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'Detecting Earnings Management Preceding Major Corporate
Events: Evidence From US Target Firms'

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Abstract

This paper aims to investigate the possible occurrence of earnings manipulation before major corporate events. Managers of firms generally have numerous incentives to engage in earnings manipulative behavior. This study only focusses on the perspective of target firms and disregards the extensively researched perspective of acquiring firms. In addition, two panel data subsamples focus specifically on rumored target firms. Rumored target firms are assumed to participate in future takeover transactions and are hypothetically capable of mitigating flexibility and anticipation problems inherent to regular target firms. Furthermore, this study investigates potential earnings manipulation through the discretionary component of the reported accruals. The obtained discretionary accruals are regressed on the calculated first stage regressors, several control variables and a time capturing dummy variable in a fixed-effects regression model. After investigating four subsamples that count 4,080 unique target firms and 19,227 firm-year observations cumulatively, it generally follows that US target firms manipulate their reported accounting earnings numbers upwards preceding major corporate events. The empirical results present sufficient statistical evidence of positive earnings manipulation performed by (rumored) public firms and rumored private firms. However, the output of the performed tests on the non-rumored private firm sample does not present sufficient statistical evidence suggesting fraudulent earnings manipulation.

Key words: earnings manipulation, accrual-based earnings management, target firms, major corporate events, rumors, United States.

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1. Introduction

This study aims to investigate the impact and consequences of earnings manipulation performed by the management of public and private firms based in the United States (US). The main reasoning behind conducting this research within the United States is first and foremost the abundant availability of data and excellent existing financial reporting standards inherent to this country. Prior studies suggest that financial reporting numbers and metrics are crucial when comparing firms and propose that similarity in accounting standards facilitates and enhances the general comparability of the participating firms (Burgstahler et al., 2006). Previous studies also performed academic research within this geographical field, and this thesis aims to complement the existing stream of literature in this regard. Furthermore, this research is based on the suggestion that target firms are incentivized to alter reported accounting earnings by using accrual-based earnings management preceding e.g. takeover announcements, capital market transactions, or other significant corporate events. The previously mentioned events mainly include mergers and acquisitions subject to publicly listed entities and initial public offerings for private equity firms. The complex nature of detecting manipulation of earnings and management's freedom to exert their presumably superior discretion is welcoming incorrect financial reporting. Moreover, private firms are not subject to rigid financial reporting requirements. The existing reporting freedom that characterizes private firms can potentially trigger management to engage in manipulation of accounting earnings. This will lead to incorrect reporting of the company's underlying business economics and corresponding prospects. Management's tendency to engage in earnings manipulative behavior will eventually misguide existing and emerging shareholders (Jones, 1991). The following section will provide an overview of the introduction to financial reporting, the research question, relevance, and contribution of this study relative to the existing academic literature.

Financial reporting is an excellent method for top-performing firms to distinguish themselves from the weaker performing firms in the industry. The primary purpose of credible financial reporting is to obtain resources efficiently and for managers explicitly to convey information regarding firm performance to existing and potential shareholders. In doing so, the standards should permit managers to exert judgment as managers are assumed to possess

superior information regarding the firm's future ability to obtain cashflows. However, the usage of management's discretion concerning financial reporting creates windows for earnings management occurrence (Healy, 1996). There are several studies conducted on various applications of earnings management in the mergers and acquisition setting. Earnings management occurs when managers use judgment in financial reporting to alter financial reports to either mislead some stakeholders about the underlying economic performance of a firm or to influence specific contractual outcomes that depend on reported accounting numbers (Healy & Wahlen, 1999). Management can for instance choose accounting reporting methods that are deemed 'too optimistic,' therefore creating an upward bias in the reported accounting earnings and improperly reflecting a firm's underlying financial situation and prospects. This ultimately leads to managers deceiving shareholders and firms producing inaccurate accounting numbers that do not reflect a firm's prior and potential future underlying financial performance (Dechow, 1994). Previous academic literature suggests that investors and investment banks still view accounting earnings as value relevant and informative, despite known possibilities for managers to engage in earnings management procedures (Dechow, 2010). This study examines the existence of fraudulent financial reporting and the implications of management manipulations.

The practice of managing earnings is not illegal, whereas detecting and undoing specific manipulation is very costly. Accounting earnings are essential to measure and assess firm performance under accrual accounting. In addition, reported accounting earnings are consulted for several additional purposes. Earnings generally are used to construct debt covenants, for executive compensation plans and when firms issue (new) equity in the form of an initial public offering (IPO) or a seasoned equity offering (SEO) (Healy, 1996). Managers have incentives to manage earnings under such circumstances to enhance firm value or to gain access to personal managerial benefits. Earnings are also preferred above cash flows for measuring firm performance as earnings are less prone to timing and matching problems that are inherent to cash flows. This is due to the matching and revenue recognition principle imbedded in accruals that mitigate timing and matching problems. These characteristics ultimately allow accounting earnings to more accurately reflect firm performance and to be a more reliable measure for firm performance (Dechow, 1994).

This study aims to extend the existing stream of literature by investigating earnings management in the mergers and acquisition setting. Leading research conducted by Erickson & Wang (1999) presents evidence for earnings manipulation preceding corporate control contests. One of their significant findings is that acquiring firms in stock swap mergers are likely to manipulate and increase their earnings accounting numbers. Increasing earnings implicates the increase in the company's stock price and consequently lowers the value paid to the firm that is receiving the bidding (target firm). This thesis aims to investigate if there is a potential decrease in financial reporting quality caused by earnings management in the years preceding takeover announcements for target firms. The reasoning behind conducting unique rumor-based research on target firms is that prior literature mainly focuses on the acquirer's perspective for detecting and assessing earnings management (e.g. Louis (2004) and Gong et al. (2008)). There is relatively little research performed on whether the target also engages in earnings management to receive a higher premium. This observed academic scarcity may be due to timing problems that target firms are prone to at times of a takeover announcement. Target firms generally face difficulty in identifying a potential acquisition deal and are often too late to engage in undetected earnings manipulation (Erickson & Wang, 1999). The research question that will be answered throughout this paper revolves around major corporate event announcements and if event announcements trigger target firms to engage in earnings management. By partly conducting research based on rumors, I intend to solve problems regarding the timeliness of takeover deals. Rumored target firms supposedly have more time to anticipate potential takeover announcements, as the rumors grant better preparation opportunities and generally more flexibility for managers. Besides, this study diversifies testing for potential earnings manipulation to the under-researched market of private firms. Private firms specifically lack abundant academic research on occurring earnings management. This thesis aims to fill this void by examining the occurrence of earnings manipulation preceding merger deals and initial public offerings.

The sample used for the creation of this study is derived from Bureau van Dijk's (BvD's) Zephyr and Orbis. The answering of the hypotheses and research question is done by investigating four different panel data subsamples, all with separate sampling criteria. This study identifies the Modified Jones (1995) model for the detection of potential accrual-based earnings manipulation. Estimations of non-discretionary accruals based on this model are

found to be advantageous and superior to the initial Jones (1991) model. This model allows for typical working capital needs by controlling for the change in revenues for example. The Modified Jones (1995) model is different from the initial Jones (1991) model because the observed change in revenues is corrected by the change in receivables. This leads to a slight overestimation of the discretionary accruals, therefore decreasing potential type II errors inherent to the initial Jones (1991) model. The estimates of the discretionary accruals capture revenue manipulation that would not be detected when running the initial model. With the inclusion of the gross property plant and equipment variable for the calculation of the non-discretionary accruals, I control for normal depreciation. Detecting earnings manipulations using accruals has its imperfections, as described in several academic papers. It follows that all available accrual models include flaws and suffer from Type I and II errors to some extent. The first stage regressors are included in the final regression model to control for omitted variable bias and to mitigate Type I and II errors. The presence of measurement errors and other imperfections is problematic and applies to the Modified Jones (1995) model as used in this paper. However, after evaluating the available alternatives, the Modified Jones (1995) model seems to be the most appropriate for this research (McNichols, 2002). The main findings of this research show that managers of public firms manage accounting earnings upwards by reporting positive accruals before mergers & acquisition transactions. Management induced manipulation of earnings before corporate events is less pronounced within the market of private firms. This study is only able to produce significant earnings increasing accruals for rumored private firms before major corporate events, whereas insignificant statistical evidence can be obtained for income increasing accruals belonging to the non-rumored private firms.

The remainder of this paper is structured and organized in the following manner: Section 2 provides an overview of prior literature about earnings management, financial reporting quality, mergers and acquisitions, private firms and concludes with a formulation of the tested hypotheses. Section 3 will describe the data and sampling preparations needed to test the hypothesis and ultimately to derive the results. Sections 4 and 5 include the methodology, empirical results, and the performed robustness tests to enhance the validity of the results. Finally, this paper concludes by providing a conclusion, limitations of this study and suggestions for potential future research.

2. Literature Review

The following section discusses the current framework of academic literature fundamentals upon which this research paper is based. Firstly, this section starts by describing and defining the act of managing earnings accounting numbers. This is then followed by reviewing prior literature examining financial reporting quality and mergers and acquisition deals. The existing literature on earnings manipulation performed by private firms is described afterward. The potential occurrence of earnings management performed by private firms is especially under-researched. Existing academic literature is for instance unable to produce significant scientific evidence of such manipulative proceedings and leaves a void to be filled for potential future research. This section concludes with the formulation of the tested hypotheses and refers to Appendix A for the conceptual framework.

2.1 *Earnings management*

Numerous studies examining earnings management have emerged from the research paper written by Healy and Wahlen (1999). Their research provides an overview of specific triggers and incentives for management to engage in earnings management. There are three sources listed that motivate potential engagement in the manipulation of earnings accounting numbers: capital market-based motivations, contractual based motivations, and lastly regulatory based motivations. Capital market induced unexpected accrual behavior mainly occurs when there exists a gap between actual firm performance and analyst's expectation performance consensus. The cited research of Burgstahler (1998) finds evidence for manager's tendencies to report income increasing accruals aimed to avoid falling short of analysts' expectations. Besides, unexpected accrual management appears if firms engage in capital market transactions as equity issuances. Firms overstate earnings by reporting positive income increasing accruals before certain corporate events. Corporate events include for example initial public offerings (IPO's) (Teoh, Welch, & Wong, 1998), seasoned equity offerings and open market repurchases (Gong, Louis & Sun, 2008). The existence of lending contracts limiting management's actions that favor shareholders at the expense of creditors create an incentive for earnings management. Furthermore, the researchers Guidry et al. (1998) postulate in their research paper that managers defer income when earnings targets imbedded in their bonus plans can not be achieved. The researchers also find evidence for the

postponement of income by using accruals when managers already obtained the maximum bonus permitted. These findings are resonated by the conclusions in the paper performed by Holthausen et al. (1995). They find significant evidence that firms with caps on bonus plans are more likely to report income deferring accruals when the cap is reached. Besides increasing bonus rewards, manipulation of earnings can also be used as a tool to improve job security and mitigate violation of debt covenants. Violation of debt covenants is often very costly and should be avoided if possible. DeAngelo (1988) postulates that incumbent managers exercise accounting discretion to enhance reported earnings. He also finds little statistically significant evidence for managers understating earnings under buyout circumstances. This facilitates the buyout transaction and decreases transaction value for the acquiring firm. The paper written by DeAngelo (1988) also provides significant evidence for a decrease in research and development (R&D) expenditures within the final year of CEO employment. This is done to enhance earnings accounting numbers at the cost of neglecting and disregarding long term benefits that come with such expenditures. The justification of this behavior follows the rationale that the CEO in question ignores the firm's future performance and focuses on individualistic accolades that come with reporting optimistic income numbers. Recent evidence provided by Bischof, Brueggemann and Daske (2019) show that regulatory motivations, more specifically industry regulations (e.g. the banking industry), trigger the management of reported accounting earnings. Their performed research suggests that banks reclassify financial assets in response to regulatory capital restrictions following the financial crisis. Jones (1991) addresses the management of earnings concerning anti-trust regulation and finds that companies manage earnings downward to gain import relief. The research design upon which this thesis is constructed turned out to be fundamental for subsequent academic literature that examines accrual-based earnings management. Jones (1991) initial model of estimating the non-discretionary component of accruals is a refinement of the used model by DeAngelo (1986). The Jones (1991) model developed other more sophisticated models, including the Modified Jones (1995) model first introduced by Dechow, Sloan and Sweeney (1995). Additional research on regulatory induced earnings manipulation is performed by Key (1997). She concluded that firms manage earnings downward to prevent deregulation in the cable tv industry. Lastly, Ramanna and Roychowdhury (2010) find that outsourcing firms with political ties manage earnings downward during political elections. They state that

outsourcing was perceived to be a controversial subject during campaigns as outsourcing provoked prolonged public disagreements. Firms report negative discretionary accruals under such circumstances to avoid negative scrutiny for themselves and affiliated political candidates. By doing so, firms also try to avoid future regulation.

Additionally, Healy & Wahlen (1999) provide an accurate definition of earnings management as a reoccurring phenomenon within corporates. In short, Healy & Wahlen (1999) define earnings management as the act of altering financial statements to either mislead stakeholders about the company's underlying performance or to influence contractual outcomes that are earnings dependent. Used accounting techniques alter financial statements and change apparent firm performance with the intention to satisfy the expectations of creditors and shareholders. Campa and Hajbaba (2016) distinguish two possible alternatives to manage accounting earnings, both characterized by separate unique consequences. Real earnings management is introduced as an alternative in addition to the previously discussed accrual-based method of managing earnings. Real earnings manipulation occurs when managers decide to cut or defer certain expenditures. To examine the effects of real earnings manipulation, one must investigate long term expenditures. Research and development (R&D) retrenchments could for instance adversely affect future financial performance and long-term profitability. Real earnings management is less subject to litigation risks, more challenging to identify and easier to implement relative to the accrual-based alternative. Researchers that investigate real earnings management are scarce. Additionally, researchers' inability to question strategic decisions lead to hardships in revealing manipulative behavior. In conclusion, Healy & Wahlen (1999) emphasize the importance of management judgment in financial reporting and that accounting standards must not restrict such action.

2.2 Financial reporting quality

Financial reporting facilitates the allocation of efficient resources and serves as a distinguishing vehicle for well-performing firms within an industry. Financial reporting quality conceptualizes the degree to which financial statements represent a firm's faithful financial situation. This statement originates from the Statement of Financial Accounting Concepts (SFAC No.1) that suggests that financial reporting must provide reliable information about an enterprise's financial performance. The quality of the reported earnings figure is

crucial within the financial reporting framework. Prior studies produce various alternatives to assess a firm's quality of reported earnings. In sum, academic papers find that the quality of earnings heavily depends on the firm's current financial performance and the corresponding accounting system (Dechow et al., 2010).

The study conducted by Dechow et al. (2010) provides a compelling overview of the various measures of earnings quality. Earnings quality proxies are organized into three separate categories: properties of earnings, investor responsiveness to reported earnings, and external indicators of earnings misstatements. This research assesses earnings quality based on properties of the reported earnings, especially by examining discretionary accruals. Dechow et al. (2010) mention that extracting residuals from accrual models is widely used as an empirical proxy for indicators of earnings quality. The residuals extracted from various accrual models represent estimation errors or management discretion. Both aspects reduce decision usefulness and decrease earnings quality. Furthermore, the researchers outline that the main advantage of using this measure is that it succeeds in isolating the management component of their respective accruals. They also state that accrual models suffer from endogeneity issues and correlated omitted variables. Researchers are encouraged to defer from known accrual models and come up with more sophisticated models to capture management discretion or the usage of deceiving accounting rules.

2.3 Mergers & acquisitions (M&A)

Mergers & acquisition deals are widely researched in previous existing academic literature. Current academic literature defines two unique rationales of M&A decision drivers. These decision drivers form the basis of the creation of a deal. Decision drivers are divided into two different categories, namely rational and irrational decision drivers. As outlined by Hebous et al. (2010), one of the key decision drivers of M&A transactions is the gained access to tax benefits. In their research paper, the researchers postulate that prevalent tax benefits are attributable to loss carry-forwards of the taxable income. Belz et al. (2013) confirmed taxable motivations as a key element of merger and acquisition transactions. Mergers increase the acquirer's available cash flow through tax implications imposed on target firms. Both papers underline various benefits gained for the acquiring firm as well as less but still significant benefits for target firms. Besides tax benefits, academics perceive industry shocks as a

phenomenon that causes firm fusions. Exogenous shocks within an industry induce uncertainty and are responsible for the mass merging of entities (Muehlfeld, Sahib, & Van Witteloostuijn, 2007). Another factor that influences managers' decision making and induces engaging in potential takeovers is the inclination of wanting to diversify revenue streams. According to Francis et al. (2008), participating in M&A transactions induces synergy benefits. The acquisition of components belonging to the supply chain of the operational activities is believed to be effective. Diversifying towards other unrelated industries is also believed to improve the financial situation of the acquiring firm. The fourth and final discussed key decision driver by prior studies conducted upon M&A transactions is situational and capital market-based. Myers and Majluf (1984) describe in their widely accepted pecking order theory that (excess) cash is the preferable choice when financing transactions. However, stock mergers have risen in popularity and allow managers to exploit the perceived overvaluation of stocks. The managerial act of timing the market in this manner is generally viewed as a crucial driver causing merger waves. This is a widely accepted theory, as the theory is supported and cited by numerous academic papers and articles. The relation between timing the market and the occurrence of merger waves is for example outlined in the well-cited study performed by Harford (2005).

Rational decision drivers are not the sole reason to corporates wanting to cease controlling interest in another firm within their production cycle or different industry. M&A decisions are also influenced by irrational decision drivers as managerial personal traits and biases. Previous literature suggests that CEO overconfidence will lead to increasing consolidation activity. This is outlined by the researchers Ferris et al. (2013), who examined this instance within Fortune Global 500 firms. They find significant evidence that overconfidence explains the number of offers made by a CEO, frequencies of diversifying and non-diversifying acquisitions and cash usage during an acquisition deal. Overconfident managers even engage in merger activity when the deal is found to be value-destroying. This is mainly due to the observation of overconfident managers pursuing deals more aggressively and ultimately overpaying when finalizing the transaction. Finally, previous literature suggests that irrational decision drivers are supplementary for explaining M&A activity. Most deals follow rational choices, are well prepared and do not seem to lack rational reasoning.

There does not exist a universally accepted model or theory that outlines the correct manner of measuring the performance of a merger or acquisition. The results are mixed and even contradicting when reviewing finance and accounting based papers. This thesis only describes the assessment of performance through accounting principles and metrics. The theory originated from financing theories and corresponding papers is disregarded and will not be discussed. Accounting themed research on firm performance after M&A transactions seem to be quite lacking and bound to specific countries. This is supposedly due to the differentiating accounting rules and regulations that assess firm performance around the world. However, the used accounting metrics for assessing firm performance after a merger or acquisition mainly include return ratios, earnings, or cash flow numbers. Thanos & Papadakis (2012) find statistical evidence for the occurrence of an increase in operating turnover after a merger or acquisition. The bank-oriented study conducted by Abbas et al. (2014) also presents positive effects after M&A activity. Profitability, leverage, and liquidity ratios were used to measure financial performance. Empirical results after the performed ratio analysis show positive improvements after M&A transactions.

Prior studies also observed the possible occurrence of earnings management within the context of M&A transactions. However, prior literature in this context is found to be one dimensional as prior research mainly finds significant statistical evidence for the acquirer's perspective of the M&A transaction. There is relatively little research conducted on answering whether target firms also engage in earnings management. By doing so, target firms hope to receive a higher premium for the coming transaction. This may be due to timing problems that target firms have to face in times of a takeover announcement. Target firms generally have difficulty in identifying a potential acquisition deal and are often too late to engage in undetected earnings manipulation (Erickson & Wang, 1999). The research conducted by Erickson & Wang (1999) is leading for the examination of accrual manipulation prior to takeover announcements. They found that managers of acquiring firms are likely to increase their earnings numbers when engaging a stock swap (stock for stock) merger. For target firms, this research paper detects positive discretionary accruals. However, they were unable to prove the statistical significance of the unexpected positive accruals. The lack of statistical evidence is attributed to the lack of flexibility inherent to target firms when potentially being taken over. A study that complements the paper by Erickson & Wang (1999) is the research

paper conducted by Easterwood (1998). Easterwood (1998) asserts that companies faced with hostile takeover threats have strong incentives to engage in fraudulent earnings manipulation. A hostile takeover occurs when the bidding firm obtains the majority of shares and consequently the controlling interests. By management's decision to inflate reported accounting numbers, shareholders are more likely to decline the offer of the bidding firm and ultimately cancel the acquisition. This thesis aims to extend prior literature on hostile takeovers by examining uncompleted deals linked to rumored target firms. Ben-Amar & Missonier-Piera (2008) discuss an alternative situation where managers are welcoming and facilitating potential acquisitions. In their paper, the researchers identify the reporting of income decreasing accruals by target firms in the year preceding an M&A deal. Managers help accommodate arrangements under friendly takeover conditions, in contrast to unwelcomed hostile takeover attempts.

2.4 Private firms

Private firms are characterized by the limited availability of publicly accessible information. The firm released financial statements are for example often the only public source of information to gain insight on firm performance. A deep understanding of the provided financial statements is therefore crucial for outsiders to evaluate and decide on credit decisions. However, research on detecting earnings management within the landscape of private firms is still in development as little research papers are currently available. Previous academic literature primarily focusses on publicly listed firms as this data is more accessible. Nevertheless, there are some notable conclusions that can be drawn from prior research based on private firms. Coppens & Peek (2005) investigated whether European private firms engage in earnings management, and if so, whether tax incentives drive this deceiving behavior. The empirical evidence presented in this paper suggests that, in the absence of capital market pressures, firms have incentives to avoid small losses. A possible explanation for this conclusion is that the value of stakeholders' claim on accumulated cash flows is strongly related to the firm's level of performance. Private firms located in countries that enforce strong tax regulations and well-developed capital markets (e.g. the Netherlands and the United Kingdom) do not circumvent the reporting of small losses. This finding is attributed to the

existence of tax incentives and the benefits of recording losses that reduce upward earnings manipulations.

A paper that exploits the analogous accounting standards of public and private firms in the European Union is the research performed by Burgstahler et al. (2006). This is due to accounting regulation being based on legal form. Burgstahler et al. (2006) document that private firms exhibit higher levels of earnings manipulation in comparison to their publicly traded counterparts. Observed earnings management is more pervasive for privately held firms in comparison to public firms. Empirical results also contradict preceding allegations of capital markets being responsible for creating incentives to mask financial performance. Instead, their findings suggest that capital markets induce the increasing informativeness of earnings accounting numbers. To illustrate, the process of going public supposedly screen out firms that report earnings numbers that are lacking informativeness or are deemed to be 'difficult to evaluate' by financial analysts and outsiders. Therefore, capital market mechanisms provide incentives for privately held companies to enhance the informativeness of their reported earnings numbers. The paper also provides evidence for fewer degrees of earnings management in the presence of strong legal systems and higher litigation risks. The provided evidence of earnings management being less pronounced within countries with stronger enforcement and legal systems is not exclusively subject to privately held companies. This effect is namely also observed for publicly held companies in the same country. In conclusion, the study presents compelling evidence that firms' reporting incentives generated by institutional factors and market forces are important determinants of assessing accounting quality.

Lastly, a study conducted by Stockmans et al. (2010) focuses on private firms that are owned specifically by family members exclusively. Earnings manipulation has several different motives as discussed in previous sections. Stockmans et al. (2010) examined the preservation of socioemotional wealth as a motive for earnings-driven manipulative behavior. Furthermore, socioemotional wealth is defined by the nonfinancial aspects that are aimed to meet a family's affective needs. These needs include the ability to assert family influence, the preservation of the family dynasty or retaining the identity of the family firm. The authors suggest that socioemotional wealth plays a role in the occurrence of earnings management.

Moreover, privately held family firms are willing to avoid the loss of their socioemotional wealth at the cost of creating agency costs for exclusively nonfamily stakeholders as creditors. Lenders anticipate to this by enforcing restrictive debt covenants, effectively shielding the creditors for the enhanced risk exposure. These restricting debt covenants have the potential to decrease the socioemotional wealth of the family when a violation occurs. Therefore, to avert such reduction in family wealth, poor performing family firms are incentivized to manipulate firm performance through engaging in upward earnings management.

2.5 Hypotheses development

The first hypothesis is developed and inspired by the paper by Erickson & Wang (1999). Instead of examining acquiring firms, this thesis focusses on the other end of the transaction deal and only includes target firms. I hypothesize that prior to the takeover announcement date, US target firms manipulate their reported accounting earnings upwards. This behavior is caused by managerial tendencies that seek to increase the transaction value of a potential acquisition. The formulation of the tested hypothesis is stated below:

H1: Prior to the takeover announcement date, public target firms manipulate accounting earnings upward in order to increase the transaction value of the acquisition.

Previously performed academic research indicate several problems concerning the identification of earnings-related manipulative behavior. The mentioned problems include the finding that target firms generally lack the flexibility to anticipate takeover announcements. Target firms often do not initiate mergers and therefore are unable to manage earnings in time. To alleviate timing concerns, I created a subsample that only includes rumored target firms. By the explicit investigation of rumored target firms, I aim to bypass time scarcity issues. The created subsample specifically contains deals that were rumored but did not finalize at maturity. Prior research on hostile takeovers in combination with rumored target firms is scarce, further increasing the relevance and contribution of this study. The second hypothesis is defined below:

H2: Rumored public target firms manipulate accounting earnings upward preceding hostile takeover attempts.

The sampling criteria of explicitly including publicly listed firms is relaxed for testing the following H3 and H4 below. Previous academic papers on privately held companies provide evidence for occurring earnings manipulation. Teoh et al. (2005) for instance find that private companies report income increasing accruals before going public. The fourth and final hypothesis is, like the previously defined second hypothesis, based on rumors as it only includes rumored target firms. I hypothesize that (rumored) privately held companies engage in upward earnings manipulation preceding takeovers or before undergoing an initial public offering. The exact formulation of the two tested hypotheses are stated below:

H3: Prior to takeover or initial public offering announcement date, private target firms manipulate accounting earnings upward to increase the transaction value of the acquisition or initial public offering.

H4: Rumored private target firms manipulate accounting earnings upward preceding an initial public offering or acquisition announcement.

2.6 Conceptual framework

The figure that provides an overview of the regression used to test the hypotheses above is located in Appendix A at the end of this paper. The scheme is based on Libby's Predictive Validity Framework (2012) and forms the underlying basis for all four hypotheses. The discretionary accruals of various companies are used as a proxy to measure earnings management. The discretionary accruals, the dependent variable of the model, are regressed on three control variables and a dummy variable. The dummy variable named 'Pre-event' is constructed to capture the patterns of firm-specific discretionary accruals. This time capturing variable is defined as the main variable of interest as it can capture if there is any difference in reported accruals prior to and after the event year. The 'Pre-event' dummy variable is coded to take on value "1" for years one and two preceding a corporate event and takes on value "0" for the year of and two years after the event. For all four hypotheses, I suggest that the regression model produces a 'Pre-event' coefficient that has a positive sign and is statistically significant. Lastly, the regression model also controls for firm fixed effects with the aim of capturing the underlying associations more accurately.

3. Data Preparation

3.1 Sample selection

The data used to detect potential manipulation of earnings accounting numbers by public and private companies originates from a combination of two datasets. The datasets used throughout the entirety of this thesis and for testing the previously defined hypotheses are derived from Bureau van Dijk's (BvD's) Zephyr in combination with BvD's Orbis. The data retrieved from the Zephyr database forms the basis for the identification process of suitable companies. By consulting the Zephyr database, it is possible to identify the companies that matched the criteria for testing the separate hypotheses. Hence, the database Zephyr was primarily used as an identifying tool as it lacks relevant financial information to calculate the discretionary accruals for the identified firms. The retrieved identifier is crucial in merging the deal information with the financial data from Bureau van Dijk's Orbis database. In addition, the Zephyr database also includes a 'rumor' option upon which the rumored subsamples are constructed. In conclusion, the second database Orbis was primarily used to collect financial information of the companies identified by the first database Zephyr and to supplement the identified deals with additional financial information.

The sample selection progress to test the first hypothesis starts with all completed M&A deals for US publicly listed target firms. The third hypothesis focuses on US private firms, and the sample criterium of only including completed deals applies to both the first and third hypotheses. As a result, there is no interference with potential rumors for the answering of the first and third hypotheses as H1 and H3 focus primarily on completed deals. Table 1 presents the unique target firms used in this paper. For testing the first hypothesis, the data identifies 53,643 initial deals. After winsorizing and repeatedly truncating the bottom and top one percent of the sample, the final sample includes 819 unique target firms. The data for testing the third hypothesis initially identifies 122,382 initial deals and corresponding target companies. Following the sample selection progress as outlined in Table 1, the sample ultimately was trimmed down to 1,918 distinctive private companies and 4,850 corresponding firm-year observations.

Finally, the subsamples used to test the second and fourth hypotheses only include companies that have been rumored to participate in a corporate event. Bureau van Dijk's

Zephyr database includes a rumor option that filters and selects target firms that previously have been rumored to face a hostile takeover attempt (H2), an initial public offering, or a takeover (H4). The retrieved rumor samples contain rumors that have numerous credible sources. Sources for example include credible financial websites, financial press releases, electronic publications (Bloomberg), analyst speculation and various others. The purpose of including and testing the rumored samples is primarily to mitigate existing problems inherent to public and private target firms. Target firms generally encounter problems when identifying potential acquisition deals and are often too late to engage in undetected earnings manipulation (Erickson & Wang, 1999). I postulate that timing problems become less relevant when examining firms that were already rumored to participate in a major corporate event, further increasing the significance of the empirical results. The already rumored target firms hypothetically should have more time to anticipate, and I suggest that this time will be used by managers to engage in earnings manipulative behavior. The usage of rumors for testing the occurrence of earnings management by private firms that undergo an initial public offering is expected to be less effective. The reasoning behind this idea follows that initial public offerings are not reactive but are induced by the target company itself. Companies that want to engage in an initial public offering could plan ahead and should have more time to anticipate accordingly. The results of the performed sampling steps are displayed in Table 1 on the next page. Unfortunately, the performed merge of the two databases and the identification of unique target firms reduced the number of firm-year observations substantially. To control for the extensive dropping of observations, additional robustness tests are performed. The robustness checks are of importance as the BvD databases are only able to identify a select number of appropriate target firms. Tests are performed to address potential multicollinearity issues and heteroskedasticity concerns before running the desired regression model. The data has also been winsorized and trimmed repeatedly for the top and bottom one percent of most regression variables before executing the regression analysis. With this procedure, I aim to control for outliers that negatively influence the obtained regression results. The dropping of observations in the last step of the sampling procedure is due to trimming (deleting the top and bottom 1% firm-year observations) of the sample for the discretionary accruals and control variables. This essentially means that the samples are trimmed four times: first on the basis of the discretionary accruals (DA), then on the basis of the independent control variables 'ROA',

'LEVERAGE', and 'SIZE'. The subsample created to test hypothesis 1 is titled 'Panel A', the sample for testing hypothesis 2 is titled 'Panel B', the sample that was used to test hypothesis 3 is defined as 'Panel C' and lastly the sample of the fourth hypothesis is defined as 'Panel D'.

Table 1: sample selection progress US target firms period 2011 - 2019

Derivation sample hypothesis 1	
Zephyr firm-year observations all completed deals publicly listed firms	53,643
Firm-year observations with corresponding Orbis BvD ID identifier	36,436
Firm-year observations with available net income, operational cash flow and total assets	1,928
Firm-year observations remaining after truncating top and bottom 1 percent of dependent and control variables (DA, ROA, LEVERAGE, and SIZE)	1,782
Derivation sample hypothesis 2	
Zephyr firm-year observations all completed deals publicly listed firms	53,643
Zephyr firm-year observations rumored uncompleted deals publicly listed firms	20,999
Firm-year observations with corresponding Orbis BvD ID identifier	18,918
Firm-year observations with available net income, operational cash flow and total assets	12,204
Firm-year observations remaining after truncating top and bottom 1 percent of dependent variable and control variables (DA, ROA, LEVERAGE, and SIZE)	11,262
Derivation sample hypothesis 3	
Zephyr firm-year observations all completed deals private firms	122,382
Firm-year observations with corresponding Orbis BvD ID identifier	47,292
Firm-year observations with available net income, operational cash flow and total assets	5,256
Firm-year observations remaining after truncating top and bottom 1 percent of dependent variable and control variables (DA, ROA, LEVERAGE, and SIZE)	4,850
Derivation sample hypothesis 4	
Zephyr firm-year observations all completed deals private firms	122,382
Zephyr firm-year observations rumored completed deals private firms	3,234
Firm-year observations with corresponding Orbis BvD ID identifier	2,457
Firm-year observations with available net income, operational cash flow and total assets	1,441
Firm-year observations remaining after truncating top and bottom 1 percent of dependent variable and control variables (DA, ROA, LEVERAGE, and SIZE)	1,333

3.2 Measuring earnings management

There are several methods available to identify potential earnings manipulation, as previously discussed in the literature review section. This study identifies the paper written by Dechow et al. (1995) as leading and follows their approach for identifying potential earnings management. Earnings manipulation is detected by investigating firm-specific discretionary accruals serving as a proxy to detect potential manipulative behavior. The first step in obtaining discretionary accruals and thus detecting earnings management is the calculation of the total accruals. Following the approach of Dechow et al. (1995), the total accruals (TA) are defined as the net income minus the cash flows from operations:

$$Total\ Accruals = [Net\ Income - Cash\ Flow\ from\ Operations]$$

Secondly, the calculated total accruals are regressed on several variables that represent the expected (non-discretionary) accruals. The Modified Jones model (1995) is used to estimate the non-discretionary accruals as this model captures and controls for several accrual related changes. The firm-specific total accruals (TA) are regressed on the inverse assets, gross property, plant, and equipment and change in revenues minus the change in receivables. The main advantage of using the Modified Jones model (1995) instead of the initial Jones (1991) model is that the modified model is less prone to Type II error exposure. The discretionary accruals are slightly overestimated as the change revenues is subtracted by the change in receivables. Furthermore, the used variables to capture the non-discretionary accrual component are deflated and thus scaled by the lagged total assets. This deflation is useful as it allows to control for firm size and therefore enhances the precision of the estimates. The practice of scaling by total assets is also a useful tool to mitigate problems arising from existing heteroskedasticity (Ben-Amar & Missonier-Piera, 2008). The residual of the regression below can be identified as the proxy indicating earnings management, as it measures the discretionary component of the total accruals. The “expected” or non-discretionary accruals are estimated by the following ordinary least squared (OLS) regression model:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_{1,i} \left(\frac{1}{A_{i,t-1}} \right) + \beta_{1,i} \left(\frac{\Delta REV_i - \Delta REC_i}{A_{i,t-1}} \right) + \beta_{2,i} \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (1)$$

where:

$TA_{i,t}$	=	total accruals for firm i in year t
$A_{i,t-1}$	=	total assets for firm i in year t - 1
ΔREV_i	=	change in operating revenue measured from t-1 until t for firm i
ΔREC_i	=	change in receivables measured from t - 1 until t for firm i
$PPE_{i,t}$	=	gross property plant and equipment for firm i at year t
i	=	1, ... , N firms
t	=	1, ... , T years

The discretionary accruals (DA) are defined as the “unexpected accruals” and calculated by subtracting the estimated non-discretionary accruals derived from equation (1) from the calculated deflated total accruals:

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left[\alpha_{1,i} \left(\frac{1}{A_{i,t-1}} \right) + \beta_{1,i} \left(\frac{\Delta REV_i - \Delta REC_i}{A_{i,t-1}} \right) + \beta_{2,i} \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) \right] \quad (2)$$

The variables used to calculate the non-discretionary accruals (deflated inversed lagged total assets, change in receivables, and gross property plant and equipment) are referred to as the first stage regressors. The first stage regressors are included in the final regression model to alleviate omitted variable bias concerns and to decrease potential Type I and Type II errors (Chen et al., 2018). A comprehensive description of all variables used to compute the discretionary accruals as well as the variables for the regression model are presented in the table located in Appendix B.

3.3 *Descriptive statistics*

This section provides a detailed overview of the dependent variable and control variables used to test the four hypotheses. Four separate subsamples (Panel A – D) are created to test the four hypotheses (H1 – H4) and ultimately to answer the proposed research question. The different panel datasets all identify different and unique firms that match specific sampling criteria. The sampling progress is presented in Table 1 earlier in this section. Furthermore, when reviewing Table 1, it follows that the firm-year observations differ substantially between the different subsamples. To illustrate, the most extensive panel subsample set ‘Panel B’ counts 11,262 firm-year observations. ‘Panel C’ includes 4,850 firm-year observations, followed by 1,782 firm-year observations belonging to the dataset used to test the corresponding first hypothesis (‘Panel A’). The subsample that includes the least firm-year observations is the rumored private firm subsample, which is used to test the fourth and final hypothesis (‘Panel D’). However, after examining the descriptive statistics presented in Table 2, it follows that the firm-year observations across the panel datasets are reasonably well balanced. The mean of the dummy variable (‘Pre-event’) of Panel B, C, and D is approximately 0.5. This indicates that the firm-year observations are distributed evenly and that the amount of observations preceding a major event (Pre-event = 1) resembles the number of firm-year observations of and after the year of the corporate event (Pre-event = 0). ‘Panel A’ forms an exception in this regard as the ‘Pre-event’ variable mean value is closer to 1. This concludes that the firm-year observations for ‘Panel A’ are moderately imbalanced as the data is skewed towards the years of and after the corporate event. This is supposedly due to the scarcity of data that could be extracted after merging the BvD databases and searching for appropriate financial information. In conclusion, I postulate that the observed imbalance of observations will not negatively affect the empirical conclusions that follow after conducting the fixed effects regression model.

Table 2: descriptive statistics of regression variables

	H1	H2	H3	H4
	Panel A	Panel B	Panel C	Panel D
	N = 1,782	N = 11,262	N = 4,850	N = 1,333
DA				
Mean	-0.0498	-0.0546	-0.1504	-0.0426
Std. Deviation	0.1942	0.1210	0.7731	0.1176
1 st Quartile	-0.1086	-0.1043	-0.2300	-0.078
Median	-0.0293	-0.0359	-0.0454	-0.0264
3 rd Quartile	0.0455	-0.0053	0.0820	0.0056
ROA				
Mean	-0.0075	-0.0650	-0.3529	-0.0232
Std. Deviation	0.1962	0.2895	0.8001	0.2185
1 st Quartile	-0.0306	-0.0862	-0.4260	-0.0553
Median	0.0395	0.0328	-0.0484	0.0392
3 rd Quartile	0.0872	0.0793	0.0616	0.0882
LEVERAGE				
Mean	0.7904	0.8437	1.2347	0.9076
Std. Deviation	0.3595	0.4017	1.3924	0.3932
1 st Quartile	0.5287	0.5786	0.5988	0.6458
Median	0.7662	0.8001	0.9042	0.8784
3 rd Quartile	0.9937	1.0438	1.3091	1.0922
SIZE				
Mean	13.4493	13.7721	11.9138	14.0691
Std. Deviation	1.9941	2.2241	2.5230	1.6879
1 st Quartile	11.9884	12.1473	9.8928	12.9213
Median	13.4987	13.9506	11.9904	14.1882
3 rd Quartile	14.9174	15.4627	13.9476	15.3196
Pre-event				
Mean	0.8979	0.4376	0.5274	0.4239
Std. Deviation	0.3029	0.4961	0.4992	0.4944
1 st Quartile	1	0	0	0
Median	1	0	1	0
3 rd Quartile	1	1	1	1

4. Methodology

This thesis aims to investigate whether there is an association between earnings manipulation through the usage of discretionary accruals prior to major corporate events. As mentioned in the previous sections, the four tested hypotheses have not been extensively researched to my knowledge. All four hypotheses are tested by using the same fixed effects regression model and conclusions are thus based upon the outcomes of this particular model. Several tests have been conducted prior to performing the fixed effects model. This section presents validity checks to ensure that the estimators are accurate and that the conclusions are free from bias. This study also includes the previously outlined first-step regressors in the final regression model to mitigate omitted variable bias and further decrease the chance of potential Type I and Type II errors. According to the study by Chen et al. (2018), the results that are obtained using a two-step procedure frequently yield biased regression coefficients. Modeling on the basis of the two-step procedure does not include the first stage regressors in the final model and regresses the discretionary accruals on the variable of interest and control variables. This could lead to inflated regression coefficients and unwanted sign changes. This study estimates the regression models in one single regression that includes the first stage regressors to avoid these biases. The Hausman test that follows addresses the choice of modeling the regression based on the fixed effects model relative to the random-effects model. This paragraph concludes with the presentation of the final regression equation originating from the chosen fixed-effects regression model.

4.1 *Heteroskedasticity & multicollinearity*

Heteroskedasticity, the unwanted counterpart of homoskedasticity, occurs when the standard errors of the regression residuals are non-constant. The variance of the residuals of all participating firms must be constant in order to obtain valid regression coefficients. Ordinary Least Squared (OLS) regressions and the specific fixed effects model used for this thesis produce inaccurate estimators if this assumption is violated. Consequently, the standard errors that the fixed effects model produces are invalid under those circumstances (Brooks, 2002). The Modified Wald test for groupwise heteroskedasticity is therefore performed to assess concerns regarding potential problems induced by heteroskedasticity occurrences. The untabulated results of the Modified Wald test conclude that all four separate panel datasets

suffer from heteroskedasticity within the used fixed effects regression model. The null hypothesis that states that all residuals are identical to each other across all firms is rejected. The test produced highly significant Chi-statistics and corresponding p-values. Normal standard errors are therefore inappropriate to use for any of the four panel datasets and must be corrected before conducting the final regression analysis. To alleviate potential bias that arises from the occurrence of heteroskedasticity, I included clustered standard errors to the fixed-effects model. Clustered standard errors account for heteroskedasticity across clusters within the dataset. The clustering performed on the final fixed effects model is based on uniquely identified target companies. The standard errors are clustered on the unique BvD ID identifier, which represents the individual company name.

Multicollinearity arises when the explanatory variables of regression models are perfect linear functions of each other. This is not desirable as it indicates a violation of the regression assumptions that the fixed effects model requires. If the control variables show a high correlation, the standard errors will be inflated and false. This ultimately results in biased estimators and inaccurate findings. So, multicollinearity is a substantial problem as it negatively influences hypothesis testing (Brooks, 2002). The correlation matrix presented in Table 3 on the next page has been created to identify whether multicollinearity is prevalent in the used control variables within any of the four different panel datasets. The Pearson correlation measure is listed at the bottom half of Table 3 and the Spearman correlations are listed in the top half of the table for completeness. Referring to the constructed correlation matrix below, I conclude that the highest existing control variable correlation across all panel datasets is produced by 'Panel C' and takes on value 0.6. This value is relatively low and insufficient to suspect potential bias arising due to multicollinearity. Therefore, the regression does not need to be corrected for multicollinearity as this issue does not significantly exist in any of the four panel datasets.

Table 3: Pearson/Spearman correlation matrix

Panel A					Panel B				
	<i>ROA</i>	<i>LEV</i>	<i>SIZE</i>	<i>Pre-event</i>		<i>ROA</i>	<i>LEV</i>	<i>SIZE</i>	<i>Pre-event</i>
<i>ROA</i>	1	-0.0342	0.2976	0.0639	<i>ROA</i>	1	0.0531	0.5294	0.0110
<i>LEV</i>	-0.0626	1	0.2750	-0.0476	<i>LEV</i>	-0.0468	1	0.2115	-0.0195
<i>SIZE</i>	0.3634	0.1978	1	-0.1285	<i>SIZE</i>	0.5506	0.1298	1	-0.0508
<i>Pre-event</i>	0.0413	-0.0478	-0.1386	1	<i>Pre-event</i>	0.0122	-0.0166	-0.0502	1
Panel C					Panel D				
	<i>ROA</i>	<i>LEV</i>	<i>SIZE</i>	<i>Pre-event</i>		<i>ROA</i>	<i>LEV</i>	<i>SIZE</i>	<i>Pre-event</i>
<i>ROA</i>	1	-0.1714	0.7024	0.0184	<i>ROA</i>	1	0.0476	0.4178	0.0475
<i>LEV</i>	-0.5616	1	-0.1342	0.0446	<i>LEV</i>	-0.0444	1	0.208	0.0037
<i>SIZE</i>	0.6005	-0.3342	1	-0.0459	<i>SIZE</i>	0.4777	0.1326	1	-0.0667
<i>Pre-event</i>	0.0084	0.0285	-0.0469	1	<i>Pre-event</i>	0.0364	-0.0044	-0.0663	1

Table 3 presents the Pearson/Spearman correlation matrix used to identify multicollinearity. This can negatively influence the performed regression analysis. The Pearson correlations are listed in the bottom half of the table and the corresponding Spearman correlations are presented in the top half of the table.

4.2 Hausman test

The Hausman test is consulted to assess the appropriate regression model for the four panel datasets. The fixed effects regression and the random effects regression must be performed before being able to perform the Hausman test. As highlighted in Table 4, the Hausman test essentially stores regression coefficients of the fixed effects model as well as the random-effects model. The test compares both coefficients and identifies whether the difference in coefficients is systematic. If the difference in regression coefficients is not systematic, random-effects models are superior relative to the fixed-effects models. This defines the tested null hypothesis, which states that the random-effects model is preferred above the fixed-effects model alternative. The null hypothesis is rejected for all four subsamples, concluding that the fixed effects model is more appropriate and preferred above the random-effects model.

Table 4: Hausman test fixed effects against random effects

Panel A Coefficients				Panel B Coefficients			
	Fixed effects	Random effects	Difference		Fixed effects	Random effects	Difference
<i>ROA</i>	0.1197	0.1329	-0.013	<i>ROA</i>	0.1492	0.1326	0.0166
<i>LEV</i>	0.1258	-0.0036	0.129	<i>LEV</i>	-0.0205	-0.0226	0.0020
<i>SIZE</i>	0.1106	0.0160	0.095	<i>SIZE</i>	0.0288	0.0013	0.0275
<i>Pre-event</i>	0.0782	0.0353	0.043	<i>Pre-event</i>	0.0054	0.0007	0.0047
Chi statistic	39.02			Chi-statistic	116.76		
P-value	0.00			P-value	0.00		
Panel C Coefficients				Panel D Coefficients			
	Fixed effects	Random effects	Difference		Fixed effects	Random effects	Difference
<i>ROA</i>	0.0459	0.1491	-0.1032	<i>ROA</i>	0.2757	0.1707	0.1051
<i>LEV</i>	-0.0495	-0.0248	-0.0247	<i>LEV</i>	0.0218	-0.0243	0.0461
<i>SIZE</i>	0.0687	0.0359	0.0328	<i>SIZE</i>	0.0182	0.0003	0.0179
<i>Pre-event</i>	0.0088	0.0216	-0.0128	<i>Pre-event</i>	0.0162	0.0118	0.0044
Chi-statistic	28.21			Chi-statistic	30.34		
P-value	0.00			P-value	0.00		

Table 4 provides an overview of the results from the performed Hausman test. If the null hypothesis holds, the random-effects model must be used as it is deemed to be superior relative to the fixed-effects model. For all four separate subsamples, the null hypothesis is rejected and the fixed effects model is preferred.

4.3 Regression model

Firstly, the regression analysis is performed with the help of the statistical program STATA. The regression model used to test all four hypotheses is defined as the fixed-effects regression model with the inclusion of first stage regressors and control variables. The general regression model is displayed as regression equation (3) on the next page. The following regression equation, equation (4), is the final specified version of regression equation (3). It specifies the variable of interest as the time capturing dummy variable defined as 'Pre-event'. The dependent variable of the executed regression is the used proxy to capture earnings management. The discretionary accruals are derived from the Modified Jones (1995) model and defined as the unexpected component of the total accruals. This component captures

earnings management as managers can only manipulate the discretionary accruals. Kothari et al. (2005) showed that discretionary accruals are associated with firm performance and therefore need to be controlled for. To control for firm performance, the regression includes the variable return on assets (ROA). Besides controlling for firm performance, the regression model also controls for differentiating debt to equity ratio's (LEVERAGE) and firm size (SIZE). The inclusion of the leverage ratio is to control for debt covenants constraints associated with accruals (DeAngelo, 1988). In addition, the final model includes the 'Pre-event' variable that captures time. This 'Pre-event' dummy variable is coded '1' for the years preceding the examined corporate event and '0' for the years of and after the corporate event. The firm-year observations are reasonably balanced as the number of firm-year observations is roughly the same for both time periods. The regression equation concludes with the residual term. Finally, the final model includes the first stage regressors, as recommended by the study conducted by Chen et al. (2018).

The specific fixed effects that are included in the model are defined as firm fixed effects. The firm fixed effects resemble the unique target firms that previously have been identified by BvD's Zephyr and Orbis (Section 3, Table 1). The four different subsamples identify unique target companies, each forming a separate cluster in the fixed-effects regression model. The amount of identified unique target firms ranges from $n = 304$ for 'Panel D' to at most $n = 1,918$ belonging to 'Panel B'. The clustered standard errors are used to account for the previously detected problems arising from heteroskedasticity. For a more detailed and comprehensive description of the used variables, I refer to the table located in Appendix B at the end of this thesis. The general regression model, as well as the full final version of the fixed-effects regression model, are presented in equation (3) and (4) below:

$$DA_{i,t} = \beta_0 + \beta_1 VOI + \sum_{k=2}^4 \beta_k CONTROLS + \sum_{k=5}^7 \beta_k FIRST\ STAGE + \sum_{n=1}^N \alpha_n F_n + \varepsilon_{i,t} \quad (3)$$

$$DA_{i,t} = \beta_0 + \beta_1 Pre - event_t + \beta_2 ROA_{i,t} + \beta_3 LEVERAGE_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 \left(\frac{1}{A_{i,t-1}} \right) + \beta_6 \left(\frac{\Delta REV_i - \Delta REC_i}{A_{i,t-1}} \right) + \beta_7 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \sum_{n=1}^N \alpha_n F_n + \varepsilon_{i,t} \quad (4)$$

where:

$DA_{i,t}$	=	discretionary accruals for firm i in year t
VOI	=	Variable of interest (Pre-event)
$Pre-event_t$	=	dummy variable coded "1" for two years preceding corporate event and "0" otherwise
$ROA_{i,t}$	=	return on assets for firm i in year t
$LEVERAGE_{i,t}$	=	debt to equity ratio for firm i in year t
$SIZE_{i,t}$	=	natural logarithm of total assets for firm i in year t
$\sum_{n=1}^N \alpha_n F_n$	=	firm fixed effects term
$A_{i,t-1}$	=	total assets for firm i in year $t - 1$
ΔREV_i	=	change in operating revenue measured from $t-1$ until t for firm i
ΔREC_i	=	change in receivables measured from $t - 1$ until t for firm i
$PPE_{i,t}$	=	gross property plant and equipment for firm i at year t
i	=	$1, \dots, N$
t	=	$[-2, +2]$ years
N	=	$1, \dots, N$ unique target firms
$\varepsilon_{i,t}$	=	error term of the regression (residual)

5. Results

This section presents the empirical results obtained from testing the previously mentioned hypotheses. The results of all subsamples are taken together and merged into Table 5. In addition, this section presents the performed robustness tests with the intention to enhance the validity of the empirical findings. Finally, this section concludes with the discussion of the observed findings of this study relative to the existing stream of academic literature.

5.1 Regression results

Table 5, located on page 33 of this study, presents the coefficient estimates and the corresponding clustered standard errors resulting from the fixed-effects regression model of all four hypotheses. The first hypothesis states that publicly listed target companies manage accounting earnings upward in order to increase the transaction value of the takeover deal. Note that this hypothesis and all three remaining hypotheses are defined in the alternative form. The main variable of interest is defined as the time capturing dummy variable ('Pre-event') and its estimated regression coefficient. Essentially, under the null hypothesis it follows that $\beta_1 = 0$ and alternatively β_1 is not equal to 0. Rejecting the null hypothesis suggests that the value of the reported discretionary accruals differs surrounding corporate events. Consequently, this implies the existence of management induced earnings manipulative behavior. When analyzing the first column of Table 5, one can conclude that most variables within the regression model are significant and possess explanatory power. The sign of the regression coefficients of the three control variables incorporated in the regression model are positive, therefore indicating an increase in reported discretionary accruals for each unit increase *ceteris paribus*. The time capturing dummy variable coefficient ('Pre-event') is also strictly positive and statistically significant at a five percent level due to the p-value of less than five percent. This leads to the conclusion that participating firms report income increasing discretionary accruals before corporate events. The significant positive sign of the 'Pre-event' variable concludes that the firm-specific discretionary accruals are inflated for the years preceding mergers and acquisitions of US-listed target firms. Thus, there exists enough statistical evidence to reject the null hypothesis and to conclude that firms manipulate accounting earnings upward using discretionary accruals prior to the takeover announcement date. I hypothesize that this is due to management's tendency to increase the transaction value

of the merge or acquisition in dispute. Lastly, the first panel subsample counts 1,782 firm-year observations and 819 unique identified target firms. The reported R-squared of 6.36% is relatively low compared to the results of the other subsamples.

The second hypothesis includes a rumor sample of publicly listed target firms. The target firms that match the research criteria have all been rumored to be taken over. Besides the rumor aspect, the second hypothesis focusses on hostile takeovers. To address hostile takeovers, the sampling criteria only includes rumored uncompleted deals. I suggest that rumored target firms manage earnings upward to appear more profitable, ultimately leading to a cancellation of the merger or acquisition deal. The corresponding subsample used to test the second hypothesis includes 11,262 firm-year observations and identified 1,918 unique target firms. The R-squared of 10.13% is moderately high, suggesting that the fixed-effects regression model captures the association reasonably accurate for the second subsample. Similar to the results of the first hypothesis, most control variables appear to be significant and influence the dependent variable. The regression coefficients of the 'ROA' and 'SIZE' control variables are defined as positive, indicating an increase in the discretionary accruals with a one-unit increase *ceteris paribus*. However, the regression coefficient that belongs to the control variable 'LEVERAGE' has a negative sign and indicates a decrease in the reported discretionary accruals when increased with one unit. The regression coefficient of interest is again that of the modeled time capturing variable named 'Pre-event'. Under the null hypothesis, the discretionary accruals are time-invariant and oppose potential earnings manipulative behavior surrounding the rumored deal. Again referring to Table 5, it follows that the null hypothesis must be rejected with 99% certainty. There exists enough statistical evidence to conclude that rumored target firms manage earnings upward prior to hostile takeover announcements. The act of reporting income increasing accruals is likely to be attributable to management's incentive to cancel the takeover. To conclude, the empirical findings confirm the ideas that the second hypothesis underlines.

After testing the first and second hypotheses, this research now shifts its focus to private firms and drops the public firm sampling criterium. The shift to private firms allows investigation of earnings manipulative behavior prior to initial public offering events. The used regression model and included (control) variables remain unchanged and are analogous to the models of previous hypotheses. The third hypothesis tests whether private firms engage

in earnings manipulation prior to a takeover or initial public offering. The identification of earnings manipulation is again captured by the discretionary accrual proxy variable. Private target firms are assumed to report income increasing discretionary accruals prior to an event to increase the transaction value of the deal. The final subsample of the third hypothesis (Panel C) includes 4,850 firm-year observations and 1,039 uniquely identified target companies. The reported R-squared of 33.52% concludes that approximately 34 percent of the variance of the dependent variable (DA) is captured by the fixed-effects regression model. The control variables 'ROA' and 'LEVERAGE' lack significance, whereas the variable 'SIZE' is positively associated with the dependent variable. Different from the output resulting from testing the first two hypotheses, the third hypothesis can not be assumed. Again, under the null hypothesis, the regression coefficient of interest (β_1) equals zero. After analyzing Table 5, I conclude that the statistical evidence is lacking. The obtained evidence is insufficient to reject the null hypothesis and assume that the discretionary accruals differ over time. Due to insignificant results, this study is unable to find sufficient statistical evidence that supports earnings manipulative behavior by private firms prior to takeovers or initial public offerings.

Lastly, the final sample used to test the fourth hypothesis includes rumored private target firms. I hypothesize that rumored private target firms again manage accounting earnings upward preceding initial public offering or takeover announcement. Referring to column 'Panel D' in Table 5, the results show that the final sample contains 1,333 firm-year observations belonging to 304 rumored target firms. The interpretation of the reported R-squared follows that the independent variables are able to explain approximately 19% of the variance of the dependent variable. Control variables 'ROA' and 'SIZE' are described by positive significant regression coefficients. The variable 'LEVERAGE' is found to be insignificant, thus unable to explain the discretionary accruals in the last subsample. Following the previous reasoning, I hypothesize that the time capturing regression coefficient (β_1) is significant and positive. Referring to the last column of Table 5, it follows that the null hypothesis must be rejected with 95% certainty. The positive sign, combined with the observed significance, presents sufficient statistical evidence to conclude that rumored target firms manage earnings upward preceding takeover or initial public offering announcements. The empirical results produce satisfactory statistical evidence to accept the fourth and final hypothesis.

Table 5: output fixed effects panel regression period 2011 – 2019

	Panel A	Panel B	Panel C	Panel D
DA	(1)	(2)	(3)	(4)
<i>Pre-event</i>	0.0522** (0.0224)	0.0097*** (0.0020)	0.0478 (0.0305)	0.0115** (0.0053)
ROA	0.1085* (0.0633)	0.1464*** (0.0146)	0.0903 (0.0717)	0.2095*** (0.0409)
LEVERAGE	0.1068* (0.0560)	-0.0245*** (0.0080)	-0.0494 (0.0357)	0.0134 (0.0159)
SIZE	0.1106*** (0.0277)	0.0280*** (0.0044)	0.0566** (0.0297)	0.0310* (0.0132)
$\left(\frac{1}{A_{i,t-1}}\right)$	4566.37** (2070.61)	439.47 (292.81)	209.44** (87.49)	-638.58 (2269.13)
$\left(\frac{\Delta REV_i - \Delta REC_i}{A_{i,t-1}}\right)$	-0.0443* (0.0270)	0.0454*** (0.0091)	-0.2424*** (0.0703)	0.2027*** (0.0311)
$\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right)$	-0.0028 (0.0028)	0.0961*** (0.0163)	-0.0479** (0.0235)	-0.0641 (0.1034)
<i>Intercept</i>	-1.5576*** (0.3989)	-0.4503*** (0.0614)	-.7260* (0.3809)	-0.0641* (0.1034)
<i>Firm Fixed Effects</i>	Yes	Yes	Yes	Yes
Observations	1,782	11,262	4,850	1,333
Unique target firms	819	1,918	1,039	304
R-squared	6.36%	10.13%	33.52%	19.18%

Table 5 highlights the empirical findings of the regression based on the fixed-effects model. Panel A represents the subsample that is used to test hypothesis 1 and includes publicly listed companies. Panel B is the sample that corresponds with hypothesis 2 and includes only rumored public firms. Panel C describes the results of testing hypothesis 3 and includes private firms with completed deals. Panel D is used to test hypothesis 4 and contains rumored private firms with completed deals. The coefficients result from running the firm-specific fixed effects model. The reported values in parentheses represent the coefficient's clustered standard errors. The clustering is based upon the identified unique target firms for each subsample. *** p < 0.01, ** p < 0.05 and * p < 0.1

5.2 Robustness tests

To verify whether the empirical findings presented above are robust, I use three additional methods. The robustness tests below essentially test for differences in the discretionary accruals for target companies at different points in time. Appendix D presents the regression output of a variation of the fixed effects model presented in Table 5 earlier. The regression model in Appendix D is essentially a rerun of the main model except for the included dependent variable. The control variables and first stage regressors are now regressed on the firm-specific total accruals (TA) instead of the discretionary accruals (DA). The main conclusion that can be drawn from analyzing the output of this additional model is that the sign of the regression variable of interest (β_1) remains strictly positive for all tested samples. Despite observed insignificance, the reported positive regression coefficients suggest that firms report income increasing total accruals prior to major corporate events and support the empirical results produced by the main regression model of this study. Furthermore, I test for possible mean differences in the discretionary accruals by using the Student t-test method. The 'Pre-event' variable remains coded '1' for year two and year one preceding a major corporate event and is coded '0' for the year of the corporate event and years one and two thereafter. Under the null hypothesis, the difference in means of the discretionary accruals does not significantly differ from zero over time. After performing this Student t-test, I conclude that there does not exist sufficient statistical evidence to conclude that the mean of the calculated firm-specific discretionary accruals differs over time. As presented in Table 6 on the next page, I observe that only the fourth test is able to reject the null hypothesis of non-differentiating means. This confirms the empirical conclusions for hypotheses 3 and 4 but contradicts the obtained results for hypotheses 1 and 2. I attribute this observation to the relaxation of the normality distribution within the used panel datasets for this thesis. This may prevent the t-test from producing the desired significant p-values and assume differentiating means of the discretionary accruals.

Nonetheless, the second robustness test produces more encouraging results and suggests robust empirical results. The Mann-Whitney U test, also referred to as the Wilcoxon signed rank test, is a non-parametric test that tests data by ranking variables. The column that indicates rank (R) denotes the mean rank of the researched target companies at different points in time. Subscript "0" again corresponds to the year of the corporate event and years one and

two thereafter. The ranking values with subscript “1” are the ranking values of the examined target firms before the corporate event. Under the null, the Mann-Whitney U test assumes equal medians. This essentially means that the median of the discretionary accruals does not change over time interval [-2, +2]. Again referring to Table 6, I conclude that the previously defined null hypothesis must be rejected for all four subsamples. It follows that the median of the firm-specific discretionary accruals does in fact differ over time. This finding confirms the obtained results from the fixed effects regression model, suggesting the existence of earnings manipulative behavior prior to corporate events due to unequal medians of the discretionary accruals over time. In conclusion, the rerun of the regression model together with the two performed robustness tests yield sufficient statistical evidence to assume robust results.

Table 6: discretionary accruals mean comparison Student t-test and the Mann-Whitney U test

Panel A				Panel B			
Mean	Test	Rank	Test	Mean	Test	Rank	Test
DA $\mu_0 = -0.061$	$t = -0.82$	$R_0 = 749.15$	$z = -3.94^{***}$	DA $\mu_0 = -0.055$	$t = -0.79$	$R_0 = 5564.71$	$z = -2.16^{**}$
$\mu_1 = -0.049$		$R_1 = 907.69$		$\mu_1 = -0.054$		$R_1 = 5694.84$	
Panel C				Panel D			
Mean	Test	Rank	Test	Mean	Test	Rank	Test
DA $\mu_0 = -0.161$	$t = -0.92$	$R_0 = 2253.70$	$z = -6.23$	DA $\mu_0 = -0.049$	$t = -2.25^{**}$	$R_0 = 648.01$	$z = -2.099^{**}$
$\mu_1 = -0.141$		$R_1 = 2500.97$		$\mu_1 = -0.034$		$R_1 = 692.81$	

Table 6 presents the performed robustness tests. Subscript ‘0’ is defined as the year of the corporate event and years one and two thereafter. Subscript ‘1’ is defined as years one and two preceding the corporate event. R denotes the mean rank for each period. The t-values result from conducting the Student t-test and the z-values are produced by the Mann-Whitney U test. *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$

5.3 Discussion

The initial expectations of hypothesis 1 are confirmed by the empirical statistical results from analyzing the regression output. Earnings manipulative behavior preceding corporate events is detected due to the positive regression coefficient (0.0522) of the time capturing dummy variable ('Pre-event'). The assumption that managers engage in earnings manipulation to increase the transaction value of the merger or acquisition seems reasonable to explain such observed behavior. The empirical results presented in this paper are in line with previous academic literature. Erickson & Wang (1999) also found that managers of acquiring firms are likely to increase their reported earnings numbers when engaging a stock-swap merger. The expectations of the second hypothesis are also confirmed after analyzing the regression output. Managers of target firms inflate reported accounting earnings when faced with the possibility of hostile takeovers. Furthermore, the regression coefficient of interest is positive (0.0097) and found to be significant. Easterwood (1998) also finds sufficient statistical evidence in favor of earnings manipulation by firms facing hostile takeover threats. This study attributes the occurrence of earnings inflation to management's efforts to cancel a forthcoming takeover. The third hypothesis fails to confirm initial expectations as the regression model is unable to detect a significant regression coefficient for the 'Pre-event' dummy variable. The findings of this study contradict previous papers that present evidence supporting the occurrence of earnings management prior to initial public offerings. Teoh et al. (2005) for example found that companies report income increasing accruals before going public. The regression coefficient produced in this research is characterized as positive (0.0478), but insignificant. Lastly, the suggested outcome of testing the fourth and final hypothesis is verified by the produced results of the fixed effects regression model. The positive significant regression coefficient of interest (0.0115) grants sufficient statistical evidence to assume existing earnings manipulation prior to takeovers or initial public offerings. Previous academic literature on the possible occurrence of earnings management for rumored target firms is scarce. Comparable results outlined by previous academic literature on the occurrence of earnings manipulation by private target firms are currently lacking. Comparisons of the conclusions stated in this paper remain therefore unavailable.

6. Conclusion

6.1 Conclusion

This research aims to detect earnings manipulative behavior preceding major corporate events in the United States during the period 2011 – 2019. The four different subsamples that this paper focusses on include public as well as private companies. For the samples that include public firms, this study aims to detect earnings manipulation prior to mergers and acquisitions transactions. The addition of initial public offerings as a major corporate event is prevalent for the samples that include private firms. Furthermore, target firms are generally unable to manipulate reported accounting earnings numbers before takeover attempts. To circumvent this problem, two rumored subsamples are constructed and tested subsequently. Measuring potential earnings manipulation can be done by using several different methods and numerous proxies. This paper explicitly makes use of the Modified Jones (1995) model to calculate the non-discretionary (expected) accruals and to extract the discretionary (unexpected) accruals from the obtained residuals thereafter. The discretionary accruals are computed for the two years preceding the event (-2, -1), the year of the event (0), and two years after the event (+1, +2). A time-capturing dummy variable provides insight into whether the discretionary accruals are income increasing preceding a specific event. Subsequently, the calculated discretionary accruals are modeled in a fixed-effects regression format. The fixed-effects that this model includes are based on the unique individual firms of the subsample. The regression model includes clustered standard errors to alleviate existing heteroskedasticity problems prevalent within each of the four subsamples. The clustering of standard errors is on the basis of the unique target firms that vary over the four tested subsamples. The presented empirical results are found to be robust after examining the results of the Student t-test and the Mann-Whitney U test, which function as two different robustness tests. In addition, the rerun of the fixed effects regression model including analogous control variables and first stage regressors is presented in Appendix D.

The underlying research question of this study answers whether US target firms are encouraged to report income increasing accruals preceding corporate events and is answered by testing four different hypotheses. The first tested hypothesis assumes the occurrence of managerial induced earnings manipulative behavior preceding mergers and acquisitions

transactions. Panel A was finalized by identifying 1,782 firm-year observations and 819 corresponding unique public target firms. After analyzing the obtained regression output from testing the first subsample, it follows that managers manage accounting earnings upward by reporting positive discretionary accruals before mergers & acquisitions transactions. This finding is in line with the results presented in the paper of Ben-Amar & Missonier-Piera (2008). This study also presents sufficient statistical evidence in favor of existing accounting earnings manipulations before takeovers. The second hypothesis suggests that rumored target firms manage earnings upward preceding hostile takeover attempts. The second subsample solely includes deals that have been rumored to be executed but did not finalize in the end. Panel B identifies 1,918 unique target companies that were falsely rumored to be taken over and includes 11,262 firm-year observations. The regression results show the reporting of positive income increasing discretionary accruals for the years preceding a hostile takeover attempt. In conclusion, it follows that managers of rumored target companies engage in income increasing earnings manipulation prior to hostile takeover attempts. Such behavior could be explained by management's efforts to cancel the deal. Reporting income increasing accruals can create a signal to existing shareholders, therefore leading to them declining the offer of the bidding firm. The third hypothesis, which tests the potential occurrence of earnings management within US private firms before takeovers or initial public offerings, could not be assumed. The third subsample includes 1,039 unique private firms that meet the sampling requirements and counts 4,850 firm-year observations. The corresponding regression output presents insignificant statistical evidence to assume management induced earnings manipulation preceding takeovers or initial public offerings. Due to the lacking statistical evidence, it follows that the third hypothesis suggesting manipulation of accounting earnings can not be accepted. The final subsample is relatively small compared to the other tested subsamples as it only identifies 304 unique target firms and 1,333 corresponding firm-year observations. Here, the sampling criteria only allowed for completed rumored deals. The selected private firms are private companies that were rumored to take part in a major corporate event and ultimately finalized the deal in question. Despite the relatively scarce number of observed target firms, the regression output presents sufficient significant evidence suggesting the occurrence of earnings management. The regression coefficient of the time capturing 'Pre-event' variable is positive statistically significant. The observed firm specific discretionary accruals are thus

strictly more positive for the years prior to takeovers or initial public offerings. This leads to the confirmation of the hypothesized existence of income increasing earnings manipulation by private rumored target companies. In sum, this study suggests that US-based target firms generally engage in earnings management for the years preceding major corporate events.

6.2 Recommendations for potential future research

There are certain limitations to this study that are of importance for future research regarding this subject. Firstly, one major drawback that surrounds this study is the recognized data scarcity and data unavailability. The amount of unique identified target firms drastically declines throughout the sampling progress due to the absence of available data and financial information. This phenomenon is described previously in Table 1, which shows an overview of the sampling progress. Although this paper specifically focusses on the a well developed country (US) with a large set of available data, the excessive dropping of observations indicates that the available data still is imperfect and incomplete. To illustrate, the first subsample used to test the first hypothesis initially counts 53,643 completed deals. After merging the results from BvD's Zephyr database and completing the outlined sample selection progress, only 819 identified unique target companies remain. All other deals include target companies for which the databases were not able to produce crucial financial information as i.e. the determinants of the desired discretionary accruals. The first subsample only counts 1,782 firm-year observations, which seems limited compared to the initial amount of completed deals. Besides the relatively large observation reduction, this study only focusses on one geographical country, namely the United States. The external validity and generalizability of the empirical results could be enhanced by examining firms around the globe and consequently diversifying the research to more geographical areas. Lastly, target firms that engage in mergers or acquisitions could be consolidated with the acquiring firm and cease to exist as a unique entity after the takeover has finalized. This could very well explain the drastic decrease in firm-year observations after imposing further sampling criteria. By conducting research on hostile takeover attempts that ultimately did not finalize (H2, Panel B), I controlled for this limitation as firms still proceed to continue as separate entities after the uncompleted deal. Although not specifically mentioned in prior research, the unavailability of existing data for target firms after a completed deal could explain the noticed academic scarcity within this field.

To conclude this study, the next paragraph lists interesting topics suited for future research. Future research could expand the sample and examine other parts of the globe to mitigate the previously mentioned shortcoming of lacking generalization of obtained empirical results. However, possible alternative countries that are interesting to investigate should incorporate International Financial Reporting Standards (IFRS). The differentiating discretionary accruals could be explained due to different accounting standards if this requirement is disregarded. Secondly, future research could incorporate a more sophisticated and advanced model for detecting earnings manipulation. The available models that estimate the non-discretionary accruals and derive the discretionary accruals thereafter have shortcomings and generally are imperfect. This study aims to control for the simplistic and often inaccurate accrual models by including the first stage regressors and performing robustness tests. Besides using a different proxy and corresponding model to detect potential earnings manipulation, future researchers are also encouraged to include different control variables and use an alternative regression model. Finally, instead of generalizing the nature of the rumor, it should be interesting to divide the source of the rumor into specific subgroups. Furthermore, it might be of interest to examine whether the selected target companies initialized the circulated rumor itself or that the rumor was created externally. For the creation and testing of the rumored samples, this study relies on the assumption that the management of the identified target firm is aware of the ongoing rumor. This leads to an emerging situation that enables target firms to anticipate in a timely manor. The source, credibility, and amount of publicity of the rumor could be crucial to detect potential accounting earnings manipulations and could assert influence on the produced empirical results.

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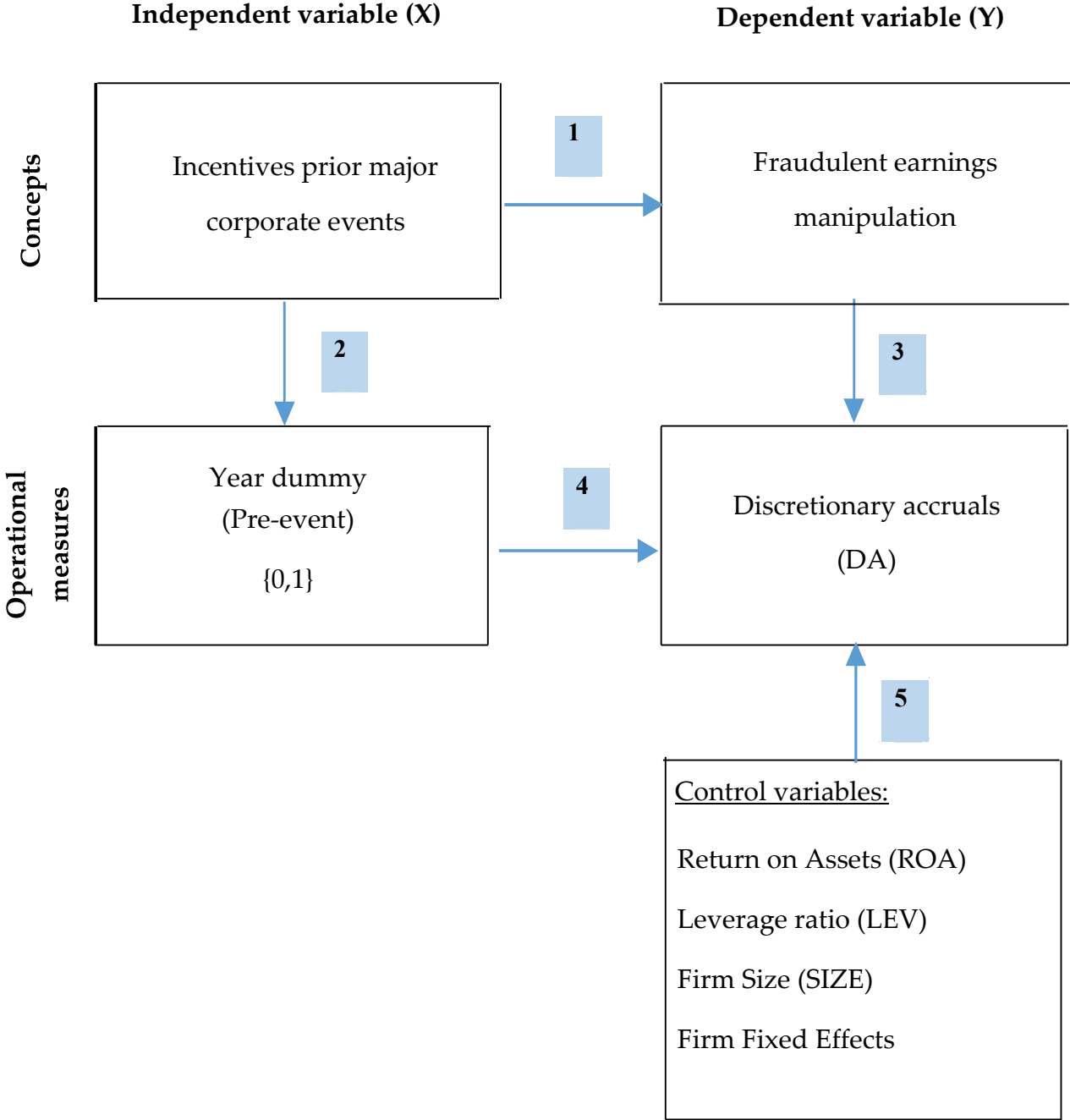
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Appendices

Appendix A: predictive validity framework Libby Boxes (2012)



Appendix B: Overview of used variables

Key Variable Definitions	
Return on assets (ROA)	Net Income divided by total assets.
Leverage (LEVERAGE)	Sum of long-term debt and current liabilities divided by total assets.
Firm size (SIZE)	Logarithm of total assets of a company.
Years	Years preceding, after and of the corporate event.
(Y _t)	Year -2 represents two year before the corporate event, year -1 represents one-year prior to the corporate event and year 0 is the year of the corporate event. Years 1 and 2 represent the years after the corporate event.
Year dummy (Pre-event)	Dummy variable that takes on value "1" for years preceding the corporate event and indicates "0" otherwise.
Change in revenues (ΔREV)	Measures the change in operating revenue for the period t-1 until t.
Change in receivables (ΔREC)	Measures the change in receivables for the period t-1 until t.
Total Accruals (TA)	Difference between net income and cash flows from operations. Operating cash flow is estimated by working capital from operations minus working capital accruals. Working capital from operations is defined by the sum of income before extraordinary items, depreciation and amortization, extraordinary items and discounted operations, deferred taxes, equity in net loss, sales of property, plant and equipment, gain/loss sale of investment and other proceeds from operations.
Discretionary Accruals (DA)	Difference between total accruals and the non-discretionary accruals estimated by the modified Jones model (1995).

Appendix C: Timelines non-rumored and rumored samples

Figure 1: timeline public/private target firms non-rumored samples (H1 & H3)

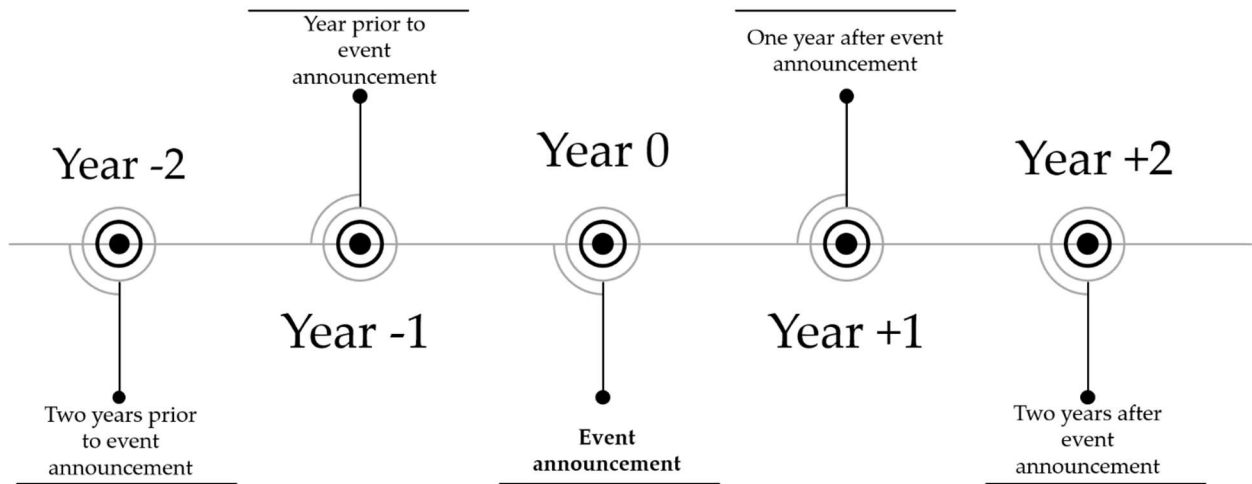


Figure 2: timeline rumored public target firms facing hostile takeover (H2)

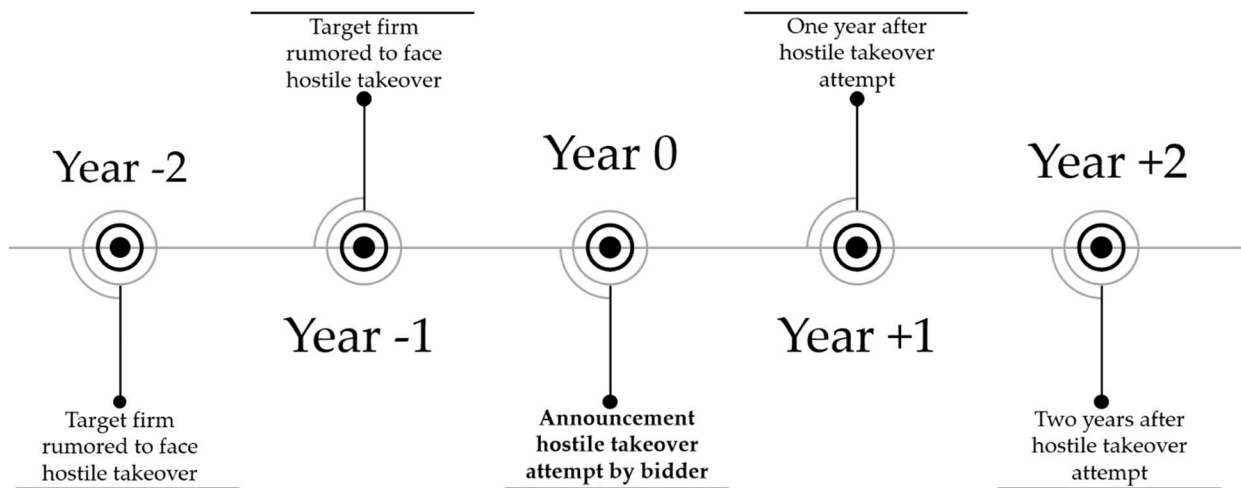
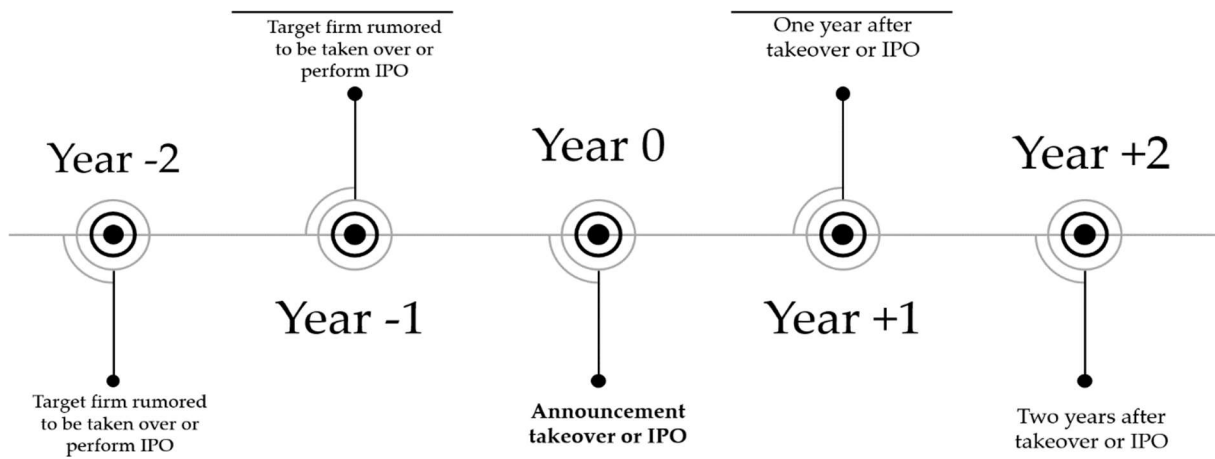


Figure 3: timeline rumored private target firms IPO or takeover deals (H4)



Appendix D: Additional robustness test with total accruals (TA) as dependent variable

	Panel A	Panel B	Panel C	Panel D
TA	(1)	(2)	(3)	(4)
<i>Pre-event</i>	0.0205*	0.0020	0.0056	0.0054
	(0.0127)	(0.0019)	(0.0121)	(0.0048)
ROA	0.0036	0.2767***	0.2297***	0.3225***
	(0.0647)	(0.0201)	(0.0389)	(0.0441)
LEVERAGE	0.0598**	-0.0660***	-0.0626***	-0.0415**
	(0.0294)	(0.0092)	(0.0218)	(0.0186)
SIZE	0.0320**	0.0083**	0.0277	0.0158
	(0.0141)	(0.0043)	(0.0178)	(0.0121)
$\left(\frac{1}{A_{i,t-1}}\right)$	-746.10	943.49***	178.06***	3092.73
	(1417.75)	(364.91)	(49.21)	(2272.94)
$\left(\frac{\Delta REV_i - \Delta REC_i}{A_{i,t-1}}\right)$	0.0229	-0.0074*	-0.0436*	0.0003
	(0.0166)	(0.0043)	(0.0244)	(0.0173)
$\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right)$	0.0043***	-0.0410***	-0.1354***	-0.0788*
	(0.0015)	(0.0099)	(0.0482)	(0.0444)
<i>Intercept</i>	-0.5661***	-0.1226**	-0.3788*	-0.2635
	(0.2024)	(0.0620)	(0.2296)	(0.1791)
<i>Firm Fixed Effects</i>	Yes	Yes	Yes	Yes
Observations	1,782	11,262	4,850	1,333
Unique target firms	819	1,918	1,039	304
R-squared	2.38%	31.25%	47.03%	24.47%

Panel A represents the subsample that is used to test hypothesis 1 and includes publicly listed companies. Panel B is the sample that corresponds with hypothesis 2 and includes only rumored public firms. Panel C describes the results of testing hypothesis 3 and includes private firms with completed deals. Panel D is used to test hypothesis 4 and contains rumored private firms with completed deals. The coefficients result from running the firm-specific fixed effects model. The reported values in parentheses represent the coefficient's clustered standard errors. The clustering is based upon the identified unique target firms for each subsample. *** p < 0.01, ** p < 0.05 and * p < 0.1