficient loses its significance for targets. Moreover, in the baseline model without controls, it was found that, for targets, the High_High Dummy coefficient is negative and statistically significant at the 1% level. This is in line with previous studies, which concluded that when leverage exceeds a certain level, bankruptcy costs, and agency costs arise, resulting in a negative effect on firm value and a detrimental perception by the market (Altman, 1984; Titman, 1984). Additional regressions with interaction terms reveal that leverage and the financing method have jointly a significant impact on the stock price reaction.

Furthermore, several regressions were conducted to enhance the robustness of these findings. Firstly, the results were tested for different event windows. In general, the results obtained for the additional event windows (-5, +5), (-10, -1), and (0, +10) further solidified the conclusions derived from the main event window (-2, +2). Secondly, the same methodology was applied to both expansion and recession periods to address macroeconomic factors. Finally, an analysis was performed for election and non-election years, since election years are periods of increased volatility that could lead to changes in investor sentiment.

The structure of this dissertation is organized as follows. Section 2 presents the literature review, starting with cumulative abnormal returns literature for acquirers and targets. Then, it delves into the various motives driving mergers and acquisitions, followed by the impact of several variables in post-merger performance and the discussion of the main capital structure theories. Section 3 comprises the data and methodology, beginning with a detailed explanation of the variables included in the model, followed by a description of the extraction, filtering, and treatment processes that led to the final sample, and finalizing with summary statistics. Section 4 outlines the results, including regression analyses for the model with and without control variables, with different event windows, regressions for expansion and recession periods, and election and non-election years. Section 5 provides the conclusions and suggests avenues for future research. Section 6 compiles all references and Section 7 contains the appendices.

2. Literature Review

Some researchers have studied the impact of several variables on the bidding firm's stock returns around the merger announcement, such as the type of M&A, methods of payment, and previous M&A experience. The traditional method for evaluating post-merger performance consists of assessing the stock price reaction around the day of the merger's announcement to identify any abnormal returns, calculated as the difference between actual returns and a benchmark (Franks et al., 1991; Agrawal et al., 1992). Some studies focused on the long-term performance of these transactions. However, potential confounding effects that are unrelated to the transaction itself can jeopardize the interpretation of long-term returns (Bruner, 2002). Another limitation of examining long-term post-merger performance is the selection of an appropriate benchmark return (Loughran and Vijh, 1997).

2.1 Short-term Stock Price Reaction

Evidence for target companies is consistent, with almost all studies documenting positive and statistically significant abnormal returns. On the other hand, existing literature concerning acquiring companies is inconclusive. Kellner (2024) investigated short-term stock price reactions around M&A announcements for both targets and acquirers in the European Union. He observed strong positive abnormal returns for targets and hardly any significant stock price reactions were reported for acquirers. Similarly, Healy et al. (1992), found positive returns for target shareholders (mean 45.6%) and insignificant returns for acquiring shareholders, using a dataset composed of the largest 50 mergers between US public industrial companies from 1979 to 1983. Mulherin and Boone (2000) researched acquisitions instead, using a sample of 1305 firms between 1900 and 1999. They also concluded that targets experience a positive and significant wealth effect (21.2%), while bidders experience an insignificant change in wealth around the announcement date.

2.2 Motives for Mergers and Acquisitions

To comprehend the impact of some factors, it is necessary to first grasp the reasons and motives behind M&A deals. The primary motivation for mergers and acquisitions is the value creation through synergies between the acquiring company and the target company, leading to a positive combined wealth effect. Harford et al. (2012) reported positive cumulative abnormal returns for the target and acquiring firms combined. Moreover, they concluded that managerial

entrenchment negatively impacts shareholder value, since combined cumulative abnormal returns for dictator-run companies are significantly lower than those for democracy firms.

Trautwein (1990) examined merger motives and formulated them through seven theories, divided into three groups according to their level of plausibility. The valuation theory, the empire-building theory, and the process theory carry the highest level of plausibility and are supported by evidence. The valuation theory posits that acquiring managers possess better information about the target compared to the stock market, the empire-building theory states that managers prioritize maximizing their own value over shareholder value, and the process theory describes the decision to pursue mergers and acquisitions as a strategic decision process. Therefore, this theory considers mergers as an outcome of processes and not as an outcome of rational choices. According to the author, the second group consists of two relevant theories, though less plausible than the ones explained earlier. The efficiency theory states that mergers are planned to achieve operating, financial, and managerial synergies and the monopoly theory indicates that mergers are executed to achieve greater market share and market power. Finally, with the lowest level of plausibility and unsupported by evidence, the disturbance theory suggests that periods of economic turmoil result in merger waves and the raider theory argues that mergers are undertaken to transfer wealth from the shareholders of the target companies.

2.3 Influence of Other Variables on Stock Price Reaction

There is a vast body of literature that examined the influence of the M&A type (horizontal, vertical, or conglomerate) on post-merger performance, particularly of a conglomerate merger. When companies from unrelated sectors merge, this transaction can offer diversification benefits. Nevertheless, the acquirers must have the capacity to integrate operations across different industries efficiently. Lewellen (1971) investigated the relationship between the type of M&A and leverage. He concluded that the earnings of merged companies in a conglomerate are less dependent on each other since there is a lower correlation in their revenue streams than merged firms within the same industry that have similar economic and market conditions. Accordingly, a conglomerate merger has more diversified income sources, reducing the overall risk. Consequently, creditors might perceive the combined entity as more financially stable, increasing its capacity to carry and repay additional debt.

The payment method (cash vs stock) in mergers and acquisitions shapes how the market perceives the deal, impacting the firm's stock returns. Travlos (1987) reported that acquiring firms using stock financing face significant losses around the merger announcement. This aligns

with the signaling hypothesis, which suggests that bidding firms paying with their stock believe their stock is overvalued, giving a negative signal to the market. On the other hand, the study found “normal” returns in bidding firms using cash offers. The market reacts better to cash offers because this method of financing indicates confidence in the firm’s financial strength. Faccio and Masulis (2005) investigated the relationship between ownership or control dilution and the method of payment, using a dataset of 3667 European transactions from 1997 to 2000. They found that corporate control incentives to opt for cash financing are the strongest when a bidder’s controlling shareholder possesses an intermediate level of voting power from 20 to 60%. This contradicts De Bodt et al. (2022) findings for US acquirers, who discovered that acquirer control dilution does not influence the choice of the method of payment. However, Faccio and Masulis's (2005) study was conducted in the European context, characterized by unique ownership structures, with a significant concentration of ownership and a high level of heterogeneity across countries in corporate governance rules and market conditions. Besides corporate control, Faccio and Masulis (2005) also studied bidders’ financial strength influence on the payment method. They reported that all variables used to measure financial strength, namely collateral, leverage, and asset size are significant at the 1% level and their coefficients exhibit the expected signs, concluding that bidder financing constraints encourage stock financing.

Firms with a track record of successful mergers and acquisitions use their expertise and experience to enhance their financial performance, leading to a significant impact on their abnormal returns in the following deals. Using a dataset of 539 firms that acquired five or more public, private, and/or subsidiary targets between 1990 and 2000, which makes a total of 3135 bids, Fuller et al. (2002) concluded that acquiring a private firm or a subsidiary has a positive effect while acquiring a public firm negatively impacts acquiring abnormal returns. Additionally, the author found that these effects are amplified when the target is larger and when the acquirer uses stock as the payment method.

However, there is a gap within the literature regarding the effect of the capital structure of both the acquirer and target firm on the stock price reaction of both firms to an M&A announcement. Some authors focused on the impact of leverage on the payment method (Faccio and Masulis, 2005; Heron and Lie, 2002) and the influence of the M&A type on leverage (Lewellen, 1971).

Nevertheless, capital structure decisions have been the subject of extensive research in the empirical corporate finance field. The determinants of capital structure include firm characteristics such as size, age, earnings volatility, the market-to-book ratio, profitability, asset

structure, namely assets tangibility and liquidity, and uniqueness, categorized by research and development expenditures and selling expenses. R&D over sales and selling expenses over sales measure uniqueness because companies selling closely related substitutes tend to invest less in R&D, as their innovations can be more easily replicated, and companies offering relatively unique products are likely to invest more in advertising and promoting their goods (Titman and Wessels, 1988).

2.4 Capital Structure Theories

Aside from firms' characteristics, there is a vast body of literature on the optimal choice of capital structure. According to Modigliani and Miller's (1958) irrelevance theorem, in perfect markets, capital structure doesn't affect firm value, and therefore, firms should be indifferent regarding the way they finance themselves, i.e., the way they balance debt and equity. Since capital markets exhibit several imperfections, this theory doesn't acknowledge real-world factors, leading to the static trade-off theory. This theory posits that a firm's optimal capital structure is determined by balancing the benefits of the tax shield of debt against the costs of financial distress and agency conflicts (Modigliani and Miller, 1963).

Subsequently, Myers and Majluf (1984) proposed the pecking order theory, which states that firms minimize costs associated with information asymmetries by hierarchizing their financing sources. According to this theory, when seeking funding, firms prioritize retained earnings, followed by debt, and consider equity as a last resort, since investors demand higher returns due to their limited information about the company's financial health. Consequently, issuing equity is often accompanied by an adverse market reaction.

Managers' attempts to time the market can also explain capital structure decisions. Furthermore, managers aim to maximize firm value, so they seek to capitalize on market mispricing by issuing equity when they perceive their stock to be overvalued. Baker and Wurgler (2002) found that firms that issued equity when their market valuations were high (low) generally have a low (high) leverage.

3. Data and Methodology

The sample was retrieved from Deal Screener database by Thomson Reuters Eikon and includes all completed mergers and acquisitions in the US from 2000 to 2023. Besides the announcement dates and both acquirer's and target's primary ticker symbols, deal characteristics were also obtained, namely the method of payment (cash, stock, or other financing), both acquirer's and target's industries, total assets, acquirer's return on assets (ROA) and acquirer's market value. Accounting data necessary to compute leverage ratios were sourced from Compustat North America, which limits the sample to public companies. Stock information, namely cumulative abnormal returns, computed following a Market Adjusted Model, was extracted from CRSP database. Certain estimation parameters were applied to this extraction. To capture the immediate market reaction, it was fixed a main event window of [-2 to +2 days] around the announcement date (Brown and Warner, 1985) and an estimation period of 200 days before the event window, with a gap of 20 days to avoid the contamination from the event itself. Additional event windows were added to the analysis to enhance the robustness. The additional event windows considered were [-5 to +5 days], [-10 to -1 days], and [0 to +10 days]. The event window (-5, +5) was chosen to capture a slightly broader market reaction than the main event window (-2, +2). The event window (-10, -1) was also selected to examine the pre-event anticipation period, indicating whether the deals' announcement was anticipated based on rumors or information leakage. Lastly, the event window (0, +10) assesses post-event adjustments, suggesting whether the initial reaction was accurate. Moreover, a minimum of 50 valid returns was required for each firm to ensure sufficient data for a precise estimation. Furthermore, firms with a ROA below -100% and above 200% were removed to avoid unusual deal cases. Deals involving financial firms were also excluded since they are subject to specific accounting and regulatory requirements, and their higher leverage could bias the analysis (Healy et al., 1992; Uysal, 2011). To reduce the effect of outliers, cumulative abnormal returns are winsorized at the top and bottom 1% levels for both acquirers and targets. After all the filtering, treatment, and merging processes, the main dataset for the empirical models is composed of 974 deals.

3.1 Variables

The primary goal of this analysis is to examine the impact of both target and acquiring firms' leverage on post-merger performance. Therefore, the stock price reaction measured by the cumulative abnormal returns is the dependent variable and leverage dummies are the

independent variables of this empirical model. To create these dummies (High_High, High_Low, and Low_Low), leverage thresholds must be defined. Firms with leverage ratios above the median are highly leveraged, while those below the median are lowly leveraged. This results in 4 types of deals: a highly leveraged company acquiring another highly leveraged company, a lowly leveraged company acquiring another lowly leveraged company, a highly leveraged company acquiring a lowly leveraged company, and a lowly leveraged company acquiring a highly leveraged company.

However, this method has some limitations that should be acknowledged. One limitation already explored is the reduced number of observations since a significant number of deals retrieved from Deal Screener did not have the accounting data necessary to compute leverage ratios available on Compustat. Another limitation is the assumption that the sample includes highly and lowly leveraged firms, which arises from using the median to classify the deals in terms of leverage. It should also be noted that the interpretation of the coefficients obtained in the next section is in comparison with the omitted variable (Low_High).

Leverage ratios were computed using the following formula, with the 3 variables retrieved in the year preceding the merger:

$$\frac{\text{Long} - \text{term Debts} \ + \ \text{Debt in Current Liabilities}}{\text{Stockholders Equity (Total)}}$$

Besides leverage, other variables influence post-merger performance. To capture their effects on cumulative abnormal returns, the following control variables, all retrieved in the year before the transaction (except acquirer market value, retrieved 4 weeks before the transaction), were added to the empirical model:

Method of financing dummies – It was considered that firms have 3 alternatives to finance their transactions: only with cash, only with stock, or another method, including mixed (cash and stock) and unknown financing. The Cash Financing Dummy (Stock Financing Dummy) takes the value of 1 when the deal is 100% financed by cash (stock) and 0 otherwise. Firms financing their deals only with cash seem to be financially stronger. In contrast, investors may think that firms financing their deals only with stock may perceive their stock to be overvalued. Thus, a better stock price reaction is expected when the deal is financed by cash.

Conglomerate dummy - This dummy variable captures industry-specific effects on the stock price reaction to an M&A announcement. It was assigned a value of 1 whenever both the target and acquirer belonged to different industries (conglomerate) and a value of 0 otherwise. In a

conglomerate merger, there is a higher diversification of income sources, which could reduce the firm's risk and, consequently, be well-perceived by the market. Therefore, there is a positive correlation between this variable and the dependent variable.

Acquirer ROA – Acquirers with higher ROA may suggest stronger operational profitability and be seen as better positioned to integrate targets effectively. On the other hand, firms with a lower ROA may be viewed as riskier, and investors might react negatively to potential transactions. Hence, a positive relationship is expected between this variable and the acquirer's cumulative abnormal returns.

Acquirer market value – A high market value typically signals financial strength and enhances the acquirer's creditworthiness. Thus, it is expected that acquirers with a high market valuation experience a positive stock price reaction. This variable was logarithmized to reduce scale differences, approximating the variable to a normal distribution.

Relative size – This variable was computed by dividing the target's total assets by the acquirer's total assets. When the target is relatively small compared to the acquirer, the deal may have a lower impact on the acquirer's future cash flows. Therefore, a larger relative size is expected to lead to more significant market reactions and, ultimately, increased cumulative abnormal returns.

Accordingly, the following regression was estimated:

$$
\begin{aligned}
&Cumulative\ Abnormal\ Returns_i \\
&\quad = High\_High\ Dummy_i + High\_Low\ Dummy_i + Low\_Low\ Dummy_i \\
&\quad + Cash\ Financing\ Dummy_i + Stock\ Financing\ Dummy_i \\
&\quad + Conglomerate\ Dummy_i + Acquirer\ ROA_i \\
&\quad + ln\,(Acquirer\ Market\ Value_i) + Relative\ Size_i + \epsilon_i
\end{aligned}
$$

3.2 Summary Statistics

Table 1 – Summary Statistics

Table 1 presents the summary statistics of the sample. Columns (2), (3), (4), (5), and (6) report, respectively, the number of observations, the mean, the standard deviation, the minimum and the maximum of each variable represented in column (1).

Variable	Obs	Mean	Std. Dev.	Min	Max
(1)	(2)	(3)	(4)	(5)	(6)
Acquirer CAR	974	-0.006	0.072	-0.219	0.201
Target CAR	974	0.254	0.280	-0.122	1.598
High_High Dummy	974	0.322	0.468	0	1
High_Low Dummy	974	0.178	0.382	0	1
Low_Low Dummy	974	0.322	0.468	0	1
Low_High Dummy	974	0.178	0.382	0	1
Cash Financing Dummy	974	0.475	0.500	0	1
Stock Financing Dummy	974	0.174	0.379	0	1
Conglomerate Dummy	974	0.168	0.374	0	1
Acquirer ROA	974	-4.057	20.424	-99.610	102.605
Ln Acquirer Market Value	974	8.822	2.062	2.271	14.715
Relative Size	974	0.435	1.159	0.000	30.515

Regarding the dependent variable, Table 1 shows that cumulative abnormal returns have a slightly negative mean of -0.006 for acquirers and a positive mean of 0.254 for targets. This indicates that, on average, cumulative abnormal returns decrease by 0.6 percentage points for acquirers and increase by 25.4 percentage points for targets. Among the 4 types of deals in terms of leverage, the most represented in this sample are a highly leveraged company acquiring another highly leveraged company and a lowly leveraged company acquiring another lowly leveraged company. Additionally, Table 1 reveals that there are more transactions between firms from the same industry than conglomerate mergers and that the most common method of financing in this sample is with cash only. Appendix 1 shows the distribution of transactions in this sample by year. The highest transaction activity occurred in 2010 and 2012, with 59 mergers and acquisitions (6.06%) each. Conversely, 2002 and 2003 had the fewest deals, with 17 (1.75%) and 23 (2.36%), respectively. In recent years, 2020 represented a year of low M&A activity mainly due to the COVID-19 pandemic, with only 31 transactions (3.18%), the weakest year since 2009, which recorded 27 transactions (2.77%).

Table 2 - Sample Distribution by Acquirer Industry

Table 2 provides the industry distribution of acquirers in this sample. Columns (2) and (3) report, respectively, the frequency and percentage of observations within each industry represented in column (1). The dataset consists of 974 acquirers, categorized into 11 industries.

Acquirer Industry (1)	Freq. (2)	Percent (3)
Consumer Products and Services	49	5.03
Consumer Staples	35	3.59
Energy and Power	117	12.01
Healthcare	214	21.97
High Technology	229	23.51
Industrials	103	10.57
Materials	41	4.21
Media and Entertainment	40	4.11
Real Estate	62	6.37
Retail	46	4.72
Telecommunications	38	3.90
Total	974	100.00

Table 3 - Sample Distribution by Target Industry

Table 3 provides the industry distribution of targets in this sample. Columns (2) and (3) report, respectively, the frequency and percentage of observations within each industry represented in column (1). The dataset consists of 974 acquirers, categorized into 11 industries.

Target Industry (1)	Freq. (2)	Percent (3)
Consumer Products and Services	50	5.13
Consumer Staples	36	3.70
Energy and Power	116	11.91
Healthcare	219	22.48
High Technology	246	25.26
Industrials	91	9.34
Materials	45	4.62
Media and Entertainment	36	3.70
Real Estate	59	6.06
Retail	38	3.90
Telecommunications	38	3.90
Total	974	100.00

Table 2 shows that, in this sample, most acquirers belong to the High Technology (23.51%) and Healthcare (21.97%) industries. On the other hand, the least represented industry is Consumer Staples, with only 35 transactions (3.59%) involving acquirers from this industry.

Table 3 indicates that most targets also belong to the High Technology and Healthcare industries, with 246 (25.26%) and 219 (22.48%) firms, respectively. In contrast, the Consumer Staples and Media and Entertainment industries have the fewest targets, with only 36 each (3.70%).

Appendix 2 shows the sample distribution by industry pair. Regarding mergers and acquisitions between firms from the same industry, the Healthcare industry is the most frequent with 200 transactions. Relatively to conglomerate mergers, the pairs with the most deals in this sample consist of firms from the High Technology industry acquiring firms from the Consumer Products and Services industry, and Telecommunications companies acquiring High Technology companies, both with 11 observations.

A correlation matrix (Appendix 3) was constructed with all the variables presented in the empirical model for multicollinearity purposes. Multicollinearity becomes problematic when the absolute correlation reaches 0.7 or higher. Looking at the correlation matrix, one can observe that no correlations exceed that threshold. The highest correlation in absolute value is 0.476 between High_High Dummy and Low_Low Dummy. The cash financing dummy is the variable most positively correlated with cumulative abnormal returns for both acquirers (0.156) and targets (0.259). Additionally, all variables exhibit stronger correlations in absolute value with target cumulative abnormal returns compared to acquirer cumulative abnormal returns. Furthermore, a highly leveraged company acquiring another highly leveraged company is associated with negative cumulative abnormal returns, while the other two leverage variables are associated with positive cumulative abnormal returns.

4. Results and Empirical Analysis

4.1 Analysis of Leverage as Predictor of Stock Price Reaction

Table 4 - OLS Regressions without control variables, where the dependent variable is cumulative abnormal returns using the main event window (-2, +2)

Table 4 displays the results of the OLS regressions for the main event window (-2, +2), where the dependent variable represents the stock price reaction, measured by the cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables High_High Dummy, High_Low Dummy, and Low_Low Dummy, without the control variables. The sample comprises 974 transactions between 2000 and 2023. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)
Variables	Acquirer CAR	Target CAR
High_High Dummy	0.00746	-0.0771***
	(0.00688)	(0.0237)
High_Low Dummy	0.0168**	0.0844**
	(0.00760)	(0.0331)
Low_Low Dummy	0.00928	0.0195
	(0.00713)	(0.0250)
Constant	-0.0143**	0.258***
	(0.00571)	(0.0197)
Observations	974	974
Adjusted R-squared	0.002	0.039

Column (1) of the regression results presented in Table 4 shows that the coefficient of the High_Low Dummy, the variable that defines a highly leveraged acquirer purchasing a lowly leveraged target, is positive and statistically significant at the 5% level. In contrast, the other two leverage dummies do not show significance.

In Column (2), the coefficient of the High_Low Dummy is positive and statistically significant at the 5% significance level. Therefore, this variable is associated with a positive stock price reaction for both acquirers and targets, indicating that acquirers with greater debt capacity may exhibit improved performance. These findings are consistent with Bhandari's (1988) study,

which found that stock returns and leverage, measured by the debt-to-equity ratio, are positively related. This positive coefficient in both columns aligns with Servaes' (1991) findings. Using the q ratio as a proxy of managerial performance and using a sample of 704 mergers from 1972 to 1987, he concludes that both firms involved in the transaction experience greater returns when acquirers have high q ratios and targets have low q ratios, i.e. when acquirers are performing well, and targets are underperforming. According to Jensen's (1986) free cash flow hypothesis, an increased cost of debt resulting from the deal financing pressures managers to operate efficiently and only pursue high-return investment projects. This relationship between leverage and stock returns aligns with prior studies, that suggest leverage as a mechanism to enhance managerial decision-making and underscore the importance of having a target capital structure to maximize shareholder value (Harford et al., 2009; Uysal, 2011).

Additionally, in Column (2), the coefficient of the variable defined by a highly leveraged firm acquiring another highly leveraged firm (High_High Dummy) is negative and statistically significant at the 1% significance level, while the Low_Low Dummy is insignificant. The negative coefficient of the High_High Dummy implies that, on average, a highly leveraged firm acquiring a highly leveraged target, is associated with a negative stock price reaction. Therefore, leverage levels exceeding a certain threshold result in a negative market reaction. This aligns with several studies and theories about the optimal capital structure. The trade-off theory suggests that firms weigh the tax shield advantages of debt against the costs of financial distress (Modigliani and Miller, 1963). Altman (1984) concluded that, in many bankrupt firms, i.e. firms that have experienced a strongly negative market reaction, the present value of expected bankruptcy costs exceeded the present value of tax shield benefits from leverage. Thus, he concluded that these firms were overleveraged, negatively impacting their value and leading to a detrimental performance. Titman (1984) suggested that increasing leverage beyond a certain level may increase agency costs, resulting in a negative reaction by investors. Additionally, Miller and Bromiley (1990) used the debt-to-equity ratio as a proxy of strategic risk and found a negative relationship between this factor and performance.

To enhance the robustness of the results obtained, OLS regressions were conducted with different event windows, specifically (-5, +5), (-10, -1), and (0, +10). The results are reported in Table 5 when the dependent variable is the acquirer CAR and shown in Table 6 when the dependent variable is the target CAR.

Table 5 - OLS Regressions without control variables, where the dependent variable is cumulative abnormal returns for acquirers using additional event windows

Table 5 displays the results of the OLS regressions using different event windows, where the dependent variable represents the stock price reaction, measured by the cumulative abnormal returns for acquirers. The additional event windows considered were (-5, +5), (-10, -1), and (0, +10). The table presents the coefficients for the explanatory variables High_High Dummy, High_Low Dummy, and Low_Low Dummy, without the control variables. The sample comprises transactions between 2000 and 2023. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Event window	(-5, +5)	(-10, -1)	(0, +10)
Variables	Acquirer CAR	Acquirer CAR	Acquirer CAR
High_High Dummy	0.0105	0.00652	0.0101
	(0.00853)	(0.00619)	(0.00937)
High_Low Dummy	0.0264***	0.00451	0.0251**
	(0.00974)	(0.00694)	(0.0102)
Low_Low Dummy	0.0133	0.0142**	0.0132
	(0.00884)	(0.00662)	(0.00976)
Constant	-0.0165**	-0.00590	-0.0167**
	(0.00707)	(0.00516)	(0.00780)
Observations	973	970	971
Adjusted R-squared	0.005	0.003	0.003

The estimators obtained above solidify the conclusions derived from the main event window coefficients. The coefficients of the High_Low Dummy are positive and statistically significant when using the event windows (-5, +5) and (0, +10). For the event window (-10, -1) the coefficient of this variable is not significant, as expected, indicating there was no information leakage or rumors in the days before the announcement date of an M&A.

Table 6 - OLS Regressions without control variables, where the dependent variable is cumulative abnormal returns for targets using additional event windows

Table 6 displays the results of the OLS regressions using different event windows, where the dependent variable represents the stock price reaction, measured by the cumulative abnormal returns for targets. The additional event windows considered were (-5, +5), (-10, -1), and (0, +10). The table presents the coefficients for the explanatory variables High_High Dummy, High_Low Dummy, and Low_Low Dummy, without the control variables. The sample comprises transactions between 2000 and 2023. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Event window	(-5, +5)	(-10, -1)	(0, +10)
Variables	Target CAR	Target CAR	Target CAR
High_High Dummy	-0.0681**	-0.00572	-0.0723**
	(0.0274)	(0.00975)	(0.0282)
High_Low Dummy	0.124***	0.0459***	0.0941**
	(0.0390)	(0.0133)	(0.0401)
Low_Low Dummy	0.0361	-0.00108	0.0369
	(0.0280)	(0.0108)	(0.0284)
Constant	0.265***	0.0240***	0.251***
	(0.0201)	(0.00794)	(0.0208)
Observations	973	970	971
Adjusted R-squared	0.033	0.021	0.026

The results obtained for different event windows, shown in Table 6, are consistent with previous findings using the main event window (-2, +2). For the event windows (-5, +5) and (0, +10), the High_High Dummy and the High_Low Dummy coefficients are statistically significant. Furthermore, the first shows a negative association with the target's cumulative abnormal returns, while the second demonstrates a positive association. Additionally, in the event window (-10, -1), the High_Low Dummy coefficient is positive and significant at 1%, which suggests that for this type of deal, there likely occurred an information leakage of information about the transaction before the announcement date. This implies that some market participants caused a stock price change in the target before the public announcement of the deal, since they may have had prior knowledge about it.

Table 7 - OLS Regressions with control variables, where the dependent variable is cumulative abnormal returns

Table 7 displays the results of the OLS regressions for the main event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (1) and targets (2). The table presents the coefficients for the explanatory variables with the control variables Cash Financing Dummy, Stock Financing Dummy, Conglomerate Dummy, Acquirer ROA, Ln Acquirer Market Value, and Relative Size. The sample comprises 974 transactions between 2000 and 2023. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)
Variables	Acquirer CAR	Target CAR
High_High Dummy	0.00662	-0.0295
	(0.00726)	(0.0231)
High_Low Dummy	0.0157**	0.0143
	(0.00795)	(0.0311)
Low_Low Dummy	0.00630	-0.0162
	(0.00759)	(0.0264)
Cash Financing Dummy	0.0188***	0.108***
	(0.00557)	(0.0207)
Stock Financing Dummy	-0.00965	-0.0624***
	(0.00835)	(0.0201)
Conglomerate Dummy	-0.00485	0.0690***
	(0.00648)	(0.0251)
Acquirer ROA	7.69e-05	-0.00319***
	(0.000131)	(0.000639)
Ln Acquirer Market Value	-0.00180	0.00526
	(0.00129)	(0.00470)
Relative Size	-0.00336	-0.0136
	(0.00215)	(0.0129)
Constant	-0.00165	0.161***
	(0.0135)	(0.0487)
Fixed Effects	YES	YES
Observations	974	974
Adjusted R-squared	0.051	0.229

Table 7 presents the regression model, which includes control variables and incorporates year and industry-fixed effects to control for time-specific and sector-specific factors. It shows that all the coefficients of the explanatory variables lose the statistical significance they demonstrated in the baseline model without controls (Table 4), except the High_Low Dummy in Column (1), which is positive and statistically significant at 5%.

Regarding the control variables, in Column (1), only the Cash Financing Dummy coefficient is statistically significant, at the 1% level. Conversely, in Column (2) several coefficients are statistically significant, namely the Cash Financing Dummy, Stock Financing Dummy, Conglomerate Dummy, and Acquirer ROA, all at the 1% level.

The expected signals were obtained concerning the coefficients of the financing method variables. The Cash Financing Dummy coefficient is positive and statistically significant in both columns, while the Stock Financing Dummy coefficient is negative and significant only for targets. According to the signaling hypothesis, firms paying with their stock give a negative signal to shareholders since it suggests their stock is overvalued. On the other hand, the market responds positively to cash offers because it reflects confidence in the firm's financial stability.

The conglomerate dummy coefficient is positive, indicating that when firms from different industries are involved in a deal, there is, on average, a positive stock price reaction for targets. This is consistent with previous studies, which found that, in conglomerate mergers, besides a debt capacity effect, there is a diversification effect that reduces the combined entity risk (Melnik and Pollatschek, 1973).

Regarding the acquirer ROA, its coefficient is negative and significant in column (2). This signal suggests that investors perceive more profitable acquirers as having better negotiation capacity to structure the transactions in their favor, resulting in negative returns for the target shareholders.

As stated in Section 3, this model has no multicollinearity problems, since all correlations between the leverage dummies and the control variables are lower than 0.7 in absolute value. Therefore, several OLS regressions with interaction terms were conducted to test whether the relationship between the leverage dummies and the stock price reaction is moderated by other variables, giving some insights about the loss of significance of some explanatory variables. These regressions were performed only when the dependent variable is the targets' cumulative abnormal returns since, for acquirers, the High_Low Dummy is significant in both models (Table 4 and Table 7).

Table 8 – OLS Regression with interaction terms, where the dependent variable is cumulative abnormal returns for targets

Table 8 displays the OLS regressions with interaction terms for the main event window, where the dependent variable is the target's CAR. The sample comprises 974 transactions. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Variables	(1) Target CAR	(2) Target CAR
High_High Dummy	0.0490	0.0161
	(0.0565)	(0.0491)
High_Low Dummy	-0.0793*	-0.0684*
	(0.0454)	(0.0382)
Low_Low Dummy	-0.00784	-0.000968
	(0.0289)	(0.0308)
Cash Financing Dummy	0.121***	0.122***
	(0.0352)	(0.0324)
Stock Financing Dummy	-0.0710**	-0.0783**
	(0.0345)	(0.0340)
Conglomerate Dummy	0.0712**	
	(0.0306)	
Acquirer ROA	-0.00354***	
	(0.00136)	
Ln Acquirer Market Value	0.00815	
	(0.00643)	
Relative Size	-0.0118	
	(0.0137)	
High_High * Cash	-0.139**	-0.115*
	(0.0677)	(0.0610)
High_Low * Cash	0.129**	0.128**
	(0.0653)	(0.0626)
High_High * Stock	-0.0376	-0.0333
	(0.0515)	(0.0503)
High_Low * Stock	0.121*	0.0980
	(0.0666)	(0.0663)
High_High * Conglomerate	-0.0397	
	(0.0692)	
High_Low * Conglomerate	-0.0485	
	(0.0796)	
High_High * Acq ROA	-0.00375	
	(0.00371)	
High_Low * Acq ROA	-0.00262	
	(0.00288)	
Constant	0.128**	0.225***
	(0.0643)	(0.0255)
Observations	974	974
Adjusted R-squared	0.220	0.149

Table 8 shows, in Column (1), the output with interaction terms between the leverage variables significant for targets in Table 4 (the High_High Dummy and the High_Low Dummy) and the control variables that show significance in the same table (the Cash Financing Dummy, the Stock Financing Dummy, the Conglomerate Dummy, and the Acquirer ROA). We can observe significant relationships between leverage and method of financing variables. Additionally, Column (2) shows that the coefficient of this interaction is significant between both leverage variables and the Cash Financing Dummy. Consequently, one can conclude that, despite the loss of significance in the High_High Dummy and the High_Low Dummy in Column (2) of Table 7, the impact of these variables jointly with the Cash Financing Dummy is significant. A deal only financed by cash between a highly leveraged acquirer and a highly leveraged target is, on average, associated with a negative stock price reaction. This negative relationship negates the previously observed positive market reaction associated with cash financing, indicating that investors may have concerns about debt overload and future liquidity and suggesting that two highly leveraged firms involved in a transaction may strain resources and increase risk. Thus, this heightened financial risk stemming from a highly leveraged acquirer acquiring a highly leveraged target outweighs the investors' confidence in the firm's financial strength typically associated with cash-financed deals.

Appendix 4 shows the results of the model that includes control variables using different event windows, namely (-5, +5), (-10, -1), and (0, +10), with the acquirer's cumulative abnormal return as the dependent variable. Appendix 5 displays the estimators for the stock price reaction of targets. All the control variables show significance in at least one event window, except the acquirer ROA for acquirers (Appendix 4) and the relative size for targets (Appendix 5).

4.2 Analysis of recession and expansion periods

Since macroeconomic factors have a great influence on investors' perceptions, a regression analysis was performed across economic cycles, for expansion and recession periods.

The US Business Cycle Expansions and Contractions data presented by *The National Bureau of Economic Research* and analyzed by the *Federal Reserve Bank of St. Louis* was sourced to identify the recession periods. Accordingly, within our sample period, there were considered 3 periods of recession: from March 2001 to November 2001 (The Dot-Com Recession), from December 2007 to June 2009 (The Great Recession), and from February 2020 to April 2020 (The COVID-19 Recession). The remaining periods were considered periods of expansion.

Table 9 - OLS Regressions for Recession Periods

Table 9 reports the results for recession periods of the OLS regressions for the main event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables High_High Dummy, High_Low Dummy, and Low_Low Dummy, without the control variables. The sample comprises 96 transactions. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)
Variables	Acquirer CAR	Target CAR
High_High Dummy	-0.0245	-0.202**
	(0.0322)	(0.0915)
High_Low Dummy	-0.00693	0.158
	(0.0415)	(0.137)
Low_Low Dummy	-0.0338	-0.0977
	(0.0331)	(0.0948)
Constant	0.00967	0.356***
	(0.0306)	(0.0829)
Observations	96	96
Adjusted R-squared	-0.009	0.129

Table 9 shows that, in Column (1), none of the estimated coefficients of the explanatory variables is statistically significant in recession periods. This may be attributable to the relatively low number of observations under analysis for recession years, which likely reduces the statistical power of the empirical model. Column (2) reveals that the High_High Dummy coefficient is negative and statistically significant at the 5% level. This negative signal aligns with the results presented in Table 4.

Table 10 - OLS Regressions for Expansion Periods

Table 10 reports the results for expansion periods of the OLS regressions for the main event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables High_High Dummy, High_Low Dummy, and Low_Low Dummy, without the control variables. The sample comprises 878 transactions. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Variables	(1) Acquirer CAR	(2) Target CAR
High_High Dummy	0.0113*	-0.0613**
	(0.00685)	(0.0246)
High_Low Dummy	0.0192**	0.0763**
	(0.00747)	(0.0330)
Low_Low Dummy	0.0165**	0.0294
	(0.00718)	(0.0259)
Constant	-0.0176***	0.249***
	(0.00555)	(0.0199)
Observations	878	878
Adjusted R-squared	0.005	0.030

As presented in Table 10, all the coefficients of the explanatory variables for expansion years, except the Low_Low Dummy in Column (2), are statistically significant. In Column (1), all coefficients are positive, which suggests that, on average, the market reacts positively to mergers and acquisitions during expansion periods for all leverage combinations between the firms involved in the transaction, when compared to the omitted variable. This may occur since a favorable economic outlook typically boosts investor sentiment and leads them to see increasing leverage as an indication of management's confidence in generating future cash flows. Despite being positive, the High_High Dummy coefficient is the lowest among the explanatory variables and is statistically significant at a lower level of 10%. In Column (2), the High_High Dummy coefficient is negative and statistically significant at the 5% level, while the High_Low Dummy coefficient is positive and significant at 5%. These two signals align with the regression results presented in Table 4. Appendix 6 presents the model with control variables for recession periods, while Appendix 7 outlines the results for expansion periods.

4.3 Analysis of election and non-election years

A regression analysis was also conducted for election and non-election years. Political cycles and investor reactions are closely intertwined, as election years frequently enhance uncertainty in financial markets through potential policy and regulatory changes. During these times, investors could also be more optimistic due to the expected election outcome and might accept more risk, and consequently, perceive better deals between highly leveraged firms. The election years considered in the analysis were 2000, 2004, 2008, 2012, 2016, and 2020. The remaining years within the timeframe of this study 2000-2023 were considered non-election years.

Table 11 - OLS Regressions for Election Years in the US

Table 11 reports the results for election years in the US of the OLS regressions for the main event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables High_High Dummy, High_Low Dummy, and Low_Low Dummy, without the control variables. The sample comprises 253 transactions. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Variables	(1) Acquirer CAR	(2) Target CAR
High_High Dummy	0.0227*	-0.113**
	(0.0135)	(0.0541)
High_Low Dummy	0.0251*	0.0401
	(0.0146)	(0.0797)
Low_Low Dummy	-0.00819	-0.0399
	(0.0140)	(0.0540)
Constant	-0.0189*	0.339***
	(0.0108)	(0.0473)
Observations	253	253
Adjusted R-squared	0.026	0.024

Looking at Table 11, one can observe that, in Column (1), the High_Low Dummy coefficient is positive and statistically significant at 10%, consistent with previous regressions. Moreover, the High_High dummy coefficient is positive and statistically significant at 10%, indicating that, during election years, acquirers' stock price tends to react favorably to deals between highly leveraged firms, on average. Therefore, investors perceive acquirers willing to take greater risks well, possibly due to increased optimism about the election outcome. In Column

(2), the High_High Dummy is negative and statistically significant at the 5% level, which aligns with previous regressions.

Table 12 – OLS Regressions for Non-Election Years in the US

Table 12 reports the results for non-election years in the US of the OLS regressions for the main event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables High_High Dummy, High_Low Dummy, and Low_Low Dummy, without the control variables. The sample comprises 721 transactions. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Variables	(1) Acquirer CAR	(2) Target CAR
High_High Dummy	0.00155	-0.0703***
	(0.00784)	(0.0256)
High_Low Dummy	0.0106	0.0921***
	(0.00888)	(0.0343)
Low_Low Dummy	0.0158*	0.0332
	(0.00816)	(0.0281)
Constant	-0.0119*	0.235***
	(0.00658)	(0.0207)
Observations	721	721
Adjusted R-squared	0.005	0.042

Table 12 shows that, in Column (2), the High_High Dummy and the High_Low Dummy coefficients are statistically significant at 1%. Their negative and positive signals, respectively, align once more with Table 4 results.

Appendix 8 displays the model with controls for election years, while Appendix 9 shows the results obtained for non-election years. Similarly to Table 7, in Column (1) of Appendix 8 the coefficient of the High_Low Dummy is positive and significant, while the other leverage variables have lost their significance.

5. Conclusion and Further Research

Using a sample of 974 deals in the US from 2000 to 2023, this dissertation examined the effect of the capital structure of both acquirers and targets on the short-term stock price reaction to M&A announcements, measured by the cumulative abnormal returns of both firms involved in the transaction. The deals were divided into four leverage combinations, defined by the median leverage levels of acquirers and targets.

Overall, the results show that, on average, a highly leveraged acquirer acquiring a lowly leveraged target was associated with a positive and statistically significant stock price reaction for acquirers. Moreover, in the OLS regressions without control variables, the previous finding also holds for targets. Additionally, a highly leveraged acquirer acquiring a highly leveraged target is associated with negative cumulative abnormal returns for targets. Further regressions with interaction terms reveal that leverage and the method of financing have jointly a significant impact on cumulative abnormal returns.

These results were subject to analysis under different event windows and the coefficients obtained using the additional event windows (-5, +5) and (0, +10) are consistent with those obtained using the main regression (-2, +2). Furthermore, this methodology was applied to recession and expansion periods. Only the High_High Dummy coefficient is significant and negative for acquirers in recession periods. In expansion periods, the coefficients are, generally, consistent with those obtained in the main regression. However, the High_High Dummy coefficient for acquirers became significant and positive, indicating that a favorable economic landscape leads investors to perceive risk better since increasing leverage could represent a higher pressure on managers to pursue high-return investment opportunities. Finally, an analysis was conducted on this model for both election and non-election years, which further solidified the main findings.

This dissertation also opens avenues for further studies. Firstly, future research could investigate how leverage combinations between the firms involved in an M&A transaction influence the long-term post-merger performance. Exploring whether the stock price reactions accurately predict the long-term effect would provide a thorough understanding of this topic. Secondly, it would be highly relevant to extend this investigation to other markets, namely the European Union or emerging markets, since it could reveal the influence of different financial and regulatory systems on leverage and abnormal returns. Furthermore, other methodologies could

be applied to create the explanatory variables. Instead of using the median to divide the deals by their leverage, future studies could incorporate the absolute value of this variable in the model as a continuous variable rather than relying on binary classifications. However, this would not account for the leverage combination of both firms involved in the transaction, as the methodology used in this dissertation did. Instead, it would inspect the influence of this factor on cumulative abnormal returns separately. Additionally, other variables, such as the debt-to-assets ratio could be used to measure financial leverage, instead of the debt-to-equity ratio.

6. References

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7. Appendices

Appendix 1 - Sample Distribution by Year

Year	Freq.	Percent
2000	38	3.90
2001	44	4.52
2002	17	1.75
2003	23	2.36
2004	34	3.49
2005	35	3.59
2006	30	3.08
2007	46	4.72
2008	37	3.80
2009	27	2.77
2010	59	6.06
2011	49	5.03
2012	59	6.06
2013	45	4.62
2014	40	4.11
2015	53	5.44
2016	54	5.54
2017	40	4.11
2018	49	5.03
2019	40	4.11
2020	31	3.18
2021	35	3.59
2022	44	4.52
2023	45	4.62
Total	974	100.00

Appendix 2 – Sample Distribution by Industry Pairs

	Target Industry											
Acquirer Industry	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	Total
Consumer Prod. & Services (1)	29	0	0	5	8	3	1	0	0	1	2	49
Consumer Staples (2)	0	31	1	2	0	0	0	0	0	1	0	35
Energy and Power (3)	0	0	106	0	1	4	4	0	0	1	1	117
Healthcare (4)	5	0	0	200	3	3	0	0	0	2	1	214
High Technology (5)	11	0	0	2	199	9	0	2	0	0	6	229
Industrials (6)	1	0	6	7	13	70	3	0	1	0	2	103
Materials (7)	1	0	3	1	2	1	33	0	0	0	0	41
Media and Entertainment (8)	0	0	0	0	4	0	0	31	2	2	1	40
Real Estate (9)	1	0	0	0	1	0	3	0	56	0	1	62
Retail (10)	2	5	0	2	4	1	1	0	0	31	0	46
Telecommunications (11)	0	0	0	0	11	0	0	3	0	0	24	38
Total	50	36	116	219	246	91	45	36	59	38	38	974

Appendix 3 – Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Acquirer CAR	1.000										
(2) Target CAR	0.036	1.000									
(3) High_High Dummy	-0.009	-0.181	1.000								
(4) High_Low Dummy	0.054	0.146	-0.321	1.000							
(5) Low_Low Dummy	0.009	0.057	-0.476	-0.321	1.000						
(6) Cash Financing Dummy	0.156	0.259	-0.203	0.133	0.153	1.000					
(7) Stock Financing Dummy	-0.108	-0.178	0.090	-0.114	-0.014	-0.436	1.000				
(8) Conglomerate Dummy	0.007	0.091	-0.093	-0.008	0.030	0.072	-0.047	1.000			
(9) Acquirer ROA	0.041	-0.300	0.173	-0.069	-0.128	0.004	-0.014	0.033	1.000		
(10) Ln Acquirer Mkt Value	-0.026	0.162	0.003	0.190	-0.151	0.156	-0.186	-0.001	0.019	1.000	
(11) Relative Size	-0.053	-0.148	0.102	-0.042	-0.080	-0.136	0.090	-0.045	0.074	-0.165	1.000

Appendix 4 - OLS Regressions with control variables, where the dependent variable is cumulative abnormal returns for acquirers using additional event windows

Appendix 4 displays the results of the OLS regressions using different event windows, where the dependent variable represents the stock price reaction, measured by the cumulative abnormal returns for acquirers. The additional event windows considered were (-5, +5), (-10, -1), and (0, +10). The table presents the coefficients for the explanatory variables with the control variables Cash Financing Dummy, Stock Financing Dummy, Conglomerate Dummy, Acquirer ROA, Ln Acquirer Market Value, and Relative Size. The sample comprises transactions between 2000 and 2023. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Event window	(-5, +5)	(-10, -1)	(0, +10)
Variables	Acquirer CAR	Acquirer CAR	Acquirer CAR
High_High Dummy	0.0107	0.00784	0.00682
	(0.00945)	(0.00658)	(0.0102)
High_Low Dummy	0.0277***	0.00725	0.0231**
	(0.0105)	(0.00739)	(0.0111)
Low_Low Dummy	0.00822	0.0123*	0.00920
	(0.00941)	(0.00716)	(0.0105)
Cash Financing Dummy	0.0145**	-0.00593	0.00823
	(0.00663)	(0.00521)	(0.00722)
Stock Financing Dummy	-0.0224**	0.000406	-0.0357***
	(0.0106)	(0.00775)	(0.0118)
Conglomerate dummy	-0.00599	0.00108	-0.0201**
	(0.00870)	(0.00580)	(0.00851)
Acquirer ROA	-6.55e-06	2.09e-05	-4.58e-05
	(0.000170)	(0.000118)	(0.000178)
Ln Acquirer Market Value	-0.00345**	-0.00189	-0.00317*
	(0.00174)	(0.00137)	(0.00192)
Relative Size	-0.00494*	0.00423	-0.00854***
	(0.00269)	(0.00707)	(0.00231)
Constant	0.0154	0.0114	0.0231
	(0.0181)	(0.0144)	(0.0200)
Fixed Effects	YES	YES	YES
Observations	973	970	971
Adjusted R-squared	0.051	-0.002	0.056

Appendix 5 - OLS Regressions with control variables, where the dependent variable is cumulative abnormal returns for targets using additional event windows

Appendix 5 displays the results of the OLS regressions using different event windows, where the dependent variable represents the stock price reaction, measured by the cumulative abnormal returns for targets. The additional event windows considered were (-5, +5), (-10, -1), and (0, +10). The table presents the coefficients for the explanatory variables with the control variables Cash Financing Dummy, Stock Financing Dummy, Conglomerate Dummy, Acquirer ROA, Ln Acquirer Market Value, and Relative Size. The sample comprises transactions between 2000 and 2023. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Event window	(-5, +5)	(-10, -1)	(0, +10)
Variables	Target CAR	Target CAR	Target CAR
High_High Dummy	-0.0151	0.00168	-0.0274
	(0.0284)	(0.0107)	(0.0285)
High_Low Dummy	0.0438	0.0398***	0.0117
	(0.0362)	(0.0139)	(0.0367)
Low_Low Dummy	0.00130	-0.00574	-0.00130
	(0.0290)	(0.0111)	(0.0292)
Cash Financing Dummy	0.103***	-0.00289	0.112***
	(0.0267)	(0.00975)	(0.0273)
Stock Financing Dummy	-0.0881***	0.00406	-0.100***
	(0.0239)	(0.0119)	(0.0246)
Conglomerate Dummy	0.0533**	-0.0138	0.0503*
	(0.0268)	(0.00929)	(0.0273)
Acquirer ROA	-0.00459***	-9.94e-06	-0.00500***
	(0.00105)	(0.000263)	(0.00109)
Ln Acquirer Market Value	0.0103*	0.00581**	0.00354
	(0.00621)	(0.00243)	(0.00630)
Relative Size	-0.0155	-0.00357	-0.0149
	(0.0139)	(0.00790)	(0.0151)
Constant	0.129**	-0.0226	0.174***
	(0.0598)	(0.0229)	(0.0605)
Fixed Effects	YES	YES	YES
Observations	973	970	971
Adjusted R-squared	0.216	0.036	0.213

Appendix 6 - OLS regressions with control variables for recession periods

Appendix 6 reports the results for recession periods of the OLS regressions for the event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables with the control variables Cash Financing Dummy, Stock Financing Dummy, Conglomerate Dummy, Acquirer ROA, Ln Acquirer Market Value, and Relative Size. The sample comprises 96 transactions. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Variables	(1) Acquirer CAR	(2) Target CAR
High_High Dummy	-0.0500	-0.229*
	(0.0405)	(0.137)
High_Low Dummy	-0.00296	0.0796
	(0.0534)	(0.186)
Low_Low Dummy	-0.0559	-0.204
	(0.0426)	(0.156)
Cash Financing Dummy	0.0381	0.0466
	(0.0244)	(0.0741)
Stock Financing Dummy	0.0203	0.00553
	(0.0402)	(0.101)
Conglomerate Dummy	-0.0156	0.281
	(0.0685)	(0.218)
Acquirer ROA	0.000248	-0.00125
	(0.000421)	(0.00177)
Ln Acquirer Market Value	-0.00917	0.0170
	(0.00577)	(0.0166)
Relative Size	0.0146	-0.0260
	(0.0136)	(0.0366)
Constant	0.0823	0.208
	(0.0593)	(0.196)
Fixed Effects	YES	YES
Observations	96	96
Adjusted R-squared	-0.126	0.122

Appendix 7 - OLS regressions with control variables for expansion periods

Appendix 7 reports the results for expansion periods of the OLS regressions for the event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables with the control variables Cash Financing Dummy, Stock Financing Dummy, Conglomerate Dummy, Acquirer ROA, Ln Acquirer Market Value, and Relative Size. The sample comprises 878 transactions. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Variables	(1) Acquirer CAR	(2) Target CAR
High_High Dummy	0.0113	-0.0131
	(0.00730)	(0.0236)
High_Low Dummy	0.0176**	0.00744
	(0.00779)	(0.0306)
Low_Low Dummy	0.0148*	0.00199
	(0.00757)	(0.0259)
Cash Financing Dummy	0.0169***	0.109***
	(0.00586)	(0.0214)
Stock Financing Dummy	-0.0119	-0.0647***
	(0.00842)	(0.0212)
Conglomerate Dummy	-0.00148	0.0781***
	(0.00684)	(0.0258)
Acquirer ROA	7.16e-05	-0.00361***
	(0.000147)	(0.000685)
Ln Acquirer Market Value	-0.000598	0.00416
	(0.00133)	(0.00489)
Relative Size	-0.00403**	-0.0131
	(0.00188)	(0.0133)
Constant	-0.0153	0.157***
	(0.0135)	(0.0498)
Fixed Effects	YES	YES
Observations	878	878
Adjusted R-squared	0.065	0.247

Appendix 8 - OLS regressions with control variables for election years in the US

Appendix 8 reports the results for election years in the US of the OLS regressions for the main event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables with the control variables Cash Financing Dummy, Stock Financing Dummy, Conglomerate Dummy, Acquirer ROA, Ln Acquirer Market Value, and Relative Size. The sample comprises 253 transactions between 2000 and 2023. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Variables	(1) Acquirer CAR	(2) Target CAR
High_High Dummy	0.0277*	-0.0863
	(0.0151)	(0.0542)
High_Low Dummy	0.0284*	-0.0493
	(0.0161)	(0.0699)
Low_Low Dummy	-0.0171	-0.0887
	(0.0162)	(0.0565)
Cash Financing Dummy	0.0172	0.154***
	(0.0129)	(0.0393)
Stock Financing Dummy	0.00292	-0.0493
	(0.0180)	(0.0433)
Conglomerate Dummy	-0.0195	0.0880*
	(0.0132)	(0.0491)
Acquirer ROA	0.000194	-0.00332**
	(0.000263)	(0.00139)
Ln Acquirer Market Value	-0.00327	0.00880
	(0.00267)	(0.00940)
Relative Size	-0.00584	-0.0476*
	(0.0153)	(0.0265)
Constant	0.00718	0.205**
	(0.0271)	(0.0953)
Fixed Effects	YES	YES
Observations	253	253
Adjusted R-squared	-0.002	0.245

Appendix 9 –OLS regressions with control variables for non-election years in the US

Appendix 9 reports the results for non-election years in the US of the OLS regressions for the main event window (-2, +2), where the dependent variable is cumulative abnormal returns for acquirers (Column (1)) and targets (Column (2)). The table presents the coefficients for the explanatory variables with the control variables Cash Financing Dummy, Stock Financing Dummy, Conglomerate Dummy, Acquirer ROA, Ln Acquirer Market Value, and Relative Size. The sample comprises 721 transactions between 2000 and 2023. Robust standard errors are presented in parentheses below. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Variables	(1) Acquirer CAR	(2) Target CAR
High_High Dummy	0.000871	-0.0180
	(0.00840)	(0.0263)
High_Low Dummy	0.00755	0.0415
	(0.00935)	(0.0333)
Low_Low Dummy	0.0124	0.0117
	(0.00880)	(0.0295)
Cash Financing Dummy	0.0182***	0.0939***
	(0.00611)	(0.0244)
Stock Financing Dummy	-0.0149	-0.0652***
	(0.00967)	(0.0233)
Conglomerate Dummy	0.00205	0.0435
	(0.00776)	(0.0273)
Acquirer ROA	8.76e-05	-0.00306***
	(0.000152)	(0.000729)
Ln Acquirer Market Value	-0.00130	0.00386
	(0.00151)	(0.00561)
Relative Size	-0.00358**	-0.00956
	(0.00181)	(0.0100)
Constant	-0.00293	0.153***
	(0.0156)	(0.0578)
Fixed Effects	YES	YES
Observations	721	721
Adjusted R-squared	0.068	0.214