



## **The capital market reaction to M&A announcement for acquirers with internal control weaknesses**

### Abstract

This thesis aims to examine whether acquirers with internal control weaknesses (ICWs) face lower stock market reaction than their peers without ICWs. For further analysis, the ICWs are also divided into three categories. The three categories of ICWs are 1) accounting rule application failure, 2) accounting fraud, irregularity or misinterpretation, and 3) errors in accounting and clerical applications. The results of this thesis indicate that there might be a lower stock market reaction for acquirers disclosing ICWs, as the respective coefficient turned out to be negative but insignificant when the first hypothesis was tested. However, the results of the second hypothesis testing show, that specific categories, mainly 1) and 3), have significant negative effect on the stock market reaction. This thesis strives to complement to the existing literature on the topic of the market for corporate control and to clarify the usefulness of the SOX reports for the participants in this market.

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Master's Thesis Accounting, Auditing, and Control

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Date: 14<sup>th</sup> July 2017

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## 1. Introduction

This thesis examines the relation between the disclosure of internal control weaknesses (ICWs) and the M&A announcement stock market reaction. Many studies have previously researched the stock market reaction to certain announcements or disclosures. There has also been a vast body of research focusing on the disclosure of restatements and its implications on the market. However, the topic of whether the investors react to companies with ICWs when the M&A transaction is announced has not been researched yet. Therefore, this thesis aims to answer the following central research question:

"Do internal control weaknesses disclosures affect the stock market reaction of the acquirer companies around the M&A announcement date?"

The Sarbanes-Oxley Act (SOX) of 2002, specifically the Section 404, has made ICW reporting mandatory. These reports are further attested by auditors, which increases these reports' credibility and makes them, therefore, more reliable source of information for the investors. These reports aim to narrow the information asymmetry and to reduce the information risk of the investors, as it helps them to make better and more informed decisions. Restoring the investors' confidence is extremely important, especially after the accounting scandals in the early 2000s. Hence, one of the main aims of this thesis is to elaborate on the usefulness of the SOX 404 reports, as the issuance and the mandatory requirement for the companies to get the report attested also imposes additional costs on the companies. Even though the disclosures of SOX 404 reports are considered to have benefits, the usefulness of the SOX 404 reports for the acquirers in an M&A transaction has not been examined. Therefore, by comparing two groups of acquiring companies with and without ICWs, this thesis analyses if the companies are valued differently by the market participants.

The results of this thesis might be helpful to several groups of interests. First, understanding the factors that drive the stock market reaction to M&A announcements

is important for managers and shareholders. The results might help the parties in the acquisition process to expect and assess the stock development of their company in comparison with its peers. If the results of this thesis show that companies with ICWs have a less positive stock market reaction compared to companies that do not disclose ICWs, then it can help the managers to make strategic decisions to avoid ICWs, in order not to negatively affect the stock price.

Second, this thesis might be primarily relevant to the investors, who can use the prediction of successful targets as a strategy for feasible investment. Previous literature has examined the characteristics of takeover targets, which if picked up by market participants might be reflected in the valuation of the company. Hence, knowing if ICWs increase/decrease the market stock reaction, the investors might be able to more accurately predict the value of the stock price around the M&A announcements.

Third, as M&A transactions have important implications on economic growth, competition, employment and general welfare (Tunyi, 2014), the results of this study might contribute to the policy makers' understanding of M&A deals. By examining whether the SOX is useful for the investors in M&A transactions, the regulators can further evaluate, if changes are needed to be made to the current requirements.

Lastly, this thesis will enlarge the already existing literature on the usefulness of the SOX disclosure, as well as it contributes to the literature examining the market for corporate control in relation to disclosures.

By implementing two samples, the results of this thesis indicate that the acquirers with ICW might face lower stock returns, as the market participants expect them to have made worse management decisions than their peers. The result for the first hypothesis, which examines the ICW in general, indicate that there is a negative relation between ICW and three-day Cumulative Abnormal Return (CAR), but this relationship is statistically insignificant. However, the results of the second hypotheses are consistent with the theory, that the separate categories of ICW negatively impact the stock market reaction. Mainly ICW in accounting rule application failure and errors in accounting and clerical applications have shown to have a negative and significant effect on the CARs. The category accounting fraud, irregularity or misinterpretation,

is statistically insignificant, which might be attributable to the limited amount of these observations in the dataset and is consistent with prior research.

The rest of this paper is organized as follows. Section 2 provides a literature review, and Section 3 the hypothesis development. Section 4 describes the research design, Section 5 presents the sample selection, Section 6 the descriptive statistics and the multivariate results, Section 7 the additional analysis and Section 8 discusses and concludes the thesis.

## 2. Literature Review

This chapter discusses relevant literature relating to the market for corporate control, as well as ICW. Firstly, this chapter provides the overview of the characteristics of the targets in M&A transactions. This summary should give the reader an understanding of characteristics that have already been researched in the previous literature. Secondly, the literature review elaborates on the shareholder value and provides a thorough summary of the previous studies, which is helpful for structuring our hypotheses in the following chapter. Similarly, as in the first section of this chapter, the third section explains the most common factors that cause companies to have ICWs and therefore helps to define the control variables associated with ICW. Lastly, the final section tries to examine and introduce the studies, which closely relate to both stock market reaction and ICW.

### 2.1 Determinants of M&A transactions

An extensive literature has been conducted on the factors that determine the M&A deals and its success rate. Among the first studies that developed the prediction modelling and the likelihood of takeovers is by Palepu (1986). The author researches the factors that are common for the companies engaged in an M&A transaction as a target and develops the takeover vulnerability assessment model. The author examined several variables that might potentially influence the takeover likelihood and shows that the management inefficiency belongs among these factors. However, factors such as undervaluation, industry disturbance, firm size, or growth resource mismatch, do not show any significant results. Ambrose and Megginson (1992) prove that level of tangible assets plays a role in the transactions for corporate control. However, the significance varies across the studies, as some researchers use different measurement techniques and different proxies. Powell (1997, 2001, 2004) further develops the research led by Palepu and concludes that availability of free cash flow is a significant determinant of the M&A likelihood.

The most recent study on this topic is by Amel-Zadeh and Zhang (2015), who examine the financial restatements and the likelihood of the takeover. Financial restatements may serve as a sign of weak corporate governance and the ineffective internal control. The authors find out that companies reporting financial restatements, are less likely to be a takeover target, as well as the deal is more likely to be withdrawn in comparison with non-restating firms. The restating companies also have lower deal multiples, which is consistent with restating firms having a higher cost of capital (Amel-Zadeh and Zhang, 2015; Hribar and Jenkins, 2004; Kravet and Shevlin, 2010). However, adding the ICW dummy variable into Amel-Zadeh and Zhang's model, the authors find that ICW does not show a significance to the likelihood of the M&A transaction.

## 2.2 M&A and Shareholder Value

As mentioned in the previous section, several studies have tried to determine the common characteristics of the target companies in an acquisition process. However, Andrade et al. (2001) also point out, that different theories and drivers can explain the acquisitions. The authors explain that the success of the mergers is also influenced by the external factors, such as antitrust laws and active enforcement. These make it more difficult for the companies to freely merge in the market, as mergers relocate large volume of wealth in the economy, and therefore need to be controlled by authorities. The value creation or destruction have also been a very common topic for researchers, as the wealth distribution is different among the participants.

Several studies conduct event studies examining the abnormal return around the M&A announcement dates to find out if the M&As add value to shareholders' or it is rather value-destroying. These short-term event studies (e.g. Andrade et al., 2001; Hackbarth and Morellec, 2007) use the average abnormal stock market reaction at merger announcement, as a proxy. The main assumption is that the capital markets are efficient with respect to public information and that the stock market incorporates the information quickly reflecting any expected value changes. The previous literature

indicates that there are generally two event windows that are used. First is the three-day window surrounding the announcement, and the second is the longer window, which starts few days prior to the announcement and ends with the completion of the merger. Andrade et al. (2001) similarly as other authors show that the stock market reaction differs with the point of view taken (i.e. observed from the perspective of the target or the bidder).

Studies unanimously agree that around the announcement date, the stocks of the target company create additional value for shareholders, and thus the targets are the winners in the merger transactions. From the study of Andrade et al. (2001), the authors' primary results show that the average three-day abnormal return for target companies is 16%, which increases to 24% when calculated based on the longer window. Another way to compare the results is to benchmark it to the average annual return for all publicly traded firms, which is said to be around 12%. Mulherin and Boone (2000) report that the target's median abnormal return on stock for the window one day before and one day after the announcement date is 18.4%. Previously, Jensen and Ruback (1983) also reported similar results to 13 empirical studies, showing that the target's stock yields an abnormal return of 20-30% around the time of an announcement.

However, examining from the perspective of the bidder, the results are rather inconclusive in the existing literature. The outcomes are evenly distributed among the three types of results: buyers with a negative abnormal cumulative return, breaking even, or with a slightly positive cumulative abnormal return (CAR). Andrade et al. (2001) state that there is not a significant result in their research for the acquiring firms. Based on that study the authors argue that it is difficult to claim that the acquirers are the losers in the transaction, but rather they do not gain as much from the acquisition process as the target company does. However, in a later study by Moeller et al. (2005), the authors find out that the three-day CAR for the acquirer is slightly positive for every year from 1980 to 2001, except 2 years. Most of these studies examine the abnormal returns around the date of the announcement and thus utilize relatively a narrow event window. When considering the long-term returns to



shareholders, the return showed to be significant and negative for the firms that take a role of the acquirer (Campa & Hernando, 2004).

Looking at the combined results to determine the total value of the merger, the previous studies report that in general the mergers create positive value for the shareholders (eg. Mulherin & Boone, Houston al, 2001; Kuipers-Miller-Patel, 2002). However, the shareholder value is only marginal, as it weighs out both the losses and gains of the target and the acquirer.

### 2.3 Determinants of ICWs

Several studies examine the underlying determinants behind the inefficient system of internal control. Study by Doyle et al. (2007a) research 779 firms that disclosed material internal control weaknesses from August 2002 to 2005. The authors examine both Sections of SOX with respect to ICWs – the Section 302 and 404. The authors' main findings are that the companies, which report at least one material weakness during the period, are generally smaller, younger, in financial distress, more complicated, are in rapid growth, or are restructuring. These factors are the main challenge for the companies, to maintain a good quality system. These are mainly caused by the fact that the companies lack resources, have too complicated accounting issues, or face a rapidly changing environment. On the other hand, the authors are not able to find any relation between corporate governance and material weaknesses disclosures but attribute this to low power due to the sample size limitations. Similarly, as in the literature examining the underlying determinants of the M&A transactions, the authors used the probit model, which predicts the likelihood of the factors on the material weaknesses in internal control.

Another more recent study examined the determinants of persistence of ICWs (Klamm, Kobelsky, and Watson, 2012). This study differs in a sense that the authors consider how the existence and nature of current material weaknesses are related to the future material weaknesses reported by the company in the following years. The authors use two proxies for the material weakness persistence. The first being the

number of material weaknesses, and the second the future number of years with an ineffective control report. The main results of this study are that the number of material weaknesses is positively related to the future number of material weaknesses, as well as it reflects the future number of years of ineffective control report. The authors also examine three categories of material weaknesses: IT entity level, account-level, and non-IT entity-level. With respect to the categories, the authors find that companies reporting account-level deficiencies, such as misstatements in debt, fixed asset/capitalization, revenue recognition and tax, have the probability of having future material weaknesses of 129 % higher than the companies that do not report these types of deficiencies. Similarly, companies with the IT entity level deficiency have also a much higher probability of having the future material weaknesses (127%). Moreover, the authors found out that auditor expertise and financial resources are negatively correlated with the future number of years of material weaknesses. Further, the complexity factor, measured by the number of operating segments, is positively correlated with the future material weaknesses.

## 2.4 SOX Act and the Market Implications

There has been a lot of research on a topic associated with SOX and the implications it might have on the decisions of the stakeholders on the market.

The relation between ICWs and the accrual quality was researched by Doyle et al. in their 2007 study. The authors argue that weak control environment might have two effects and can allow the company to either 1) have intentionally biased accruals through earnings management, because of poor segregation of duties or 2) have unintentional errors in accruals as a result of lack of experience with accrual estimations. For these reasons, the authors predict that companies with reported ICW under the SOX will also exhibit lower accrual quality. Using the Dechow and Dichev (2002) model, the authors mapped the accruals into cash-flows, upon which they find that the companies associated with weak internal controls have a relatively weaker quality of accruals.

Lower quality of accruals was then examined by Ashbaugh-Skaife et al. (2009). They examined whether the companies with ICWs are of higher systemic risk, higher idiosyncratic risk, and higher cost of equity in comparison with the companies that do not exhibit any ICWs. The main result of this study is that the companies with ICW experience a significant increase in market adjusted cost of equity. In the second tests, the authors find out that the cost of equity of the companies, which reported ICWs but subsequently received an unqualified audit opinion, was then reduced by 151 basis points around the disclosure of the opinion. This means, that successful remediation results in a decrease of the cost equity. On the other hand, the companies that still maintain persistent ICWs have significantly increased their cost of capital. For the last tests, the results show that there are no changes in the costs of equity of the companies that are least likely to have deficiencies in their internal control. However, the market responds positively, if the companies, deemed to be very likely to have ICWs, subsequently receive the unqualified SOX 404 audit opinion.

A study by Skaife and Wangerin (2013) is most closely related to the topic examined in this thesis. The authors predict that deals in an M&A transaction with low-quality of financial reporting are more probable to be terminated. The authors utilise five measures as a proxy for low-quality of financial reporting – 1) magnitude of discretionary accruals, 2) the likelihood of weaknesses in internal control, 3) of-balance-sheet liabilities, 4) analysts' forecast error, and 5) analysts' forecast dispersion. The first three are said to be indicators of less reliable, less relevant, and low-quality financial reporting. The last two proxies assess the precision of the target's financial reporting. The authors subsequently combine all the measures to construct a low-quality financial reporting (LQFR) score. LQFR score is said to be contributing to the uncertainty that surrounds the M&A deals; therefore, it makes the investors discount the transaction involving the LQFR targets. The authors predict that this discount results in lower if any, deal premiums. For the initial test, the authors find that deal premiums are higher for companies with lower quality financial reporting. The authors suggest that acquirers see an additional value beyond the market value at the time of the takeover agreements. However, this finding does not mean that the deal will be

successfully completed. Upon further examination, the authors find that deals with LQFR are more likely to be renegotiated or withdrawn.

The negative stock market reactions might be a consequence of investors' perception that the ICW disclosure threatens the credibility of the information that the company reports. The study by Beneish, Billings, and Hodder (2007) examines the relation between the information uncertainty and ICWs. The authors claim that for 330 firms that reported the weaknesses under the Section 302, the companies face a negative announcement abnormal return of -1.8%. Moreover, the companies face a higher cost of capital by 68 basis points. The authors conclude that the Section 302 is informative, as it results in market implications. The authors state that this market reaction under Section 302 reflects an increase in risk and a decrease in expected future cash flows. For the Section 404, the authors do not find any impact on the stock prices or firms' cost of capital. According to the authors, this is consistent with the theory that the companies that file under Section 404 are accelerated filers, and therefore operate in richer information environments.

Disclosure of ICWs might also have implications for the labour market and the compensation of the employees. As researched by Hoitash et al. (2012), the study emphasizes the importance of managers' being responsible for the accurate financial reporting. With the adaptation of SOX, the CEOs and CFOs have a responsibility to establish, maintain and assess the internal control effectiveness and to report the findings. The authors examine, therefore, the link between CFO compensation and the ineffective internal control system using the OLS regression. The main conclusion of this research shows that the variable compensation such as total compensation, bonus compensation, and equity compensation are each negatively associated with the ICW disclosures. These results are economically significant, as on average the disclosures are linked to a decrease in CFO bonuses by 14.9%.

However, it is very unclear whether there is a relation between the disclosures of ICWs and the market for corporate control. As can be seen above, the researchers examined the two topics separately, but a little research shows the combination of the

two, except Skaife and Wangerin (2013). Table 1 presents with a summary of the results found in previous literature on M&A and the market implications.

Table 1: Literature Review of M&A transactions and Market Implication

Author	Year	Jour. <sup>1</sup>	A or T <sup>2</sup>	Findings
Campa & Hernando	2004	EFM	A&T	CAR for target companies is statistically significant and positive with 9%, whereas the acquirer companies show CAR around 0 on average. Industries that are heavily regulated by the government exhibit lower value than companies in unregulated industries.
Caplan, Dutta, and Liu	2017	AJPT	A	The acquirer companies with ICWs exhibit higher average goodwill impairment of 3.31% in comparison with acquirers without ICWs which exhibit only 1.94%. The difference is statistically and economically significant. Moreover, ICW acquirers impair goodwill also more often as the non-ICW acquirers.
Darrough, Huang and Zur	2017	CAR	A	ICW acquirer pays on average \$46.6 higher premium than companies without ICWs. The acquirers with ICWs also receive more negative announcement period CAR in comparison with the non-ICW acquirers.
DeLong	2001	JFE	A&T	Only acquirers involved in mergers that focus both on geography and activity do not destroy value. For targets the average return is 16.6%.
Goergen & Renneboog	2004	EFM	A&T	Acquirers show a positive announcement effect of 0.7% in large acquisitions, but show negative return when engaged in hostile takeovers. Targets have a CAR of 9%, and even higher (12.6%) when involved in hostile acquisition.
Houston et al.	2001	JFE	A&T	Statistically significant and negative abnormal return to acquiring banks (-2.61%), but significantly positive return for target banks (24.60%).
Mulherin & Boone	2000	JCF	A&T	Acquirers experience insignificant mean change in wealth at the announcement, targets gain on average more than 20%.
Moeller et al.	2005	JF	A	Found that acquisition announcements were profitable only until 1997, but for mergers between 1998 to 2001, the

<sup>1</sup> Jour. – Abbreviation of name of journals included in the ERIM Journals list

<sup>2</sup> A or T – Acquirers or Targets

				authors found out that the acquisition announcement are costly for the shareholders.
Schwert	2000	JFE	T	CAR is about 25% for successful offers, and around 19% for unsuccessful offers in the US.
Walker	2000	FM	A	CAR for the acquiring company is -0.84%. However, if engaged in unrelated takeovers the CMARs drops to -1.6%

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### 3. Hypothesis Development

Following the literature review, this chapter outlines the most relevant studies and explains the logic behind the hypotheses formulation. The first section is examining the ICW in general and its relation to the stock market reaction and the second section divides the ICWs into three categories in accordance with the definitions in the SOX 404 reports.

#### 3.1 Acquirers with ICW

As could be seen in the previous section, the ICW disclosures are found to have market implications. Studies have elaborated on the internal control influence on the management decisions. Cheng et al. (2013) explain that companies that exhibit ICWs indicate that they have an information problem in the company's financial reporting system. The authors show that companies with deficiencies in their financial reporting system have inefficient investment behaviour prior to the disclosure of the SOX 404. Due to the adverse public attention, the company is subsequently forced to improve their internal control reports. This indicates that companies facing ICWs surely face higher scrutiny from the market participants and that ICWs disclosures are received negatively.

M&A decisions are also associated with lower capabilities of management (Goodman et al. 2014). Li et al. (2010) claim that companies that receive an adverse SOX 404 opinions have also CFOs with weaker qualifications when considering the experience, as well as the accounting knowledge. The lower managerial capability is also connected to the low-quality financial information as discussed in the study of

McNichols and Stubben (2015). The authors claim that companies, which report ICWs, operate in a lower quality information environment. Therefore, the information related to the future development of the company may also be inaccurate. This leads to a less precise valuation of the company, as higher-quality financial information reduces the information risk.

Feng et al. (2009) show that ineffective internal controls result in less accurate management guidance, and therefore also in inaccurate management forecasts. The lower quality of internal management reports and management guidance can affect manager's decisions related to capital investment, R&Ds, or M&As. Consistent with Feng et al. (2009), Goodman et al. (2014) report that better forecasting ability leads to higher quality of subsequent acquisition decisions. The companies with high forecasting accuracy exhibit positive acquisition announcement returns and post-acquisition operating performance. However, companies that have inaccurate forecasting have higher probability and magnitude of post-acquisition goodwill impairments, and post-acquisition divestitures are also more likely to occur. Therefore, the ICWs might result in lower quality of transactions on the market for capital control, as well as lower stock returns, since the investors recognize the uncertainty caused by the ICWs.

According to Jensen and Ruback (1983), the market for corporate control can be viewed as a field in which the companies compete for better resource utilization and shareholder value maximization. Dodd (1980) shows that bidder companies, which terminate the project, which is deemed as to be overvalued, receive on average positive termination announcement returns of 1.38%. This is consistent with the theory of shareholder value maximization. Thus, it can be predicted that acquirers with a well-functioning internal control system and capable management, will receive more favourable stock market reaction than the acquirers with ICWs, as they can better recognize the deals that are feasible and beneficial for the company.

To sum up, the ICWs can influence management decisions, as the company operates in a lower quality information environment. With lower management capability there is also higher inefficiency of investment behaviour. Therefore, the market participants

will take the SOX 404 into consideration, and will discount the ICWs in the valuation of the acquirer, when they announce the planned acquisition – showing thus the uncertainty surrounding the transaction. Consistent with Darrough et al. (2017), the first hypothesis is, therefore, stated as follows:

H1: Acquirers with ICW exhibit more negative stock market reaction around the M&A announcement date, relative to those without ICW.

### 3.2 ICW Categories as Reported in SOX 404

Previous studies have recognized the importance of severity of financial restatements, by distinguishing different categories. Hennes et al. (2008) examine the way how the restatements influence the CEO/CFO turnover. The authors recognized that there is a need for separation of the errors from irregularities, as they might not have the same impact on the turnover. The authors argue that researchers can enhance the power of tests concerning restatements by distinguishing the intentional and unintentional misstatements made in the financial statements of the company. Intentional misstatements are described as irregularities, while unintentional misstatements are defined as errors, such as the unintentional misapplication of accounting rules. The authors predicted that the reaction of the public is stronger when the company is involved in the counts of frauds or irregularities, which subsequently reflects in the board's demand for dismissal of the people accountable for the misreporting. As the existing literature indicates, the firm's credibility can be restored by terminating and appointing a new CFO or CEO. The turnover of CFOs and CEOs was confirmed to be higher when examining the restated irregularities than errors.

Based on previous studies, other bodies of research grouped accounting fraud and irregularities as being more severe than clerical errors, such as Amel-Zadeh and Zhang (2015). However, for this research, the authors find that for irregularities and errors, the coefficients are significantly negative, but not statistically different from each other. Nevertheless, the irregularities category is larger in magnitude (-0.92), in comparison



with the errors (-0.56). The fraud category is insignificant, which, according to the authors, may result from the lack of testing power caused by the infrequent cases of fraud.

Feng et al. (2009) categorize intentional and unintentional errors when assessing the material weaknesses in the internal control systems. The authors predict that unintentional material weakness-induced errors in reporting earnings are more likely to be positively associated with the material weakness-induced errors in management guidance, as both are caused by the same material weaknesses. This can further influence the market for corporate control, as the management guidance might be relied upon when performing a valuation by analysts and other investors. Thus, the analysis of the different categories is useful to accurately evaluate the component of ICW that has the biggest influence on the stock market reaction.

As in restatements, the SOX reports divide the ICWs to three categories. These three categories (and their combinations) were examined separately in several studies and therefore enables the researchers to distinguish the impact of the different categories on the variable researched (e.g. Amel-Zadeh and Zhang, 2015; Hennes et al. 2008). However, the existing studies are not comparable, as the authors grouped the categories of the restatements differently, which makes it difficult to apply the same logic to ICW. Nevertheless, it can be expected that the categories of ICWs will have a negative impact on the stock market reaction. Therefore, the second hypotheses are as follows:

H2a: There is a negative relation between accounting rule (GAAP/FASB) application failure noted in an assessment of acquirer's internal controls and the market reaction to M&A announcement.

H2b: There is a negative relation between accounting fraud, irregularity or misrepresentation noted in an assessment of acquirer's internal controls and the market reaction to M&A announcement.

H2c: There is a negative relation between errors in accounting and clerical applications noted in an assessment of acquirer's internal controls and the market reaction to M&A announcement.

## 4. Research Design

This chapter describes the research design, which is used to test our hypotheses explained in the previous chapter. This chapter begins with the explanation of the dependent variable and its calculation. Further, it elaborates on the samples used, the control variables, and ends with the predictive validity framework (Libby boxes).

As this thesis examines the market reaction to the acquirers' stock market returns around the announcement day, the dependent variable will be the cumulative abnormal return (CAR). Following Darrough et al. 2017, the abnormal returns (AR) are estimated using the market model with the estimation window beginning from 200 days and ending 20 days prior to the announcement of the deals. The betas are calculated for each of the observations by running a simple linear regression while using the S&P500 daily market returns as a benchmark. The betas are then used to calculate the expected returns. Subtracting the actual and expected returns, the ARs are then calculated and added to derive to CAR. The CARs are computed over 3-day event window, which is one day prior to the announcement, the day of the announcement, and the day after.

Following multiple studies, this thesis implements two samples for the analysis of the relations between the CAR and ICW. Many studies analysing the stock market reaction use the full non-matched sample (e.g. Mulherin and Boone 2000, Campa and Hernando 2004). However, in the more recent studies, a matched sample is implemented to address endogeneity concerns (e.g. Amel-Zadeh and Zhang 2015, Caplan et al. 2017). The propensity score matched (PSM) sample matches the treatment (ICW acquirers) and the control group (non-ICW acquirers) based on the indicators explaining the probability of the company to disclose the ICW. Implementing the PSM sample is also useful for checking the robustness of the full non-matched sample. Using OLS for both of the hypotheses, the regressions thus look as follows:

$$H_1 \quad CAR = \beta_0 + \beta_1 ICW + \sum \beta_j Control + \varepsilon \quad (1)$$

The second hypothesis modifies the main model by splitting the ICW into its categories. Thus:

$$H_{2a} \quad CAR = \beta_0 + \beta_1 \text{NoteffAccRule} + \Sigma \beta_j \text{Control} + \varepsilon \quad (2)$$

$$H_{2b} \quad CAR = \beta_0 + \beta_1 \text{NoteffAccFraud} + \Sigma \beta_j \text{Control} + \varepsilon \quad (3)$$

$$H_{2c} \quad CAR = \beta_0 + \beta_1 \text{Notefferror} + \Sigma \beta_j \text{Control} + \varepsilon \quad (4)$$

Control variables can be divided into (1) firm specific and (2) ICW related. Following previous studies (eg. Shleifer and Vishny 1986, 2003; Francis and Martin 2010; Dong et al. 2012), the firm specific control variables include *BTM*, *Tobin's q*, *ROA*, *Leverage*, *Reg. Ind.*, *Fin. Ind.*, and *Lit. Ind.*. To control for variables that are associated with the ICW, *Foreign Cur.*, *Restructure*, *Sales Growth*, *Inventory*, *LogMV*, *RZ-score*, *LnAge*, *PreRestate*, *Big4*, *AuditFees*, *NonAuditFees*, *AuditorChange*, and *Mgt.Change* are added into the regression (Ge and McVay 2005; Ashbaugh-Skaife et al. 2007; Doyle et al. 2007a; Ogneva et al. 2007;). The definitions of these variables can be seen in the Table 2.

Table 2: Variable definitions

ICW	Dummy variable equal to 1, if the company disclosed ICW before the M&A announcement, 0 otherwise.
NoteffAccRule	Dummy variable equal to 1, if the company disclosed ICW related to accounting rule applications failure, 0 otherwise.
NoteffAccFraud	Dummy variable equal to 1, if the company disclosed ICW related to accounting fraud, irregularity or misrepresentation, 0 otherwise.
Notefferror	Dummy variable equal to 1, if the company disclosed ICW related to errors in accounting and clerical applications, 0 otherwise.
<b>Firm Specific Control Variables</b>	
BTM	Book value of total assets minus total liabilities divided by stock's market value of equity
Tobin's q	Tobin's Q computed as the market value of the firm (market value minus book value of shareholders' equity plus total assets) divided by the book value of total assets.
ROA	Return on assets, calculated as earnings before extraordinary items divided by total assets.
Leverage	Total debt divided by total assets.

Reg.Ind.	Dummy variable equal to 1 if the firm was in a regulated industry—i.e., SIC codes 4812–4813, 4833, 4841, 4811–4899, 4922–4924, 4931, or 4941, 0 otherwise.
Fin.Ind.	Dummy variable equal to 1 if the firm was in the financial sector—SIC codes 6000–6999, 0 otherwise.
Lig.Ind.	Dummy variable equal to 1 if a firm is a litigious industry—SIC codes 2833–2836, 3570–3577, 3600–3674, 5200–5961, or 7370, 0 otherwise.

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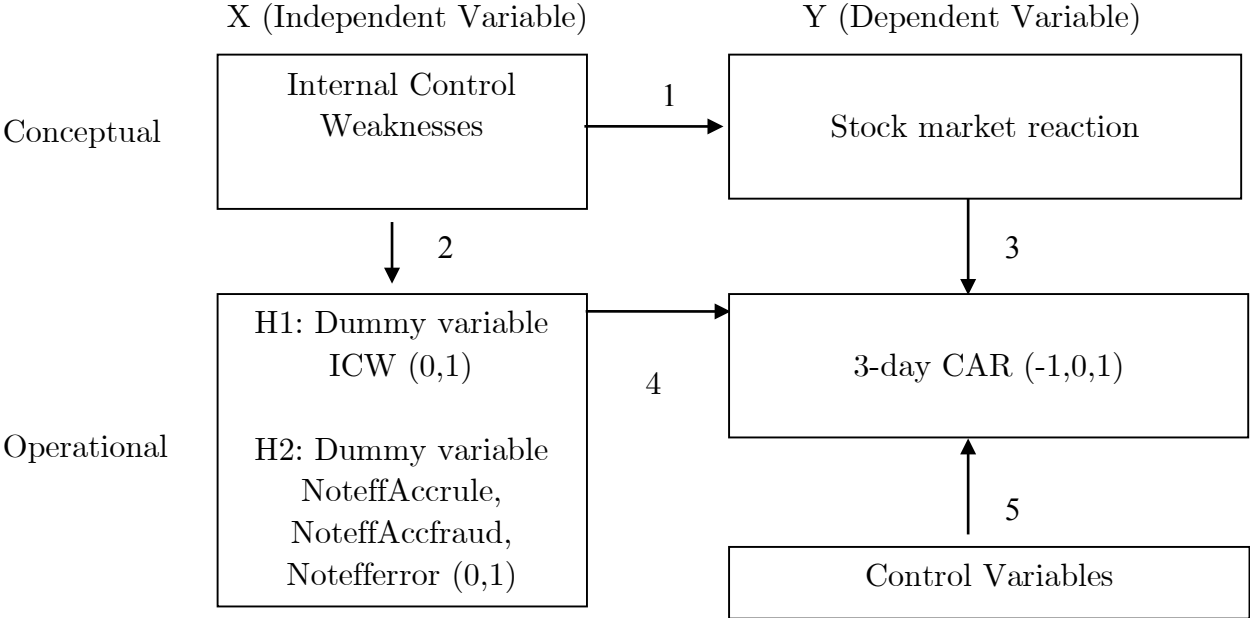
ICW-related Control Variables

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Foreign.Cur.	Dummy variable equal to 1, if the company has no foreign currency translation, 0 otherwise.
Restructure	Dummy variable equal to 1, if at least one of Comp data RCP, RCA, RCEPS, or RCD is not equal to 0 in the 3 years before the M&A announcement date, and 0 otherwise.
Sales Growth	Dummy variable equal to 1, if industry adjusted growth in sales falls into the top quintile, 0 otherwise.
Inventory	Inventory scaled by total assets.
LogMV	The logarithm of market value of equity, where market value of equity is equal to price per share multiplied by number of shares outstanding at the end of the fiscal year before the M&A announcement.
RZ-score	Decreasing decile rank of Z-Score (Altman 1986), decreasing ranks so that bigger values represent higher bankruptcy probabilities.
LnAge	The logarithm of the number of years the company exists in the CRSP database.
PreRestate	Dummy variable equal to 1, if the company exhibited restatements 3 years prior to the M&A announcement date, 0 otherwise.
Big 4	Dummy variable equal to 1, if the company is audited by Big 4, 0 otherwise.
AuditFees	Total audit fees paid by the firm in the year before the acquisition, scaled by the square root of total assets.
NonAuditFees	Total non-audit fees paid by the firm in the year before the acquisition, scaled by the square root of total assets.
Auditor Change	Dummy variable equal to 1, if the company experienced an auditor change 2 years prior to the M&A announcement date, 0 otherwise.
Mgt. Change	Dummy variable equal to 1, if the company experienced a CEO or CFO change 2 years prior to the M&A announcement date, 0 otherwise.

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The following Libby boxes show and summarize the validity framework of the research design and its operationalization described earlier in this section.



### 5. Sample Selection

This chapter describes the selection of the data, the criteria, and the steps made to derive to the final samples.

The sample of this thesis begins in 2004 when the obligation to file the SOX 404 was introduced and ends with 2015. The M&A data has been acquired through the Bureau Van Dijk's Zephyr database, and the daily stock returns are available through the CRSP using the Stock/Security files section. The information about ICW can be acquired through the Audit Analytics section in WRDS, and information used for control variables can be downloaded from different sections in WRDS.

Following Louis (2005), Masulis et al. (2007), Savor and Lu (2009), Darrough et al. (2017), companies that fit these following criteria are retained.

1. The acquisition is completed (or withdrawn) by December 31, 2015.
2. The acquirer is a US public company.

3. The transaction involves at least 50% of the target's shares.
4. The deal value is disclosed in the database.
5. The acquirer is included in the Audit Analytics Database.
6. The acquirer's firm data are available in Compustat and CRSP.

From the Zephyr database, 67,385 M&A deals were identified between the years 2004 – 2015. After dropping those observations which did not fit into the criteria described above, the sample was reduced to 46,856 unique M&A deals. After merging with the Audit Analytics database, which contains the information about the ICW, the sample was reduced to 6,037 observations. Thereafter, the merged sample was again joined with the control database, observations with missing control data were deleted, retaining 4,610 observations in the full non-match sample. The all continuous variables were further winsorized at 1% and 99%.

For the PSM sample, the observations that exhibited no ICW disclosures and ICW acquirers were matched based on the ICW determinants that are explained in Table 2. Calculating the propensity scores using the logit regressions and matching it with the user-written program `psmatch2`, the number of observations for the PSM sample equals to 536 observations.

Table 3: Sample  
Panel A: Sample Selection Procedure

Number of Acquisition deals	
Total number of M&A observations for the years 2004-2016	67,385
Less: Companies that do not disclose the amount of deal, percentage acquired, and are not completed or withdrawn	20,529
Less: Companies that are not listed in Audit Analytics database	40,819
Number of acquisition deals in the final sample	6,037
Less Companies that are not listed in Compustat and CRSP	1,427
Number of deals in the final database	<b>4,610</b>
Deals in which the acquirer does not exhibit ICW	3,735

Deals in which the acquirer exhibits ICW	875
Number of ICW and non-ICW pairs in the propensity score matched sample	<b>268</b>

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Panel B: Sample Distribution by Announcement Year

Year	Number of Acquisitions with no ICW	Number of ICW Acquirers	Total
2004	254	49	347
2005	319	45	542
2006	340	65	581
2007	521	118	598
2008	212	55	413
2009	149	35	281
2010	242	57	450
2011	392	126	460
2012	293	76	506
2013	308	70	494
2014	366	102	623
2015	339	77	579
<b>Total</b>	<b>3,735</b>	<b>875</b>	<b>4,610</b>



## 6. Empirical Results

This chapter shows the essential tables for understanding our data – the descriptive statistics and correlation analysis. It also presents the main results of the regressions for both hypotheses. The results are tabulated both for the full sample and the PSM sample.

### 6.1 Descriptive statistics and correlation analysis

Table 4 presents the descriptive statistics for the full non-matched sample and the PSM sample. The full sample consists of 4,610 observations, and the PSM sample includes 268 pairs of ICW and non-ICW observations (536 observations in total). Table 4 further shows also the difference in means analysis, as it helps us to understand the sample examined. In the table, it can be seen that the difference in means is significant for far more observations in the full sample in comparison with the PSM sample. The PSM sample does not show any significant differences in means in the ICW-related variables. However, for three-day *CAR*, the PSM sample shows that the ICW group is more likely to report lower CARs by 0.01 in comparison with the non-ICW group which indicates higher CARs at 0.03. The means are statistically significant at 10% confidence level, which is also consistent with the expectations, that acquirers with ICW report lower stock returns, as the market predicts them to make worse management decisions. The difference in *ROA* of 0.02 between the companies with ICW and those without any ICW is significant in both full non-matched sample as well as for PSM. This suggests that companies with ICW are also more likely to report lower returns. Observations in the full non-matched sample also tell us more about the differences in firm characteristics of the two groups. The ICW group is less likely to be regulated, but might be in a riskier industry and is more prone to face more litigation issues. However, this can be associated with the acquirers experiencing restructuring more often than their non-ICW counterparts. The ICW acquirers might also have faster growth, as the descriptive statistics show us that the companies with ICW are more

likely to be in the top quintile for industry adjusted sales growth. The significant differences in means for variables *PreRestate*, *AuditFees*, and *AuditorChange* also signals that the acquirers with ICW have more frequent prior restatements, pay in general higher audit fees, and are more likely to change their auditors.

Table 4: Descriptive Statistics Non-Matched Sample

	Non-Matched Sample			Propensity Score Matched Sample		
	Control sample Mean Std. Dev. (n=3,735)	ICW sample Mean Std. Dev. (n=875)	Difference in Means (p-value)	Control sample Mean Std. Dev. (n=268)	ICW sample Mean Std. Dev. (n=268)	Difference in Means (p-value)
CAR (3-day)	0.01	0.01	0.00	0.03	0.01	0.02*
	0.10	0.08	0.73	0.14	0.01	0.05
BTM	0.61	0.64	-0.03*	0.72	0.66	0.06
	0.44	0.43	0.09	0.55	0.47	0.16
Tobin's q	1.05	1.00	0.05	1.01	0.96	0.05
	1.00	0.88	0.18	1.02	0.87	0.53
ROA	0.03	0.01	0.02***	0.02	0.00	0.02**
	0.10	0.15	0.00	0.10	0.12	0.05
Leverage	0.23	0.24	-0.02**	0.22	0.24	-0.02
	0.20	0.23	0.04	0.21	0.22	0.23
Reg.Ind.	0.09	0.04	0.04***	0.06	0.05	0.01
	0.28	0.20	0.00	0.24	0.22	0.57
Fin.Ind.	0.27	0.23	0.04**	0.26	0.26	0.01
	0.44	0.42	0.02	0.44	0.44	0.84
Lig.Ind.	0.13	0.16	-0.04***	0.11	0.14	-0.03
	0.33	0.37	0.00	0.31	0.35	0.24
Foreign Cur.	0.34	0.35	-0.01	0.40	0.42	-0.03
	0.48	0.48	0.92	0.49	0.49	0.54
Restructure	0.39	0.42	-0.03*	0.43	0.41	0.02
	0.49	0.49	0.08	0.50	0.49	0.66
SalesGrowth	0.24	0.30	-0.06***	0.22	0.23	-0.01
	0.43	0.46	0.00	0.41	0.42	0.76
Inventory	0.05	0.07	-0.01***	0.06	0.07	0.00
	0.09	0.11	0.00	0.10	0.11	0.90
LogMV	7.75	6.62	1.13***	6.88	6.86	0.01
	1.90	1.52	0.00	1.62	1.54	0.92
RZ-score	2.09	2.01	-0.01	2.08	2.23	-0.15*

	0.89	0.89	0.80	0.89	0.88	0.05
Ln Age	9.48	9.55	-0.07	9.59	9.46	0.14
	1.50	1.36	0.19	1.20	1.48	0.23
PreRestate	0.22	0.27	-0.05***	0.25	0.28	-0.03
	0.41	0.45	0.00	0.44	0.45	0.50
Big 4	0.83	0.75	0.08***	0.77	0.72	0.06
	0.37	0.43	0.00	0.42	0.45	0.14
AuditFees	40830.76	49227.97	-8246.01***	44373.02	43412.92	960.10
	29481.13	32788.54	0.00	32015.00	31451.91	0.73
NonAuditFees	11664.98	11318.62	197.00	10551.65	8997.30	1554.35
	19204.65	16628.42	0.74	13686.81	13047.90	0.18
Mgt. Change	0.72	0.66	0.07***	0.73	0.73	0.00
	0.45	0.48	0.00	0.45	0.45	1.00
AuditorChange	0.04	0.05	-0.14*	0.06	0.04	0.01
	0.20	0.23	0.07	0.23	0.21	0.55

\*, \*\*, \*\*\* Indicate significance at 10%, 5% and 1% levels, respectively, using two-tailed t-tests of differences in means assuming unequal variances.

Table 5 presents the Spearman Correlation Matrix, summarizing the correlations between the independent, dependent and control variables. Firstly, the relation between ICW on CARs is deemed to be 0.01, but is not statistically significant. However, examining the ICW categories independently show us that acquirers with ICW in misapplication of accounting rules (*NoteffAccRule*) and the acquirers who exhibit errors in accounting and clerical misapplications (*Notefferror*) significantly affect the CAR around the announcement day at the 10% confidence level. Nevertheless, the category *NoteffAccFraud* is not significantly correlated with the dependent variable, although logically this category should have the most impact on the CAR. The correlation table was also done for the PSM sample (not tabulated), and supports the correlation analysis done for the full non-matched sample. It shows similar results, with significant correlation between dependent variable and independent variable of -0.08 at 5% confidence level, and values for both *NoteffAccRule* and *Notefferror* of -0.07 significant at 10%. The category *NoteffAccFraud* remains insignificant.

Table 5: Correlation analysis – full non-matched sample

	1	2	3	4	5	6	7	8	9	10	11	12
1. CAR (3-day)												
2. ICW	.01											
3. NoteffAccRule	-.02*	.32***										
4. NoteffAccFraud	.00	.06***	.07***									
5. Notefferror	-.02*	.32***	.99***	.14***								
6. BTM	-.00	-.03*	-0.03**	.01	-.03**							
7. Tobin's q	-.02	-.2	-.54***	.03*	-.00	.02*						
8. ROA	-.05*	-.09***	-.13***	-.05***	-.01	-.05***	.10***					
9. Leverage	.05	.03**	-.11***	.02	-.02	.02	-.19***	-.05***				
10. Reg. Ind.	-.02	-.06***	-.00***	-.03**	.01	-.03**	-.11***	-.06***	.30***			
11. Fin. Ind.	-.04*	-.03**	-.26***	-.05***	-.02	-.04***	-.33***	-.06***	-.14***	-.17***		
12. Lit. Ind.	.00	.04***	-.15***	.03**	-.01	.03**	.35***	-.04**	-.17***	-.11***	-.23***	
13. Foreign Cur.	.02	.00	-.02***	-.02	.03*	-.02	.01	.01	-.26***	-.15***	.11***	.08***
14. Restructure	.00	.03*	-.13***	.03*	.01	.02*	.03**	.03*	.01	-.02	-.26***	.08***
15. Sales Growth	.03	.06***	.12***	.04**	-.00	.04**	.04***	-.04***	.05***	-.02	.06***	.05***
16. Inventory	.04	.07***	.00	.04***	.03*	.04***	.01	.10***	-.07***	-.15***	-.28***	-.02
17. LogMV	-.09***	-.24***	-.28***	-.11***	-.02	-.11***	.16***	.26***	.03*	.09***	-.06***	.11***
18. RZ-score	.01	.00	.36***	.01	-.02	.01	-.60***	-.36***	.30***	0.22***	.47***	-.24***
19. Ln Age	-.01	.02	-.03*	-.03**	.01	-.03**	-.11***	.17***	.17***	.03*	.01	-.06***
20. PreRestate	.00	.05***	.02	.03**	-.02	.03*	-.01	.00	.00	-.00	-.01	-.01
21. Big 4	-0.03	-.08***	-.15***	-.07***	-.01	-.07***	.09***	.14***	.14***	-.05***	-.12***	.04***
22. AuditFees	.00	.11***	.02	.01	-.01	.00	.24***	.12***	.12***	-.09***	-.39***	.10***
23. NonAuditFees	.01	-.01	-.15***	.02	-.01	.02	.14***	.13***	.13***	-.06***	-.15***	.11***
24. Mgt. Change	.00	-.06***	.02	-.02	.02	-.02	-.01	-.05***	-.05***	-.01	-.04**	.03**
25. Auditor Change	.01	.03**	.05***	.09***	-.01	.09***	-.03**	-.05***	.00	.05***	.02	-.02

	13	14	15	16	17	18	18	20	21	22	23	24
13. Foreign Cur.												
14. Restructure	.09***											
15. Sales Growth	-.08***	-.18***										
16. Inventory	.06***	.12***	-.02									
17. LogMV	.00	.21***	-.16***	-.09***								
18. RZ-score	-.02	-.12***	.03**	-.32***	-.07***							
19. Ln Age	.04***	.11***	-.16***	.08***	.12***	-.05***						
20. PreRestate	-.02	-.02	.05***	.02	-.05***	-.02*	.02					
21. Big 4	-.09***	.20***	-.09***	-.01	.44***	-.11***	.08***	-.04***				
22. AuditFees	.05***	.39***	-.11***	.16***	.28***	-.35***	.15***	.01	.31***			
23. NonAuditFees	.010***	.22***	-.04***	.06***	.31***	-.18***	.07***	-.04**	.23***	.47***		
24. Mgt. Change	.05***	.11***	-.03**	.00	.16***	.02	-.02	.03*	.05***	.05***	.06***	
25. Auditor Change	-.01	-.05***	.06***	-.02	-.09***	.05***	-.03**	.02	-.12***	-.09***	-.07***	-.00

\*, \*\*, \*\*\* Indicate significance at 10%, 5% and 1% levels, respectively.

## 6.2 Multivariate regression analysis

Table 6 reports the results of multivariate regression analyses. The dependent variable, *3-day CAR*, is the three-day announcement-window CAR. The model (1) shows the results for the first hypothesis. The results suggest that there is an inverse relation between the ICW and the CAR (-0.005), indicating that there may be a lower stock market reaction for the acquirers that exhibit and disclose ICW, though statistically insignificant. In models (2) through (4), *ICW* is replaced with three sub-categories of ICW. In model (2), the coefficient on *NoteffAccRule*, -0.0183, indicates that market participants react more negatively to the merger announcements of acquirers that report the accounting standard application failures. In model (3), the fraud related ICW (*NoteffAccFraud*) is not statistically significant, probably due to the lack of testing power, consistent with Amel-Zadeh and Zhang (2015). In model (4), the coefficient of the independent variable of -0.0172 signals that acquirers, who have errors in accounting and clerical misapplications, also have lower CAR. The results above indicate that the market reacts more strongly to the accounting application failures than clerical misapplications and errors. Table 7 shows the regression results using PSM sample, which supports the main results in the full non-matched sample. The ICW independent variable in the model (1) does not again show any significant results. However, looking at models (2) and (4), the dependent variables *NoteffAccRule* and *Notefferror* remain negative and significant. *NoteffAccFraud* still stays insignificant, showing the robustness of the full non-matched sample.

For the control variables, the findings of previous studies can only be supported partially. In the Table 6, which shows the results for the full non-matched sample, the control variables are all in the predicted signs except *Tobins' q RZ-score*, *PreRestate*, *Big 4*, *AuditFees*, *NonAuditFees* and *Mgt.Change*, but, all statistically insignificant. The only significant variable in the results that is in the opposite direction is *ROA* with -0.0775 in the first model. However, this negative relation can be also seen in previous studies, eg. Louis and Sun 2008. The variable *Reg. Ind.* was estimated, with statistical significance, to be in the expected direction, confirming that acquirers

operating in regulated industries have lower CARs. The PSM shows similar results for control variables, however, *ROA* in comparison with the full non-matched sample is positive and no longer significant. The positive significant estimate of the coefficient for *SalesGrowth* shows that CARs of the acquirers are higher if the *SalesGrowth* is higher. The *Restructure* variable and *AuditFees* both have a negative effect on the CARs, which can be associated with the complexity of the firm (Darroug et al. 2017).

Table 6: Non-Matched Sample

Dependent variable = 3-day CAR (-1,0,1)					
	Expected Sign	(1)	(2)	(3)	(4)
ICW	-	-0.005 (0.25)			
NoteffAccRule	-		-0.0183** (0.05)		
NoteffAccFraud	-			0.00975 (0.87)	
Notefferror	-				-0.0172* (0.06)
BTM	-	-3.53e-06 (0.73)	-0.00750 (0.12)	-0.00716 (0.14)	-0.00749 (0.12)
Tobin's q	+	-0.000166 (0.94)	-0.00132 (0.61)	-0.00146 (0.57)	-0.00133 (0.61)
ROA	+	-0.0775*** (0.00)	-0.0559** (0.02)	-0.0547** (0.02)	-0.0558** (0.02)
Leverage	-/+	0.0461*** (0.00)	0.0235** (0.02)	0.0240** (0.1)	0.0235** (0.02)
Reg.Ind.	-	-0.0134* (0.05)	-0.0121* (0.08)	-0.0118* (0.8)	-0.0121* (0.08)
Fin.Ind.	-	-0.00332 (0.52)	-0.00719 (0.17)	-0.00687 (0.19)	-0.00718 (0.17)
Lit.Ind.	-	0.000310 (0.95)	0.000727 (0.89)	0.000596 (0.91)	0.000711 (0.89)
Foreign.Cur	-	-0.000672 (0.85)	-0.00279 (0.44)	-0.00250 (0.48)	-0.00274 (0.44)
Restructure	-	-0.000555 (0.88)	-0.000638 (0.86)	-0.000876 (0.81)	-0.000665 (0.86)
SalesGrowth	+	0.00334	0.00413	0.00401	0.00414

		(0.40)	(0.30)	(0.32)	(0.30)
Inventory	+	0.0226	0.0248	0.0233	0.0247
		(0.25)	(0.21)	(0.24)	(0.21)
LogMv	-	-0.00485***	-0.00546***	-0.00528***	-0.00545***
		(0.00)	(0.00)	(0.00)	(0.00)
RZ-score	+	-0.00253	0.00145	0.00120	0.00144
		(0.39)	(0.64)	(0.70)	(0.64)
Ln Age	+	0.00194	0.00111	0.00119	0.00112
		(0.15)	(0.41)	(0.38)	(0.41)
PreRestate	-	3.98e-06	-0.000196	-0.000397	-0.000221
		(0.99)	(0.96)	(0.92)	(0.95)
Big4	+	-0.00141	-0.00130	-0.000869	-0.00128
		(0.77)	(0.79)	(0.86)	(0.80)
AuditFees	-	6.69e-08	6.14e-08	6.12e-08	6.13e-08
		(0.34)	(0.39)	(0.39)	(0.39)
NonAuditFees	-	5.39e-09	5.77e-08	4.75e-08	5.70e-08
		(0.96)	(0.65)	(0.75)	(0.65)
Mgt.Change	-	0.00383	0.00423	0.00409	0.00422
		(0.30)	(0.26)	(0.27)	(0.26)
AuditorChange	-	-4.62e-05	-0.000156	-0.000620	-0.000198
		(0.99)	(0.99)	(0.94)	(0.98)
Constant		0.0213	0.0365**	0.0341*	0.0364**
		(0.20)	(0.04)	(0.05)	(0.04)
Observations		4,610	4,610	4,610	4,610
R-squared		0.027	0.020	0.019	0.019

\*, \*\*, \*\*\* Indicate significance at 10%, 5% and 1% levels, respectively. The p-values are in the parentheses. All variables are described in the Table 2. The dependent variable in all models is three-day announcement CAR. Multivariate estimates in (1), (2), (3), and (4) are based on the equations described in Section 4.



Table 7: Propensity score sample

Dependent variable = 3-day CAR (-1,0,1)					
	Expected Sign	(1)	(2)	(3)	(4)
ICW	-	-0.012 (0.16)			
NoteffAccRule	-		-0.0315** (0.05)		
NoteffAccFraud	-			-0.00455 (0.94)	
Notefferror	-				-0.0315** (0.04)
BTM	-	0.00927 (0.17)	0.0172 (0.11)	0.0179 (0.10)	0.0172 (0.11)
Tobin's q	+	-0.00187 (0.76)	-0.000851 (0.91)	-0.000832 (0.91)	-0.000875 (0.91)
ROA	+	0.00933 (0.79)	-0.0128 (0.78)	-0.0151 (0.74)	-0.0126 (0.78)
Leverage	-/+	0.0215 (0.38)	0.0299 (0.24)	0.0282 (0.27)	0.0299 (0.24)
Reg.Ind.	-	-0.0233 (0.27)	-0.0217 (0.31)	-0.0208 (0.33)	-0.0218 (0.30)
Fin.Ind.	-	-0.0228 (0.11)	-0.0210 (0.13)	-0.0199 (0.16)	-0.0212 (0.13)
Lit.Ind.	-	-0.00508 (0.72)	-0.00255 (0.86)	-0.00573 (0.69)	-0.00267 (0.85)
Foreign Cur.	+	0.000526 (0.96)	-3.80e-05 (0.99)	0.000584 (0.95)	0.000155 (0.99)
Restructure	-	-0.0306*** (0.00)	-0.0311*** (0.00)	-0.0309*** (0.00)	-0.0310*** (0.00)
SalesGrowth	+	0.0271** (0.01)	0.0256** (0.02)	0.0267** (0.01)	0.0259** (0.02)
Inventory	+	-0.0739 (0.13)	-0.0695 (0.16)	-0.0776 (0.11)	-0.0694 (0.16)
LogMV	-	- 0.00905*** (0.00)	-0.00923*** (0.01)	-0.00872** (0.01)	- 0.00925*** (0.01)
RZ-score	+	0.00513 (0.52)	0.00192 (0.82)	0.00167 (0.84)	0.00193 (0.82)
Ln Age	+	0.00110 (0.74)	0.000971 (0.77)	0.00144 (0.67)	0.000996 (0.77)
PreRestate	-	-0.00703	-0.00608	-0.00718	-0.00616

		(0.47)	(0.53)	(0.46)	(0.53)
Big4	+	0.0114 (0.35)	0.0129 (0.29)	0.0136 (0.27)	0.0130 (0.29)
AuditFees	-	-3.59e-07** (0.05)	-4.05e-07** (0.03)	-3.84e-07** (0.04)	-4.06e-07** (0.03)
NonAuditFees	-	1.67e-07 (0.50)	1.98e-07 (0.60)	1.90e-07 (0.61)	1.97e-07 (0.60)
Mgt.Change	-	0.00684 (0.49)	0.00632 (0.52)	0.00511 (0.61)	0.00642 (0.52)
AuditorChange	-	0.0194 (0.33)	0.0215 (0.28)	0.0211 (0.29)	0.0215 (0.28)
Constant		0.0515 (0.25)	0.0491 (0.29)	0.0390 (0.40)	0.0489 (0.30)
Observations		536	536	536	536
R-squared		0.073	0.078	0.071	0.078

\*, \*\*, \*\*\* Indicate significance at 10%, 5% and 1% levels, respectively. The p-values are in the parentheses. All variables are described in the Table 2. The dependent variable in all models is three-day announcement CAR. Multivariate estimates in (1), (2), (3), and (4) are based on the equations described in Section 4.

## 7. Additional Analysis

This chapter aims to examine the further issues associated with the topic of M&A and ICW that were mentioned in previous literature. It gives a short overview of the issue and also conducts an additional analysis, which provides with the results for this setting.

There are instances, when the firm's management detects ICW but fails to report it or the ICWs are not detected at all (Ashbough-Skaife et al. 2007). According to Rice and Weber (2012), only 32.4% of companies warn the stakeholders in advance about the possible accounting problems and report the ICW in a timely manner. Following their study, the additional analysis explores acquirers that did not report ICW, but subsequently restated their financial statements a year prior to the announcement of M&A. This indicates that the company had ICW prior to the restatements. Table 8 presents these acquirers and the three-day CARs around the announcement date.

The results do not show any significant evidence on the market participants penalizing acquirers with restatements but without ICW disclosure. The coefficient of *NonDiscloseICW* is negative but insignificant. The results are aligned with the evidence found in previous studies, which reported that companies prefer not to disclose ICW, as it would negatively affect their cost of capital and other factors associated with their business operations (eg. Rice and Weber 2012, Rice et al. 2015). However, an alternative explanation to the results might be that the ICWs, which caused the restatements, are not severe enough to be disclosed. Therefore, more thorough research on this topic is needed to determine the drivers behind the non-disclosure of ICWs but subsequent restatement.

Table 8: Non-Disclosure of ICW

Dependent variable = 3-day CAR (-1,0,1)		
	Expected Sign	(5)
NonDiscloseICW	-	-0.00352 (0.61)
BTM	-	-0.00718 (0.14)

Tobin's q	+	-0.00146 (0.57)
ROA	+	-0.0546** (0.02)
Leverage	-/+	0.0239** (0.01)
Reg. Ind.	-	-0.0117* (0.09)
Fin. Ind.	-	-0.00689 (0.18)
Lit. Ind.	-	0.000556 (0.92)
Foreign Cur.	+	-0.00248 (0.49)
Restructure	-	-0.000873 (0.81)
SalesGrowth	+	0.00406 (0.31)
Inventory	+	0.0235 (0.24)
LogMV	-	-0.00525*** (0.00)
RZ-score	+	0.00117 (0.71)
Ln Age	+	0.00119 (0.37)
Big 4	+	-0.000838 (0.87)
Audit Fees	-	5.93e-08 (0.41)
Non Audit Fees	-	4.69e-08 (0.71)
Mgt. Change	-	0.00405 (0.28)
Auditor Change	-	-0.000686 (0.93)
Constant		0.0340* (0.05)
Observations		4610
R-squared		0.019

\*, \*\*, \*\*\* Indicate significance at 10%, 5% and 1% levels, respectively. The p-values are in the parentheses. All variables are described in the Table 2. The dependent variable in all models is three-day announcement CAR.

## 8. Discussion and Conclusion

This thesis examines whether ICW reported under the SOX 404 affect the stock market reaction of the acquirers around the announcement date of an acquisition. The results suggest that there might be an inverse relation between disclosure of ICW and the stock market reaction, and therefore indicating that SOX 404 reports are useful for the market participants.

The dependent variable, CAR, is calculated over the three-day event window (-1,0,1) using the market model, and then further regressed together with the independent variables and control variables. To check robustness and validity of the main sample, PSM sample was implemented. The PSM sample consists of 268 pairs of ICW acquirers and non-ICW acquirers, which were matched based on the propensity scores. The propensity scores were derived from the likelihood of the acquirers to disclose the ICW.

The first hypothesis examines the ICW in general and its impact on the market reaction based on the acquirer's stock development around the announcement date. For both samples the coefficients at the ICW were negative, suggesting that acquirers, who disclose ICW, have negative stock market reaction around the announcement date. However, the relation is statistically insignificant. Therefore, the first hypothesis that the acquirers with ICW exhibit more negative stock market reaction cannot be confirmed.

For the second hypotheses, I conduct regressions similarly as in the first hypothesis. However, the independent variable, *ICW*, was changed for a subgroup of ICWs. The categories of ICWs are (1) accounting rule (GAAP/FASB) application failure (*NoteffAccRule*), (2) accounting fraud, irregularity or misrepresentation (*NoteffAccFraud*), and (3) errors in accounting and clerical applications (*Notefferror*). Both samples show that market participants react negatively to those acquirers that disclose ICW in categories of *NoteffAccRule* and *Notefferror*, with *NoteffAccRule* higher in magnitude than *Notefferror*, when applying the full non-matched sample. Therefore, partially confirming our second hypotheses that (1) the accounting rule

application failures and (3) errors in accounting and clerical errors indeed have a negative relation on the CAR. The *NoteffAccFraud* is insignificant in both samples.

This thesis adds to the existing literature focusing on SOX disclosures, as it examines the ICW and its impact on stock market reaction in more detail. The significant relation between two of the ICW categories and CARs in the model (2) and (4) signal the usefulness of SOX 404 in an M&A setting. This fact is also supported by the additional analysis, as the results indicate that not reporting ICWs does not affect the stock of the acquirer companies.

The results are especially interesting for the analysts and investors, who need to accurately determine the value of a company. ICW might be a factor to consider in a valuation analysis, such as prediction modelling, as there is a relation between the ICW categories and the CAR. The companies may also use this information for their strategic planning, as companies can avoid having more negative stock market reaction by implementing an efficient internal control system.

However, the relatively small number of observations in the categories of ICW is a limitation of this study. Especially, the results need to be interpreted with caution for the ICW that relate to fraud, which remained insignificant in both of the samples. However, this result is consistent with previous research that attributed the insignificant *NoteffAccFraud* to the infrequency of the accounting frauds. Therefore, there is a need for further research, which would examine this topic with a sufficient number of observations in every category of ICW. Moreover, there is a possibility of omitted variable bias, and therefore, an inclusion of different control variables might improve the results of this study.

## References

- Abbott, L. J., S. Parker, and G. F. Peters. 2004. Audit Characteristics and Restatements. *Auditing: A Journal of Practice & Theory* 23 (1): 69-87.
- Andrade, G., Mitchell, M., Stafford, E., 2001. New evidence and perspectives on mergers. *Journal of Economic Perspectives* 15, 103–120.
- Ambrose, B. W. & Megginson, W. L. (1992), 'The Role of Asset Structure, Ownership Structure, and Takeover Defenses in Determining Acquisition Likelihood', *Journal of Financial and Quantitative Analysis*, Vol. 27 (4), pp. 575-589.
- Amel-Zadeh, A., & Zhang, Y. (2015). The economic consequences of financial Restatements: Evidence from the market for corporate control. *The Accounting Review*, 90(1), 1–29. doi:10.2139/ssrn.2141143
- Archambeault, D. S., F. T. Dezoort, and D. R. Hermanson. 2008. Audit Committee Incentive Compensation and Accounting Restatements. *Contemporary Accounting Research* 25 (4): 965-992.
- Ashbaugh-Skaife, H., Collins, D., Kinney, W., 2007. The discovery and reporting of internal control deficiencies prior to SOX-mandated audits. *Journal of Accounting and Economics* 44, 166–192.
- Ashbaugh-Skaife, H., D. W. Collins, W. R. Kinney, Jr., and R. LaFond. 2009. The effect of SOX internal control deficiencies and their remediation on accrual quality. *The Accounting Review* 83 (1): 217–50.
- Barnes, P. (1999), 'Predicting UK Takeover Targets: Some Methodological Issues and an Empirical Study', *Review of Quantitative Finance and Accounting*, Vol. 12, No. 3, pp. 283-302.
- Beneish, D., Billings, M., Hodder, L., 2008. Internal control weaknesses and information uncertainty. *The Accounting Review* 83, 665–703.
- Bhanot, K., Mansi, S. A., & Wald, J. K. (2010), 'Takeover Risk and the Correlation Between Stocks and Bonds', *Journal of Empirical Finance*, Vol. 17, No. 3, pp. 381-393.
- Bhattacharjee, A., Higson, C., Holly, S., & Kattuman, P. (2009), 'Macroeconomic Instability and Business Exit: Determinants of Failures and Acquisitions of UK Firms', *Economica*, Vol. 76, No. 301, pp. 108-131.
- Brar, G., Giamouridis, D., & Liodakis, M. (2009), 'Predicting European Takeover Targets', *European Financial Management*, Vol. 15, No. 2, pp. 430-450.
- Caplan, D., Dutta, S. K., & Liu, A. Z. (2017). Are Material Weaknesses in Internal Controls Associated with Poor M&A Decisions? Evidence from Goodwill Impairment. *AUDITING: A Journal of Practice & Theory*. doi:10.2308/ajpt-51740
- Campa, J. M., & Hernando, I. (2004). Shareholder Value Creation in European M&As. *European Financial Management*, 10(1), 47-81.
- Cheng, M., D. Dhaliwal, and Y. Zhang. 2013. Does investment efficiency improve after the disclosure of material weaknesses in internal control over financial reporting? *Journal of Accounting and Economics* 56 (1): 1-18.
- Cremers, M., V. Nair, and K. John. 2009. Takeovers and the cross-section of stock returns. *Review of Financial Studies* 22: 1409–1445.

- Darrough, M., Huang, R., & Zur, E. (2017). Acquirer Internal Control Weaknesses in the Market for Corporate Control. *Upcoming in Contemporary Accounting Research*.
- Dechow, P., Dichev, I., 2002. The quality of accruals and earnings. *The Accounting Review* 77, 35–59.
- DeLong, G., ‘Stockholder gains from focusing versus diversifying bank mergers’, *Journal of Financial Economics*, Vol. 59, 2001, pp. 221–52.
- Dodd, Peter. 1980. "Merger Proposals, Management Discretion, and Stockholder Wealth." *Journal of Financial Economics* 8: pp 105-38.
- Dong, M., I. Loncarski, J. Horst, and C. Veld. 2012. What drives security issuance decisions: market timing, pecking order, or both? *Financial Management* 41 (3): 637-663.
- Doyle, J., W. Ge, and S. McVay. 2007a. Determinants of Weaknesses in Internal Control Over Financial Reporting. *Journal of Accounting and Economics* 44 (1-2): 193–223.
- Doyle, J., W. Ge, and S. McVay. 2007b. Accruals quality and internal control over financial reporting. *The Accounting Review* 82 (5): 1141–1170.
- Espahbodi, H. & Espahbodi, P. (2003), 'Binary Choice Models and Corporate Takeover', *Journal of Banking & Finance*, Vol. 27, No. 4, pp. 549-574.
- Feng, M., Li, C., & McVay, S. (2009). Internal control and management guidance. *Journal of Accounting and Economics*, 48, 190-209.
- Francis, J., and X. Martin. 2010. Acquisition profitability and timely loss recognition. *Journal of Accounting and Economics* 49 (1): 161–178.
- Ge, W., McVay, S., 2005. The disclosure of material weaknesses in internal control after the Sarbanes-Oxley Act. *Accounting Horizons* 19, 137–158.
- Goergen, M. and Renneboog, L., ‘Shareholder wealth effects of European domestic and cross- border takeover bids’, *European Financial Management*, Vol. 10, 2004, pp. 9–45 this issue.
- Gorton, G., Kahl, M., & Rosen, R. (2009), 'Eat or Be Eaten: A Theory of Mergers and Firm Size', *Journal of Finance*, Vol. 64, No. 3, pp. 1291-1344.
- Goodman, T. H., Neamtiu, M., Schroff, N., & White, H. D. (2014). Management Forecast Quality and Capital Investment Decisions. *The Accounting Review*, 89(1), 331-365.
- Hackbarth, D., and E. Morellec. 2007. Stock Returns in Mergers and Acquisitions. *Journal of Finance* 63: 1213–52.
- Hambrick, D. C. & Cannella, A. A., Jr. (1993), 'Relative Standing: A Framework for Understanding Departures of Acquired Executives', *The Academy of Management Journal*, Vol. 36, No. 4, pp. 733-762.
- Hennes, K. M., Leone, A. J., & Miller, B. P. (2008). The Importance of Distinguishing Errors from Irregularities in Restatement Research: The Case of Restatements and CEO/CFO Turnover. *The Accounting Review*, 83(6), 1487-1519. doi:10.2308/accr.2008.83.6.1487



- Hoitash, R., Hoitash, U., Bedard, J., 2008. Internal controls quality and audit pricing under the Sarbanes-Oxley Act. *Auditing, A Journal of Practice and Theory* 27 (1), 105–126.
- Houston, J., James, C. and Ryngaert, M., ‘Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders’, *Journal of Financial Economics*, Vol. 60, 2001, pp. 285–331.
- Hribar, P., and N. Jenkins. 2004. The Effect of Accounting Restatements on Earnings Revisions and the Estimated Cost of Capital. *Review of Accounting Studies* 9: 337-356.
- Jensen, M. C. & Ruback, R. S. (1983), 'The Market for Corporate Control: The Scientific Evidence', *Journal of Financial Economics*, Vol. 11, No. 1 4, pp. 5-50.
- Klamm, B. K., Kobelsky, K. W., & Watson, M. W. (2012). Determinants of the Persistence of Internal Control Weaknesses. *Accounting Horizons*, 26(2), 307-333. doi:10.2308/acch-10266
- Kravet T., and T. Shevlin. 2010. Accounting Restatements and Information Risk. *Review of Accounting Studies* 15: 264-294.
- Kuipers, D., Miller, D. and Patel, A., ‘Shareholder wealth effects in the cross-border market for corporate control’, mimeo (Indiana University, 2002).
- Li, C., Sun, L., & Ettredge, M. (2010). Financial executive qualifications, financial executive turnover, and adverse SOX 404 opinions. *Journal of Accounting and Economics*, 50, 93-110.
- Louis, H. 2005. Acquirers’ abnormal returns and the non-Big 4 auditor clientele effect. *Journal of Accounting and Economics* 40 (1): 75–99.
- Masulis, R., C. Wang, and F. Xie. 2007. Corporate governance and acquirer returns. *The Journal of Finance* 62 (4): 1851–1889.
- McNichols, M. F., & Stubben, S. (2015). The Effect of Target-Firm Accounting Quality on Valuation in Acquisitions. SSRN Electronic Journal. doi:10.2139/ssrn.1623458
- Moeller, S., Schlingemann, F., Stulz, R., 2005. Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave. *Journal of Finance* 60, 757–782.
- Mulherin, J. H. and Boone, A. L., ‘Comparing acquisitions and divestitures’, *Journal of Corporate Finance*, Vol. 6, 2000, pp. 117–39.
- Mulherin, J., Poulsen, A., 1998. Proxy contests and corporate change: Implications for shareholder wealth. *Journal of Financial Economics* 47, 279–313.
- Ogneva, M., K. R. Subramanyam, and K. Raghunandan. 2007. Internal control weakness and cost of equity: Evidence from SOX Section 404 disclosures. *The Accounting Review* 82 (5): 1255-1297.
- Pasiouras, F., Tanna, S., & Zopounidis, C. (2007), 'The Identification of Acquisition Targets in the EU Banking Industry: An Application of Multicriteria Approaches', *International Review of Financial Analysis*, Vol. 16, No. 3, pp. 262-281.
- Palepu, K.G. 1986. Predicting Takeover Targets: A Methodological and Empirical Analysis. *Journal of Accounting and Economics* 8: 3-35.
- Powell, R. G. (1997), 'Modelling Takeover Likelihood', *Journal of Business Finance & Accounting*, Vol. 24, No. 7-8, pp. 1009-1030.

- Rice, S., and D. Weber. 2012. How effective is internal control reporting under SOX 404? Determinants of the (non-)disclosure of existing material weaknesses. *Journal of Accounting Research* 50 (3): 811–844.
- Rice, S., D. Weber, and B. Wu. 2015. Does SOX 404 have teeth? Consequences of the failure to report existing internal control weaknesses. *The Accounting Review* 90 (3): 1169–1200.
- Savor, P. G., & Lu, Q. (2009). Do Stock Mergers Create Value for Acquirers? *The Journal of Finance*, 64(3), 1061-1097.
- Skaife, H. A., & Wangerin, D. D. (2013). Target financial reporting quality and M&A deals that go bust. *Contemporary Accounting Research*, 30(2), 719–749. doi:10.2139/ssrn.1823727
- Shleifer, A., & Vishny, R. W. (1986). Large shareholders and corporate control. *Journal of political economy*, 94(3, Part 1), 461-488.
- Shleifer, A., & Vishny, R. W. (2003). Stock market driven acquisitions. *Journal of financial Economics*, 70(3), 295-311.
- Schwert, G. W., ‘Hostility in takeovers: in the eyes of the beholder?’, *Journal of Finance*, Vol. 55, 2000, pp. 2599–2640.
- Tunyi, A. A. (2014). Takeover likelihood modelling: target profile and portfolio return. Walker, M., ‘Corporate takeovers, strategic objectives, and acquiring-firm shareholder wealth’, *Financial Management*, 2000, pp. 53–66.