



STOCK MARKET REACTION ON THE ADOPTION OF ASU 2016-02

Abstract

A lot of research has been done on the impact of the capitalization of operating leases and the stock market reaction to different accounting regulations. This thesis examines the stock market reaction to the introduction of the new lease standard ASU 2016-02. First, I conduct an event study to test whether the announcements have led to a significant market reaction. The results show that this is the case. Second, I investigate whether the adoption of the new lease standard had a more pronounced effect on the market reaction for retail, transportation and service sectors. The results show mixed results, thus it is not clear whether there is a more pronounced effect on these industries.

Hader Ali Hussain

Introduction

The Financial Accounting Standards Board (FASB) issued an Accounting Standards Update (ASU) on Leases on February 25, 2016. This update is referred to as ASU 2016-02 and is effective from December 15, 2018 onwards. Under the previous standard, lessees were required to make a distinction between capital and operating leases. The assets and obligations associated to capital leases had to be included in the balance sheet of lessee, while for operating leases the lessee would only recognize the lease payments as expense, meaning that operating leases could not be found on the balance sheet (PwC, 2019).

A lot of financial statement users requested a change of the accounting standards so that lessees have to recognize the rights and obligations resulting from all leases as assets and liabilities. The intention is to increase the comparability and transparency between organizations by requiring the recognition of all leases on the balance sheet of the company (FASB, 2016).

It is interesting to see how investors will react to this change in the accounting standards. It is possible that the market will react to this change, because according to the FASB (2009) the information that is included only in the notes of the financial statement is not enough for the users to make reliable adjustments to the recognized amounts, suggesting that information in the footnotes is inferior to the information on the balance sheet. Shifting the information of operating leases from the notes to the balance sheet could lead to a market reaction, because investors now are more able to make more reliable adjustments to the recognized amounts. However, it is also possible that the market does not react to the change, because the efficient market hypothesis suggests that recognition does not add much value when the information is already disclosed (Barth, Clinch, & Shibano, 2003).

This research examines the stock market reaction of ASU 2016-02 and attempts to answer the following research question:

“Does the introduction of a single lease standard lead to stock market reactions?”

To examine this relation, this research will make use of an event study with the dates of five announcements as the event dates. I use two different event windows to correct for possible overreaction of investors in the main event window. The main event window is the 3-day event window and the second is the 7-day event window. I also examine whether the adoption

of the new lease has had a more pronounced effect on the market reaction for the retail, transportation and service sectors. For this I performed a cross-sectional analysis with a regression for all samples. I find that the adoption of the new lease standard have led to a significant market reaction. However, I have not found a more pronounced effect for the retail, transport and service sectors.

This research contributes to the existing literature, as there has not been any research on the stock market reactions of this change in accounting standard. The obvious reason might be that this change has only been effective quite recently (less than two year). The results of this research contributes to two streams of existing literature. Firstly, this research relates to the effects of operating lease capitalization. Secondly, this research relates to the impact of accounting regulations on the stock market.

This thesis is organized as follows: in section 2, I provide a literature review and the hypothesis development. In section 3, I provide the research design used to test the hypotheses developed in section 2 and the data sample is selected. In section 4, I discuss the results for the tests I have performed. In section 5, I provide a conclusion, limitations and recommendations for future research.

2. Literature Review

The FASB issued its lease accounting standards update (ASU 2016-02), which became effective from 2019 onwards, in order to increase transparency and comparability between entities. Under the previous standard, lessees were required to make a distinction between capital and operating leases. The assets and obligations associated to capital leases had to be included in the balance sheet of the lessee, while for operating leases the lessee would only recognize the lease payments as an expense. Thus, operating leases did not appear on the balance sheet (PwC, 2019). Under the new standard, the distinction between operating and finance leases continues to exist, but most leases, regardless of classification type, are recorded on the balance sheet. Thus, the main effect of this change in lease accounting standard will be the capitalizing of operating leases. This research touches upon two different streams in the literature. Firstly, this research relates to the effects of operating lease capitalization. Secondly, this research relates to the impact of accounting regulations on the stock market.

2.1.1 Impact on key financial ratios

Researchers have been particularly interested in the impact of operating lease capitalization on key financial ratios. A lot of studies have tried to simulate this effect by using the constructive capitalization method. The constructive capitalization method has been developed by Imhoff, Lipe and Wright and is used to estimate the value of assets and liabilities that would have been reported on the balance sheet if the operating leases had been treated as capital leases (Imhoff, Lipe & Wright, 1991).

For instance, Fitó, Moya & Orgaz (2013) simulated the effect of including operating leases in the financial statements of Spanish companies, using the constructive capitalization method to recognize the operating leases. The results show a significant impact on financial ratios, such as the leverage, Return on Equity and Return on Assets.

Durocher (2008) examines the impact of operating lease capitalization on key financial indicators for a sample of Canadian public companies by also using the constructive capitalization method. The results show a significant effect on companies' financial strength indicators in all industry segments. However, it has a weaker effect on the income statements

and a significant impact on management performance and investment return indicators was only observed in only a few industry segments. Another finding of this study is that the comparative standing of the firms in the sample has not changed for each financial indicator

Another study also examines the effect of the inclusion of operating leases in the balance sheet. Bryan, Lilien & Martin (2010) focus on the U.S. using Walgreen as a case study. They find that as a result of the elimination of the lease expenses, financial numbers as EBITDA, EBIT, total debt and debt to capital ratio increase significantly. This study also investigates which industries would be affected the most. The authors find that the ratios in the retail, transportation and service sectors are mostly affected.

Singh (2012) examined the potential effect of operating lease capitalization in the retail and restaurant industries for the period 2006 – 2008. He found that the impact on the financial statement and financial ratios will be significant for both industries. He also found differences across and within the industries. According to the results operating lease capitalization will have a more pronounced effect on retail firms than restaurants firms. When looking at restaurants in particular, Singh found that smaller firms will have significantly higher debt-related ratios than medium or large restaurant firms. However, the opposite is found for retail firms, meaning that medium retail firms will see a bigger change in the financial ratios than smaller retail firms.

2.1.2 Market perspective

Some studies have also looked at operating lease capitalization from a market perspective. Some studies have looked at debt markets, but research is also done on equity markets. Below is a summary given of some important studies, related to the capitalization of operating leases and what impact that would have from a market perspective.

Lim et al. (2003) examine how a firm's cost of debt is affected by off-balance sheet operating leases. They do so by analyzing the effect of operating lease debt on firm debt ratings and the cost of new debt issues by comparing the effect of off-balance sheet to on-balance sheet debt. They conclude that higher debt ratings can be achieved by keeping debt off-balance sheet, but it doesn't deceive the market, because bond yields recognize debt obligations, no matter whether it is on- or off-balance sheet and despite the limited disclosure of leases. This suggests

that a new lease standard that requires the recognition of operating leases on the balance sheet is not necessary.

Another study, however, by Cotton et al. (2013) examines whether the debt impact of operating leases is reflected in credit ratings. To execute this research they compare firms' actual credit ratings to two synthetic ratings. The results suggest that the synthetic ratings are significantly lower when operating leases are treated as debt. This means that the debt impact of operating leases is reflected in credit ratings. The authors conclude by stating that these credit ratings could be more precise when the proposed change in lease standard is made.

Lindsey (2006) has done a research on the value relevance of operating and finance leases to examine whether investors in equity stocks price operating leases, which are merely disclosed in the footnotes, different to finance leases, which are recognized on the balance sheet. The results indicate operating and finance leases are indeed priced differently by equity investors. The authors believe that capitalizing all leases would not be efficient, because it would result in a loss of information that is relevant to investors.

A relevant study for this thesis is done by Sakai (2010), who investigated whether the movement in Japanese firms of finance leases disclosures to the balance sheet has led to a market reaction. The results show that, on average, there has not been a market reaction on the shifting from disclosing to recognition, suggesting that there is no difference from the investors' perspective between disclosure and recognition. The author believes that, given this results, it is not necessary to amend the lease accounting standard in a way that the recognition of operating leases is required.

In addition to these studies, more studies have formed a conclusion from a market perspective about whether the requirement of the inclusion of operating leases on the balance sheet will be beneficial (Andrade et al., 2011; Dhaliwal et al., 2011) or not (Sengupta and Wang, 2011; Bratten et al., 2013; Altamuro et al., 2014). Before the definite decision from the accounting regulators to require the capitalization of operating leases, some of the studies supported the proposal and others didn't. It is clear that there was mixed evidence on this topic. These studies, however, are based on predictions as real data was not available at that time. It is interesting to investigate what the real effect of this accounting standards change is now that there is data available after the implementation of the new standard.

2.2 Market reaction on accounting regulations

This research also relates to the impact of accounting regulations on the stock market. A number of researches related to this topic are summarized below. Studies about the stock market reaction to individual accounting standards are relevant for this research as this research is also about an individual accounting standard.

Lev (1979) already investigated the impact of accounting regulation on the stock market. He investigated the effect on the stock market of the release of an Exposure Draft, proposing an end to the 'full cost' accounting method used by many oil and gas producing companies to recognize cost for exploration, and instead using the 'successful effort' method. Lev found that the release of only the Exposure Draft resulted in a decline of about 4.5 percent in the stock prices of companies applying the full cost method, within three days. One of the possible explanations for this decline put forward by Lev is the fact that a shift from full cost method to successful effort method will, generally, lead to the requirement of an investment write-off, driving down the firm's equity and therefore cause an increase in the debt/equity ratio.

Vigeland (1981) examined the market reaction to the issuance of Statement of Financial Accounting Standards No. 2 (SFAS No. 2). Prior to this statement, firms that did R&D activities could choose between either expensing the costs of R&D or to defer the costs and amortize them over future periods. This statement required all R&D activities to be expensed in the year incurred. Vigeland argued that a market reaction can be attributed to the effects of new information or to the effects of expected changes in management decisions resulting from the change. This study tried to investigate the effects of expected changes in management decisions, but no market reaction was found.

Another study done on the stock market reaction on an individual accounting standard was done by Onali & Ginesti (2014). They investigated the stock price reaction on news related to the implementation of IFRS 9 Financial Instruments. They found that investors reacted positively to this standard as investors perceive this standard as shareholder-wealth increasing and the better comparability between accounting standards of European firms is advantageous to international investors and is greater than the costs of poorer firm-specific information.

A study closely related to this research is done by Espahbodi et al. (2002). They examined whether there was a stock price reaction to the pronouncements related to accounting for stock-based compensation. This study is related to this research because it is about an accounting standard which, like this research, deals with the topic of recognition and disclosure. This study is about a proposed accounting regulation change that requires the recognition of stock based compensation costs. These compensation costs were originally only required to be disclosed. The authors hoped to find whether there is a market reaction to the pronouncements and so concluding whether, or not, disclosure is a substitute for recognition. They find that there is a significant market reaction and their results showed that disclosure is not a substitute for recognition.

Fried (2013) examined the economic consequences of the release of the SFAS No. 158 Exposure Draft, requiring the recognition of net pension and postretirement benefit obligations on the balance sheet, instead of merely disclosing it in the footnotes. This is another study which is closely related to this research as it also deals with an examination of the stock market reaction to the recognition of an item which used to be disclosed. This study found a negative stock price reaction around the release of the Exposure Draft.

2.3 Conclusion

A lot of research is done on the (possible) impact of operating lease capitalization. Most of the studies have found that it will impact the key financial ratios of firms, such as the debt/equity ratio and EBITDA. Some studies have also looked at what impact it could have on the market, for example impact on debt and credit ratings. However, these studies only make predictions using 'what-if' models, such as the constructive capitalization method, and do not investigate the real effect of this new lease accounting standard. This is due to the fact that this accounting standard has become effective just recently. This research tries to investigate the real effect of operating lease capitalization and hence contributes to this stream of the literature by looking at the actual impact of operating lease capitalization.

There is also a lot of research done on the impact of accounting regulations on the stock market. Most of the studies found a significant market reaction and it is interesting to see whether this new lease standard has also led to a stock market reaction. Prior studies have

looked at different accounting regulations and examined whether these have led to a market reaction, but none of them has looked at this particular standard. This research might also contribute to the discussion whether there is a difference between disclosure and recognition from the investor's perspective.

3. Background and Hypothesis Development

3.1 Background

Under the previous standard, a lease was either classified as a finance lease or an operating lease. Operating leases were not required to be reported on the balance sheet, but were only included in the footnotes of the financial statement. This "off balance sheet" reporting affected the economic presentation of the company (Foster, 2016). This was the most important reason for the FASB and IASB to collaborate and work on a new lease standard (Harms, 2020). Under the new standard, the distinction between operating and finance leases continues to exist, but most leases, regardless of classification type, are recorded on the balance sheet. An example of a lease which is not required to be included in the balance sheet, is a lease with terms of 12 months or less. When recording a lease on the balance sheet, the lessee recognizes a lease liability and a right-of-use asset with an amount of the present value of the future lease payments. Another important provision in the lease standard, is the increase in the lease disclosure requirements. The main goal of this provision is the enabling of financial statement users to assess the amount, timing and uncertainty of cash flows arising from leases. The lessee has to disclose, among others, the following information: the nature of its leases, information about leases that have not yet commenced, finance and operating lease costs and gain or loss from sale-and-leaseback (Deloitte, 2019).

3.2 Hypothesis Development

It is difficult to predict what the outcome of the new lease regulation is. On the one hand, one can expect a positive market reaction, because of the lower information asymmetry as a consequence of increased disclosure of lease information. On the other hand, prior literature suggests that the capitalization of operating leases will significantly affect key financial ratios

of the financial statements. An increase in the leverage might be associated with a negative market reaction. However, an increase in the EBITDA is perceived positively by investors, which might suggest a positive market reaction.

3.2.1 Information Asymmetry

Information asymmetry is the phenomenon that corporate insiders (managers) are better informed than the outside investors. This can lead to wrong investment decisions, because new equity issues might be undervalued (Fosu, Danso, Ahmad, & Coffie, 2016). The new lease accounting standards reduces this information asymmetry, because lessees are required to disclose more information about the leases to the investors. Information asymmetry is adversely related to firm value (Fosu, Danso, Ahmad, & Coffie, 2016). This implies that lower information asymmetry leads to a higher firm value. A higher firm value is positively perceived by investors. For this reason, a positive stock market reaction to this new lease accounting standard can be expected.

3.2.2 Key financial ratios

Financial ratios are an important part of the decision-making of investors, as they play an important part in measuring the performance and financial condition of a firm (Chen & Shimerda, 1981) . This suggests that investors think that financial ratios are relevant and they use them in their investment decisions. As earlier mentioned, prior literature has found that the capitalization of operating leases will have a significant impact on the key financial ratios of firms, such as the debt/equity ratio (leverage) and the EBITDA. The leverage is expected to increase and this might be perceived negatively by investors. Cai and Zhang (2011) have done a research on the association between the leverage and stock prices. They found a significant negative effect of the change in a firm's leverage on its stock prices. This is consistent with the 'debt overhang theory', which states that a higher leverage leads to a lower firm value. This is a reason to expect that the outcome of this research will also be a negative stock market reaction. However, the EBITDA, a financial measure for profitability, is expected to increase,

which is generally perceived positively by investors. This might have a positive effect on the stock price.

From the perspective of the lower information asymmetry a positive market reaction is expected. However, when looking at the key financial ratios, which are expected to change significantly, one can expect both a negative and positive market reaction, depending on which financial ratio is dominant. Therefore, it is difficult to predict the result of this research. This leads to the following null hypothesis:

H₀: "The adoption of ASU 2016-02 has no effect on the market reaction"

The alternative hypothesis could be that the adoption of ASU 2016-02 has either a positive or a negative effect on the stock market.

It is also interesting to examine the differences in the stock market reaction between industries. As earlier mentioned, Bryan, Lilien & Martin (2010) have investigated which industries would be affected the most. They found that the ratios in the retail, transportation and service sectors are mostly affected. This leads to the following null hypothesis:

H₀: "The adoption of ASU 2016-02 has a more pronounced effect on the market reaction for retail, transportation and service sectors"

The alternative hypothesis could be that the adoption of ASU 2016-20 will have a more pronounced effect on the market reaction for retail, transportation and service sectors.

Methodology and Data

Event study

To answer the research question this research uses an event study. An event study is a prominent and widely-used methodology in accounting and finance research. It is used to investigate market price behavior around events such as accounting rule changes (Binder, 1998). Joos & Leung (2013) examined the stock market reaction to a number of events relating to IFRS adoption in the United States. The authors conducted an event study to measure the market reaction. They measured it by the three-day cumulative market-adjusted return centered around the event date. This research is similar to the study of Joos & Leung, because this research also aims to investigate the stock market reaction of a change in accounting standards. For this reason, the event window of this research also is [-1, +1] with the date of the event being day 0. It is possible that the investors overreact in this short event window, similar to the study of Wagner et al. (2017), and therefore a greater event window is also used. The second event window is [-3,+3]. The estimation window that is used to calculate the normal return is 120 days before the event date. This is based on a paper authored by MacKinlay (1997), which discusses event studies in economics and finance.

To calculate the market reaction, the following model will be used:

$$AR_{it} = R_{it} - R_{mt}$$

AR_{it} is the abnormal return of a stock i on day t , which can be calculated by subtracting R_{mt} (normal return) from the R_{it} (realized return) (Callaghan, Kleiman, & Sahu, 1999). This return includes dividends. The normal return is based on the return of the market index. The market index that is used for this research is the CRSP value-weighted market index including dividends. The value-weighted market index is preferred over the equally-weighted market index, because a value-weighted index weights each stock according to their market capitalization. Whereas an equally-weighted index weights each stock equally regardless of its capitalization or economic size, such as sales, earnings, and book value.

To calculate the abnormal returns within the whole event window the cumulative market-adjusted return (CAR) for a firm is calculated as follows:

$$CAR_{it} = \sum_{t-k}^{t+l} AR_{it}$$

l and k are defined by the event window, so l is the number of days after the event and k is the number of days before the event (Ritter, 1991). The sample consists of multiple firms and therefore the cumulative average market-adjusted return (CAAR) is calculated by summing up for each event window the CAR of every firm and then dividing this sum by the number of firms. This gives us the following equation:

$$CAAR_t = \frac{1}{N} \sum_{i=1}^N CAR_{it}$$

The null hypothesis for this test is:

$$H_0: CAAR_t = 0$$

To test this hypothesis, a two sided t-test will be conducted with a significance level of 5%. The null hypothesis is rejected if the CAAR differs significantly from zero. This would mean that the specific event has led to a significant market reaction.

Cross-sectional analysis

To test whether the adoption of ASU 2016-02 has had a more pronounced effect on the market reaction for retail, transportation and service sectors, a regressions is performed. The dependent variable is the cumulative abnormal return and the independent variable is a binary variable which takes the value 1 if the firm operates in the specific sector, and 0 otherwise. A lot of other event studies also include control variables. They use a control variable for the size, book-to-market ratio, leverage and a financial performance indicator. For this reason, this research includes four control variables: (1) Size, which is the natural logarithm of the market value and (2) BM, which is the ratio between the book value and market value. Both of these control variables are included on the basis of a similar study. Larcker, Ormazabal and Taylor (2011) also investigated the market reaction on the adoption of a new regulation and these control variables were used in the cross-sectional analysis. (3) Leverage, which is the ratio between the debt and equity and (4) Return On Assets, which is

the ratio between the net income and total assets. These two control variables are included, because another similar event study has used these variables. Wu & Zhang (2014) investigated the stock market reaction to regulatory investigation announcements.

This leads to the following regression model

$$CAR = \beta_0 + \beta_1 \text{Transport} + \beta_2 \text{Retail} + \beta_3 \text{Service} + \beta_4 \text{Size} + \beta_5 \text{BM} + \beta_6 \text{Leverage} + \beta_7 \text{ROA} + \epsilon_i$$

Relevant events

To execute an event study it is required to identify relevant events. The amendment of the lease accounting standard was a joint project by the IASB and FASB. Table 1 shows the relevant events and the description and dates of these events. On March 19, 2009, the FASB and IASB published a discussion paper. With this discussion paper, they proposed a new possible model for lease accounting. The main aspect of this model is that an asset and a liability will be recognized for all leases in the financial statement. The goal of this discussion paper is to present the preliminary views of the FASB and IASB on the new model and to invite comments to gather information which could assist the two boards in developing a new standard on lease accounting. This event increased the probability of the amendment of the lease regulation.

After receiving the comment letters on the discussion paper, IASB and FASB published an Exposure Draft on August 17, 2010. In this document they proposed a whole new accounting standard for lease accounting while considering the comments given on the earlier discussion paper. They also gave an invitation to comment on this Exposure Draft to take into account the view of all interested parties before issuing the new standard. This event also increased the probability of the amendment of the lease regulation.

On July 21, 2011, the FASB and IASB have announced their intention to re-expose their revised proposals for a common leasing standard. The boards decided to do this because the proposals in the previous Exposure Draft were sufficiently different from the decisions taken about the new regulation after the Exposure Draft. This would give interested parties the opportunity to comment on the revisions the board made since the issuance of the Exposure

Draft. This event did not have any impact on the probability of the amendment of the lease regulation.

On May 16, 2013, the two boards issued a second Exposure Draft with taking into account the comments on the revised proposals from 2011. This Exposure Draft was also open for comments. This event increased the probability of the amendment of the lease regulation.

On February 25, 2016, the FASB released Accounting Standards Update No. 2016-02, Leases (Topic 842). The board decided that this ASU will be effective January 1, 2019 for public companies. This event meant that the lease regulation will be definitely amended, increasing the probability of the amendment of the lease regulation.

Table 1. Relevant events

Event	Event description	Date	Effect on Pr (regulation)
#1	Issuance of discussion paper	3/19/2009	Increase
#2	Release of Exposure Draft I	8/17/2010	Increase
#3	IASB/FASB announce intention to re-expose proposals	7/21/2011	None
#4	Release of Exposure Draft II	5/16/2013	Increase
#5	FASB releases ASU 2016-02, effective from 2019 onwards	2/25/2016	Increase

Sample Selection

The sample for this research includes all U.S firms. The data has been retrieved from the Wharton Research Data Services (WRDS) Database. Center for Research in Security Prices (CRSP) is one of the databases within WRDS which maintains the most comprehensive collection of security price, return, and volume data for the NYSE, AMEX and NASDAQ stock

markets. It also provides a special tool which calculates, among others, the abnormal return and cumulative abnormal return (CAR). The input for this tool is a two column text format file with the security identifier (PERMNO is used for this research) and the event date. The CAR is retrieved from this tool for every event date and because this research looks at two different event windows, for every event date the CAR for both event windows is retrieved. The data for the cross-sectional analysis is retrieved from the Compustat/CRSP merged database.

The WRDS database has 33584 firms in its database, but the requested data for the CAR could not be found for every firm which results in a lot of missing observations which are removed. Table 2 provides an overview of the number observation for every event per event window after the steps taken to make the data ready for analysis. Abnormal return data is only available for a small portion of all companies in the WRDS database. This has reduced the sample from 33584 to between 5000 and 5600 observations. Combining the Cumulative Abnormal Return with the corresponding firm characteristics data from Compustat has led to more missing observations. After deleting these the sample consists of 3700 to 4400 observations. To prevent the effect of outliers the top and bottom one percent of the sample has also been truncated, leaving the samples at the totals illustrated in table 2.

Table 2. Number of observations for each event date per event window

Event Number	#1		#2		#3		#4		#5	
Event window	[1,+1]	[-3,+3]	[1,+1]	[3,+3]	[1,+1]	[3,+3]	[1,+1]	[3,+3]	[1,+1]	[3,+3]
Original	33584									
After deleting missing CAR observations	5032		5537		5449		5443		5378	
After deleting missing observations	3790		4328		4228		4232		4271	
After truncating	3427	3427	3916	3913	3822	3822	3825	3826	3860	3860

Descriptive statistics

Table 3 shows the means for the variable CAR (Cumulative Abnormal Return) for each event per event window. The table shows that the average CAR is between 0.001% and 0.01% for each sample, except for the 7-day event window for event 3 and 5. This shows that there has not been a big difference in market reaction across the different events. Table 2 also shows that there is a positive market reaction for event 1, 2 and 5 and a negative market reaction for event 3 and 4. Further analysis through a t-test gives a better indication of whether there has been a market reaction or not.

Table 3 also shows the results per sample for the t-tests in the CAR means across the three industries of interest in this research. In most of the samples no significant difference can be found in the CAR means. The t-tests between the CAR means of the transport industry and the retail industry show a significant difference in five samples. The same applies for the difference between the transport industry and the service industry. For the retail industry and service industry a significant difference between the CAR means is only observed in two samples.

Table 1 in the Appendix shows the descriptive statistics of the control variables that are used in the regression analysis in this research.

Table 4 shows the industry classification of the samples. It also shows the percentage of the firms that is classified in a specific industry relative to the total number of firms. The classification is based on the GIC standard.

*Table 3. CAR Means and p-values resulting from t-tests on the variance in CAR between the industries. *significant at a significance level of 0.05. T = Transport Industry, R = Retail Industry, S = Service Industry. TR = result of the paired t-test between transport and retail sector*

Event number	Event window	N	CAR Mean	P-Value t-test TR	P-Value t-test TS	P-Value t-test RS
#1	[-1,+1]	3427	0.001	0.465	0.423	0.078
	[-3,+3]	3427	0.008	0.003*	0.254	0.000*
#2	[-1,+1]	3916	0.005	0.644	0.051	0.053
	[-3,+3]	3913	0.002	0.650	0.076	0.117
#3	[-1,+1]	3822	-0.004	0.024*	0.001*	0.133

	[-3,+3]	3822	-0.013	0.000*	0.001*	0.118
#4	[-1,+1]	3825	-0.004	0.000*	0.035*	0.002*
	[-3,+3]	3826	-0.002	0.081	0.018*	0.368
#5	[-1,+1]	3860	0.009	0.687	0.603	0.861
	[-3,+3]	3860	0.012	0.005*	0.033*	0.336

Table 4. This table presents the number of firms in each industry per sample for each event and the percentage of the number of firms in each industry relative to the total number of firms. The industry classification is based on the GIC standard.

INDUSTRY	EVENT NUMBER										TOTAL	PERCENT
	#1		#2		#3		#4		#5			
	3-day	5-day	3-day	5-day	3-day	5-day	3-day	5-day	3-day	5-day		
ENERGY	300	301	314	314	323	321	338	336	278	274	3099	8.22
MATERIALS	213	214	235	234	250	249	225	234	221	220	2295	6.09
CAPITAL GOODS	300	304	340	337	333	334	318	316	325	327	3234	8.58
COMMERCIAL & PROFESSIONAL SERVICES	119	120	131	130	127	126	126	128	123	124	1254	3.33
AUTOMOBILES & COMPONENTS	31	29	37	38	39	39	42	42	42	42	381	1.01
CONSUMER DURABLES & APPAREL	107	108	123	125	127	127	117	118	115	118	1185	3.14
CONSUMER SERVICES	119	117	132	130	122	121	132	131	133	132	1269	3.37
RETAILING	71	71	156	158	161	160	157	158	147	147	1386	3.68
FOOD & STAPLES RETAILING	19	19	27	27	24	25	26	26	21	22	236	0.63
FOOD, BEVERAGE & TOBACCO	72	72	99	99	92	93	91	91	92	92	893	2.37
HOUSEHOLD & PERSONAL PRODUCTS	38	37	41	39	36	35	32	31	33	33	355	0.94
HEALTH CARE EQUIPMENT & SERVICES	256	253	268	268	254	255	223	221	233	237	2468	6.55
PHARMACEUTICALS, BIOTECHNOLOGY & LIFE SCIENCES	247	244	252	256	236	238	292	288	425	422	2900	7.69
BANKS	435	444	430	433	445	442	440	445	426	425	4365	11.58
DIVERSIFIED FINANCIALS	84	85	110	110	93	93	118	118	157	159	1127	2.99
INSURANCE	51	52	78	80	71	71	57	57	50	50	617	1.64
SOFTWARE & SERVICES	190	192	232	233	219	218	242	240	247	243	2256	5.98
TECHNOLOGY HARDWARE & EQUIPMENT	234	230	269	262	250	249	226	227	200	203	2350	6.23
SEMICONDUCTORS & SEMICONDUCTOR EQUIPMENT	114	113	135	134	124	127	123	121	95	96	1182	3.14
COMMUNICATION SERVICES	53	53	48	48	47	47	43	43	42	42	466	1.24
MEDIA & ENTERTAINMENT	75	73	77	77	77	79	94	92	118	118	880	2.33
UTILITIES	105	105	103	103	102	101	96	96	99	100	1010	2.68
REAL ESTATE	35	35	102	102	113	113	109	110	147	144	1010	2.68
TRANSPORTATION	81	80	83	83	76	77	82	81	66	65	774	2.05
OTHER	78	76	94	93	81	82	76	76	25	25	706	1.87
TOTAL	3427	3427	3916	3913	3822	3822	3825	3826	3860	3860	37698	100.00

Results

This section discusses the results of this research. In order to formulate an answer to the research question, the hypotheses should be tested. The first hypothesis is: H_0 : “The adoption of ASU 2016-02 has no effect on the market reaction” First, the results of the event study are presented and discussed which will help to test the first hypothesis. The second hypothesis is H_a : “The adoption of ASU 2016-02 has a more pronounced effect on the market reaction for retail, transportation and service sectors”. After the results of the event study, the results of the cross-sectional analysis are presented and discussed to be able to test the second hypothesis. This insights provides the necessary information to formulate an answer on the research question in the conclusion.

Event study

In order to test whether the announcements have had an effect on the stock market reaction, the Cumulative Abnormal Returns (CAR) have been calculated and a t-test has been performed to test whether the Cumulative Average Abnormal Return (CAAR) is equal to zero. The announcement has had an effect on the stock market if the result shows that the CAAR is significantly different from zero. The results of this test are presented in table 4 below.

Table 4. Results of the t-tests: CAAR = 0.

Significant at a significance level of: ***1%, **5% and *10%

CAAR is the Cumulative Average Abnormal Return. T-test have been performed to test whether the CAAR differs significantly from zero. This table shows the CAAR and whether it differs significantly from zero for the significance levels mentioned.

		EVENT #1	EVENT #2	EVENT #3	EVENT #4	EVENT #5
[-1,+1]	CAAR	0.0013	0.0048***	-0.0042***	-0.0037***	0.0089***
	t-statistic	(1.48)	(8.21)	(-7.86)	(-6.77)	(12.70)
[-3,+3]	CAAR	0.0076***	0.0022***	-0.0134***	-0.0021***	0.0120***
	t-statistic	(5.34)	(2.71)	(-16.93)	(-2.58)	(10.65)
	Observations	3427	3916	3821	3825	3860

Event #1, March 19th, 2009:

This date marks the issuance of the FASB discussion paper. The results show that the coefficient is 0.13%, but it is not significant. However, the coefficient for the 7-day event window is 0.76% and significant, indicating a significant effect on the market reaction. The first event shows mixed results so it is not clear whether we can conclude a significant effect or not.

Event #2, August 17th, 2010:

This event is the release of the first Exposure Draft. Table 4 shows that the coefficient is 0.48% and 0.22% for the 3-day and 7-day event window respectively. Both are significant different from zero at a significance level of 1% and thus indicate a significant positive effect on the market reaction.

Event #3, July 21st, 2011:

On this date the IASB and FASB announced the intention to re-expose proposals. The CAAR for this event is -0.42% and -1.34% for the 3-day and 7-day event window respectively. The results show that the CAAR for both samples are significantly different from zero at a 1% significance level. This means that it can be concluded that this event has had a significant negative effect on the stock market reaction.

Event #4, May 16th, 2013:

The second Exposure Draft was released on this day. Table 4 shows that the coefficient for this event is -0.37% for the 3-day event window and -0.21% for the 7-day event window. Both coefficients differ significantly from zero at a significance level of 1%, so it can be concluded that this event has had a significant negative effect on the market reaction.

Event #5, February 25th, 2016:

On this date, the FASB released ASU 2016-02 which would be effective from 2019 onwards. The results show that the coefficient is 0.89% and 1.2% for the 3-day and 7-day event window respectively. The results also show that both coefficients differ significantly from zero at a 1% significance level, so this event has had a significant positive effect on the market reaction.

Robustness test

To ensure the robustness of the results I use two different event windows. The main event window is the 3-day window and I include the 7-day event window as a robustness test, because there is a probability that investors overreact in the shorter event window. Secondly, there could be an existence of extreme values in the sample. These outliers could influence the results of this research. Therefore, I winsorized the variables at the 1% and 99% levels. Lastly, I performed a Wilcoxon signed rank test, a non-parametric test, to check the robustness of the parametric test. Using a parametric test requires the sample to be normally distributed. According to Brown and Warner (1985) stock prices are not normally distributed. Using a non-parametric tests are better for event studies, because these do not require a normal distribution of the sample (Dutta, 2014). Table 5 shows the results of the Wilcoxon signed-rank test. The results of the Wilcoxon signed-rank test are similar to the regular t-test. The CAAR differs significantly from zero for all samples except for the 3-day event window for the first event. These results confirm the results of the t-test and therefore it is confirmed that these events have led to a significant effect on the market reaction.

*Table 5. Results of the Wilcoxon signed-rank test: CAAR = 0
Significant at a significance level of: ***1%, **5% and *10%
CAAR is the Cumulative Average Abnormal Return. T-test have been performed to test whether the CAAR differs significantly from zero. This table shows the CAAR and whether it differs significantly from zero for the significance levels mentioned.*

		EVENT #1	EVENT #2	EVENT #3	EVENT #4	EVENT #5
[-1,+1]	CAAR	0.0013	0.0048***	-0.0042***	-0.0037***	0.0089***
[-3,+3]	CAAR	0.0076***	0.0022***	-0.0134***	-0.0021***	0.0120***
	Observations	3427	3916	3821	3825	3860

The results of the event study show a significant effect on the market reaction for all announcements, except for the first one. The announcements show a significant effect in both a positive and negative direction. It is thus not clear whether the announcement of the adoption of ASU 2016-02 has led to a positive or negative effect on the market reaction, but it certainly has led to a significant effect on the market reaction. As a result, the first hypothesis: H_0 : "The adoption of ASU 2016-02 has no effect on the market reaction" can be rejected.

Cross-sectional analysis

To test whether the adoption of the new lease standard has had a more pronounced effect on the market reaction for retail, transportation and service sectors, a cross-sectional analysis is performed with three regressions per event per event window: (1) Cumulative Abnormal Return (CAR) as dependent variable and RETAIL as independent variable, (2) Cumulative Abnormal Return (CAR) as dependent variable and TRANSPORT as independent variable and (3) Cumulative Abnormal Return (CAR) as dependent variable and SERVICE as independent variable. RETAIL, TRANSPORT AND SERVICE are binary variables which take the value 1 if the firm is active in the concerning industry and 0 otherwise. CAR is a continuous variable. Besides these variables, some control variables are also included in the regression: Size, Book-to-Market ratio, Leverage and Return on Assets. The results of these regressions are presented in table 5 below. The full regression results can be found in the Appendix. The new lease standard has had a more pronounced effect on the market reaction of the concerning industry if a significant effect is found for each event and event window.

Table 5. Results of the regression between CAR and (1) TRANSPORT, (2) RETAIL and (3) SERVICE. This table shows the results of the regressions performed. Two regressions are performed for each event. One for the 3-day event window and one for the 7-day event window. The dependent variable is the Cumulative Abnormal Return (CAR) and the independent variables are transport, retail, service, size, bm, leverage and ROA. Transport, retail and service are the variables of interest. These are binary variable which take the value 1 if the firm is in the specific industry, and 0 otherwise. Size is the natural logarithm of the market value. BM is the book-to-market value, which is the ratio between the book value and market value. Leverage is the ratio between the debt and equity. ROA is the ratio between the net income and total assets value. Significant at a significance level of: ***1%, **5% and *10%

CAR	#1		#2		#3		#4		#5	
	[-1,+1]	[-3,+3]	[-1,+1]	[-3,+3]	[-1,+1]	[-3,+3]	[-1,+1]	[-3,+3]	[-1,+1]	[-3,+3]
(1) TRANSPORT	-0.003	-0.017*	0.006	0.004	-0.016***	-0.025***	0.014***	0.017***	-0.004	-0.017*
(2) RETAIL	0.002	0.025***	0.002	-0.001	-0.005*	0.005	-0.005*	0.005	-0.001	0.009
(3) SERVICE	-0.007***	-0.008**	-0.003	-0.008***	0	-0.001	0.006***	0.002	0	0.004
SIZE	0.003***	0.007***	0.002***	0	0.002***	0.002***	0	0.001**	0.001***	0.003***
BM	0	-0.001	-0.007***	-0.003	0.003***	0.001	-0.005***	-0.007***	-0.001	0.001
LEVERAGE	-0.001***	-0.002***	0	-0.001***	0	0.000	0	0	0	0
ROA	0.002	-0.018**	0.013***	0.016***	-0.012***	0.010**	0.025***	-0.002	-0.009***	-0.002
CONSTANT	-0.016***	-0.024***	0	0.005	-0.018***	-0.028***	-0.004	-0.006	0	-0.007
OBSERVATIONS	3427	3427	3916	3913	3821	3821	3825	3826	3860	3860
R2	0.029	0.052	0.033	0.011	0.015	0.0172	0.03	0.009	0.007	0.009
ADJUSTED R2	0.027	0.050	0.031	0.01	0.013	0.0154	0.028	0.007	0.005	0.007

For the first event, the results of the 3-day event window show that the effect of SERVICE on CAR is significant, but not significant for RETAIL and TRANSPORT. This implies that this event has had a more pronounced effect on the service sector, but not on the retail and transport sector. However, for the 7-day event window a significant effect is found for all three sectors (ignoring the significance level), implying that this event has had a more pronounced effect on all three sectors. The R^2 is 0.029, implying that 2.9% of the variation in the cumulative abnormal return can be explained by the independent variables. A similar analysis can be done for the results of the other event windows.

An analysis can also be made for each industry. For the variable RETAIL no significant effect is found for event #2 and #5 for each of the event windows. For event #1 a significant effect is found for the 7-day event window. The market reaction is 2.5% stronger in this event window for a firm in the retail industry. For event #3 and #4 a significant effect is found for the 3-day event window. The market reaction in these event windows is 0.5% stronger for a firm in the retail industry. These are mixed results. A similar analysis can be made for the other variables. For the variable TRANSPORT no significant effect is found for event #2. A significant effect is found for both event windows for event #3 and #4. For event #1 and #5 a significant effect is found for only the 7-day event window. The transport sector, thus, also shows mixed results. For the variable SERVICE no significant effect is found for event #3 and #5. A significant effect is found for both event windows for event #1. Finally, a significant effect is found for the 7-day event window for event #2 and for the 3-day event window for event #4. The service sector also shows mixed results.

The control variable Size has a significant effect on the CAR for most of the samples. It has no significant effect on the 7-day event window of event #2 and the 3-day event window of event #4. The control variables Book-to-Market ratio and Leverage have a significant effect on CAR for a few samples. The control variable Return on Assets has a significant effect on the CAR for most of the samples.

The results of the cross-sectional analysis show mixed results for each of the industries. It is not clear whether the transport, retail and service sectors have a significant effect on the market reaction. Therefore, the second hypothesis H_0 : "The adoption of ASU 2016-02 has a more pronounced effect on the market reaction for retail, transportation and service sectors" can be rejected.

Conclusion

A lot of research has been done on the impact of the capitalization of operating leases and the stock market reaction on different accounting regulations. This thesis examines the stock market reaction on the introduction of a new lease standard, ASU 2016-02. Earlier operating leases were not presented on the balance sheet, whereas this new standard requires almost all leases to be capitalized.

This research uses an event study. Five events are selected which led up to the establishment of the new lease standard. These events include the issuance of a discussion paper, the release of two exposure drafts, the announcement of the intention to re-expose the proposals and the release of the new standard. The response is measured as the cumulative average abnormal returns (CAARs). Furthermore, I used two different event windows: 3-day and 7-day. The hypothesis is that the adoption of ASU 2016-02 has no effect on the market reaction.

The results of the event study show a significant effect on the market reaction for all announcements, except for the first one. The announcements show a significant effect in both a positive and negative direction. It is thus not clear whether the announcement of the adoption of ASU 2016-02 has led to a positive or negative effect on the market reaction, but it certainly has led to a significant effect on the market reaction.

I further investigate whether the adoption of the new lease standard has had a more pronounced effect on the market reaction for retail, transportation and service sectors. Because a prior study expected these industries to be affected the most, the hypothesis for this research is that the adoption of ASU 2016-02 has a more pronounced effect on the market reaction for retail, transportation and service sectors. I performed a cross-sectional analysis with a regression for all samples with the CAR as dependent variable and three binary variables: RETAIL, TRANSPORT and SERVICE as independent variables. These variables take the value 1 if the firm is active in the concerning industry and 0 otherwise. I also included some control variables: Size, Book-to-Market ratio, Leverage and Return on Assets.

The results of the cross-sectional analysis show mixed results for each of the industries. Per industry, some of the events show a significant effect on the CAR but not for all. It is not clear whether the transport, retail and service sectors have a significant effect on the market reaction. Therefore, I do not reject the null hypothesis. This is contradictory to the results of Bryan, Lilien & Martin (2010). They found that the ratios in the retail, transportation and service sectors are mostly affected.

This study firstly contributes to the existing literature on the effects of operating lease capitalization. Extensive research has been done on the impact on key financial ratios (Imhoff, Lipe & Wright, 1991; Fitó, Moya & Orgaz, 2013; Durocher, 2008; Bryan, Lilien & Martin, 2010; Singh, 2010). Most of the studies have found a significant impact on the key financial ratios of

firms, such as the debt/equity ratio and EBITDA. Some studies have also looked at what impact it could have on the market, for example impact on debt and credit ratings (Lim et al., 2003; Cotton et al., 2013; Lindsey, 2006; Sakai, 2010). However, these studies only make predictions using 'what-if' models, such as the constructive capitalization method, and do not investigate the real effect of this new lease accounting standard. This is due to the fact that this accounting standard has become effective just recently. This research tries to investigate the real effect of operating lease capitalization and hence contributes to this stream of the literature by looking at the actual impact of operating lease capitalization.

Secondly, this research contributes to the existing literature on the effects of accounting regulations on the stock market. Most of the prior studies found a significant market reaction (Lev, 1979; Vigeland, 1981; Onali & Ginesti, 2014; Espahbodi et al., 2002; Fried, 2013) and it is interesting to see whether this new lease standard has also led to a stock market reaction. Prior studies have looked at different accounting regulations and examined whether these have led to a market reaction, but none of them has looked at this particular standard.

I acknowledge that this thesis is subject to a number of shortcomings. Firstly, there is an issue of confounding events. The stock market reaction can be created by a lot of different circumstances and factors. Therefore it is very difficult to filter the effect of the events of this research. Also, I chose five events which I assumed to be the most relevant for the establishment of the lease standard. However, there could be other events which I did not select but might be more relevant. Moreover, I used returns including dividends, because I used the WRDS event study tool and this tool uses returns including dividends by default. This might cause that the results are attributable to events that are related to other corporate events, rather than the announcements. Lastly, this research is conducted on US firms, so these results cannot be generalized to the rest of the world.

Future research could investigate the real effect of operating lease capitalization on other countries in the world. It is particularly interesting to examine what the effect of IFRS 16 is on the stock market in the IFRS countries as this was a joint project of the FASB and the IASB. The US has a different culture compared to European countries, which apply the IFRS standards. Therefore, a study on the IFRS countries might show a different market reaction.

Bibliography

- Altamuro, J., Johnston, R., Pandit, S., & Zhang, H. (2014). Operating leases and credit assessments. *Contemporary Accounting Research*. doi:10.1111/1911-3846.12033
- Andrade, S. C., Henry, E., & Nanda, D. (2011). *The impact of operating leases and purchase obligations on credit market prices*. University of Miami.
- Barth, M. E., Clinch, G., & Shibano, T. (2003). Market Effects of Recognition and Disclosure. *Journal of Accounting Research*, 581-609.
- Binder, J. (1998). The Event Study Methodology Since 1969. *Review of Quantitative Finance and Accounting*, 111-137.
- Bratten, B., Choudhary, P., & Schipper, K. (2013). Evidence that market participants assess recognized and disclosed items similarly when reliability is not an issue. *The Accounting Review*, 1179-1210.
- Brown, S., & Warner, J. (1985). Using Daily Stock Returns: The Case of Event Studies. *Journal of Financial Economics*, 3-31.
- Bryan, S. H., Lilien, S., & Martin, D. R. (2010). The financial statement effects of capitalizing operating leases. *The CPA Journal*, 36-41.
- Cai, J., & Zhang, Z. (2011). Leverage change, debt overhang, and stock prices. *Journal of Corporate Finance*, 391-402.
- Callaghan, J. H., Kleiman, R. T., & Sahu, A. P. (1999). The market-adjusted investment performance of ADRIPOs and SEOs. *Global Finance Journal*, 123-145.
- Chen, K. H., & Shimerda, T. A. (1981). An Empirical Analysis of Useful Financial Ratios. *Financial Management*, 51-60.
- Cotten, B. D., Schneider, D. K., & McCarthy, M. G. (2013). Capitalisation of operating leases and credit ratings. *Journal of Applied Research in Accounting and Finance*, 2-17.
- Deloitte. (2019). *Applying the new lease accounting standard*. Opgehaald van <https://www2.deloitte.com/us/en/pages/audit/articles/a-roadmap-to-applying-the-new-leasing-standard.html>
- Dhaliwal, D., Lee, H., & Neamtiu, M. (2011). The impact of operating leases on firm financial and operating risk. *Journal of Accounting Auditing & Finance*, 151-197.
- Durocher, S. (2008). Canadian evidence on the constructive capitalisation of operating leases. *Accounting Perspectives*, 227-256. doi:10.1506/ap.7.3.2
- Dutta, A. (2014). Parametric and Nonparametric Event Study Tests: A Review. *International Business Research*, 136-142.
- Espahbodi, H., Espahbodi, P., Rezaee, Z., & Tehranian, H. (2002). Stock price reaction and value relevance of recognition versus disclosure: the case of stock-based compensation. *Journal of Accounting and Economics*, 343-373.
- FASB. (2009). *Leases: Preliminary Views*.
- FASB. (2016). *Accounting Standards Update No. 2016-02*. Financial Accounting Foundation.

- Fitó, M. À., Moya, S., & Orgaz, N. (2013). Considering the effects of operating lease capitalization on key financial ratios. *Revista Española De Financiación y Contabilidad*, 341-369.
- Foster, T. (2016). Lease accounting no longer "off balance". *Greater Lansing Business Monthly*.
- Fosu, S., Danso, A., Ahmad, W., & Coffie, W. (2016). Information asymmetry, leverage and firm value: Do crisis and growth matter? *International Review of Financial Analysis*, 140-150.
- Fried, A. N. (2013). An Event Study Analysis of Statement of Financial Accounting Standards No. 158. *Accounting and Finance Research*.
- Harms, C. (2020). *FASB Lease Accounting Standard Update 2016-02: An Exploration of Similarities and Differences to IFRS 16 (Doctoral dissertation)*.
- Imhoff, E., Lipe, R., & Wright, D. (1991). Operating leases: impact of constructive capitalization. *Accounting Horizons*, 51-63.
- Joos, P. P., & Leung, E. (2013). Investors Perception of Potential IFRS Adoption in the United States. *The Accounting Review*, 577-609.
- Larcker, D. F., Ormazabal, G., & Taylor, D. J. (2011). The market reaction to corporate governance regulation. *Journal of Financial Economics*, 431-448.
- Lev, B. (1979). The Impact of Accounting Regulation on the Stock Market: The Case of Oil and Gas. *The Accounting Review*, 485-503.
- Lim, C. S., Mann, C. S., & Mihov, T. V. (2003). *Market Evaluation of Off-Balance Sheet Financing: You Can Run but You Can't Hide*. Texas Christian University.
- Lindsey, B. P. (2006). *A Value Relevance Examination of the Current Leasing Standards*. Chapel Hill: University of North Carolina.
- MacKinlay, A. C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature*, 13-39.
- Onali, E., & Ginesti, G. (2014). Pre-Adoption Market Reaction to IFRS 9: A Cross-Country Event-Study. *Journal of Accounting and Public Policy*, 10.1016/j.jaccpubpol.2014.08.004.
- PwC. (2019). *Leases*.
- Ritter, J. R. (1991). The Long-Run Performance of Initial Public Offerings. *Journal of Finance*, 3-27.
- Sakai, E. (2010). *The Market Reaction to the Finance Lease Capitalisation from the View Point of Risk Assessment*. Musashi University.
- Sengupta, P., & Wang, Z. (2011). Pricing of off-balance sheet debt: how do bond market participants use the footnote disclosures on operating leases and postretirement benefit plans? *Accounting and Finance*, 787-808. doi:10.1111/j.1467-629X.2010.00368.x
- Singh, A. (2010). Proposed lease accounting changes: implications for the restaurant and retail industries. *Journal of Hospitality & Tourism Research*, 335-365. doi:10.1177/1096348010388659
- Vigeland, R. (1981). The Market Reaction to Statement of Financial Accounting Standards No. 2. *The Accounting Review*, 309-325.

- Wagner, A. F., Zeckhauser, R. J., & Ziegler, A. (2017). Company Stock Reactions to the 2016 Election Shock: Trump, Taxes and Trade. *Faculty Research Working Paper Series*.
- Wu, X., & Zhang, J. (2014). Stock market reaction to regulatory investigation announcements. *China Journal of Accounting Studies*, 37-52.

Appendix

Table 1. Descriptive statistics control variables: Size, the ratio between book and market value, Leverage and Return on Assets

	MEAN	STD. DEV.	MIN	MAX
SIZE	6.3311	1.9659	1.308	11.510
BM	0.6527	0.208	-1.295	4.112
LEVERAGE	2.5083	4.1093	-21.374	34.928
ROA	-0.0238	0.1898	-1.756	0.363