

UNIVERSITÉ DU QUÉBEC À MONTRÉAL

PUBLIC ACCOUNTING FIRMS' ASSESSMENT OF INTERNAL  
CONTROLS: HOW EFFECTIVE ARE EXTERNAL AUDITORS'  
OPINIONS DISCLOSED ON INTERNAL CONTROLS OVER  
FINANCIAL REPORTING (ICFR)?

DISSERTATION

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MASTER IN ACCOUNTING, CONTROL AND AUDIT

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ÉVALUATION DU CONTRÔLE INTERNE PAR LES AUDITEURS  
EXTERNÉS: DANS QUELLE MESURE LES OPINIONS DES  
AUDITEURS EXTERNÉS SONT-ELLES EFFICACES AU SUJET DU  
CONTRÔLE INTERNE EN MATIÈRE DE PRÉSENTATION DE  
L'INFORMATION FINANCIÈRE?

MÉMOIRE

PRÉSENTÉ

COMME EXIGENCE PARTIELLE

DE LA MAÎTRISE EN COMPTABILITÉ, CONTRÔLE ET AUDIT

PAR

ALINE SEGALIN ZANELLA

JANVIER 2020

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*“Surround yourself with people who are smarter, faster, stronger and better than you so you can be uplifted by their models and inspired by their examples.”*

Robin Sharma

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## LIST OF ABBREVIATIONS AND ACRONYMS

AAER	Accounting and Auditing Enforcement Releases
AICPA	American Institute of Certified Public Accountants
AMEX	American Stock Exchange
AS	Auditing Standards
CEO	Chief Executive Officer
CFO	Chief Financial Officer
FERF	Financial Executive Research Foundation
GAAP	Generally Accepted Accounting Principles
GAO	United States Government Accountability Office
ICFR	Internal Controls over Financial Reporting
ISA	International Standard on Auditing
NASDAQ	National Association of Securities Dealers Automated Quotations
NYSE	New York Stock Exchange
PCAOB	Public Company Accounting Oversight Board
PWC	PricewaterhouseCoopers
SAS	Statement on Auditing Standards
SEC	Securities and Exchange Commission
SOX	Sarbanes-Oxley Act
TSAS	Taiwan issued Statement on Auditing Standards
US	United States of America

## RÉSUMÉ

Conformément à Rice, S. C. et Weber, D. P. (2012), la loi Sarbanes-Oxley de 2002 a été adoptée pour aider à rétablir la confiance du public dans les marchés financiers aux États-Unis après plusieurs scandales comptables de grande envergure, tels que ceux d'Enron et de Worldcom. Dans le but de réduire le nombre de fraudes dans les entreprises, les sénateurs américains ont créé une section spécifique sur la loi Sarbanes-Oxley - section 404 - qui demande une évaluation annuelle des contrôles et procédures internes relatifs à la présentation de l'information financière par la direction de la société et ses auditeurs externes et divulguée au public dans un rapport intitulé « Internal Controls over Financial Reporting » (ICFR). Sur ce sujet, Donelson et al. (2017) ont constaté l'existence d'un lien étroit entre les faiblesses importantes des contrôles internes et la révélation future d'une fraude. Cependant, les études réalisées par Rice, S. C. et Weber, D. P. (2012) indiquent que la majorité des entreprises et leurs auditeurs ne signalent pas les faiblesses des contrôles existants, mais plutôt que ces derniers sont efficaces. Selon leurs résultats, seules 32,4% des entreprises ont signalé une faiblesse importante dans leurs rapports de « Internal Controls over Financial Reporting » (ICFR) au cours de la période de fausses déclarations. Cette constatation compromet l'efficacité de ces rapports pour atteindre son objectif principal: rétablir la confiance du public dans les marchés des capitaux des États-Unis. En raison de cette problématique, la présente étude vise à déterminer si les auditeurs externes, en tant que tierces parties indépendantes, donnent au public des avis fiables sur l'environnement de contrôle interne de leurs clients. Par conséquent, l'objectif de cette recherche est de répondre à la question suivante: dans quelle mesure les opinions des auditeurs externes sont-elles efficaces au sujet du contrôle interne en matière de représentation de l'information financière?

Nous avons analysé un échantillon de 106 sociétés composé de 53 entreprises avec états financiers retraités ou frauduleux et 53 autres sans états financiers retraités ou frauduleux à un moment donné entre 2005 et 2017 et qui sont classées dans la catégorie «grands déposants utilisant le dépôt accéléré» (Large Accelerated Filers) ou «déposants utilisant le dépôt accéléré» (Accelerated filers) sur le marché des capitaux américain.

Nos résultats indiquent que, même si seulement 34% des sociétés dont les états financiers ont été retraités ont reçu une opinion défavorable par l'auditeur externe au cours de la période de déclaration erronée, les auditeurs externes sont plutôt efficaces en identifiant et en révélant au public les signaux indiquant que certaines sociétés présentent des faiblesses importantes dans le contrôle interne. La présence moyenne d'une opinion défavorable de

contrôle interne émise par l'auditeur externe au cours de la période de déclaration erronée ou de son exercice précédent pour les sociétés dont les états financiers sont non fiables est statistiquement plus élevée que pour les sociétés dont les états financiers sont réputés fiables. En outre, nous concluons que les avis de contrôle interne communiqués au public par le management de la société sont, dans leur grande majorité, alignés sur l'opinion divulguée par l'auditeur externe. Dans ce scénario, nous supposons que les deux parties ne divulguent que les opinions discutées et préalablement approuvées au public afin d'éviter tout litige et toute détérioration de l'image de ces deux parties.

De telles conclusions ont des implications pratiques pour les entreprises qui sont sujet à l'application de la loi Sarbanes-Oxley, article 404 (b), pour les régulateurs, les investisseurs et les autres parties prenantes. Pour ces parties, ces constatations indiquent que l'article 404 (b) de la loi SOX offre l'avantage potentiel d'un système d'alerte rapide en cas de futur redressement financier ou de révélation de fraude. Compte tenu des critiques liées à la loi, les régulateurs pourraient envisager des moyens d'améliorer l'exactitude des informations fournies sur les faiblesses significatives de contrôle interne.

**MOTS-CLÉS :** Sarbanes-Oxley, article 404 (b); Efficacité; Auditeurs externes; Contrôles internes; Information financière.

## ABSTRACT

Accordingly to Rice, S. C. and Weber, D. P. (2012), the Sarbanes-Oxley Act of 2002 was enacted to help restore public trust in the United States capital markets after several high-profile accounting scandals, such as those of Enron and Worldcom. In an attempt to reduce the incidence of corporate fraud, US senators have created a specific section on the Sarbanes-Oxley Act – section 404 – which demands an annual assessment of internal controls and procedures related to financial reporting to be performed by the management of the company and its external auditors and disclosed to public in a report entitled Internal Controls over Financial Reporting (ICFR). In this matter, Donelson et al. (2017) found the existence of a close link between internal controls material weaknesses and the future revelation of a fraud. However, a study performed by Rice, S. C. and Weber, D. P. (2012) indicates that the majority of companies and their auditors do not report weaknesses in existing controls, but rather that controls are effective. According to their results, only 32.4% of firms reported a material weakness in their Internal Controls over Financial Reporting (ICFR) reports during the misrepresentation period. This finding seems to challenge the effectiveness of these reports in achieving its primary purpose: to restore public trust in the United States capital markets. Due to this problematic, this study aims to assess if external auditors, as independent third –parties, provide reliable opinions to the public on the Internal Controls over Financial Reporting (ICFR). Therefore, this research’s goal is to answer the following question: How effective are external auditors’ opinions disclosed on Internal Controls over Financial Reporting (ICFR)?

We analyzed a sample of 106 companies composed of 53 companies with restated or fraudulent financial statements and 53 others without restated or fraudulent financial statements at any given moment between the years of 2005 until 2017 and that are classified as “Large Accelerated Filers” or “Accelerated filers” in the US capital market.

Our results indicate that even though only 34% of companies with financial statements deemed to be unreliable have received an adverse Internal Control over Financial Reporting (ICFR) opinion issued by the external auditor during the misrepresentation period or its prior year, external auditors are somewhat effective in identifying and disclosing red flags to the public that certain companies have internal control material weaknesses. The average presence of an adverse internal control opinion issued by the external auditor during the misrepresentation period or its prior year for companies with unreliable financial statements is statistically significant higher than for companies with financial statements deemed to be reliable. In addition, we

conclude that the internal control opinions disclosed to public by companies' management is, in its vast majority, aligned with the opinion disclosed by the external auditor. In this scenario, we assume that both parties only disclose opinions that have been discussed and previously agreed on to the public in order to avoid disputes and image damages for these two parties.

Such findings have practical implications for companies that are enforced by the Sarbanes-Oxley Act, Section 404(b), for policymakers, investors and stakeholders. For such parties, these findings indicate that SOX Section 404(b) provides a potential benefit of an early warning system for a future financial restatement or fraud revelation. Given the criticisms associated to the Act, regulators could consider ways to improve the accuracy of material weakness disclosures.

**KEYWORDS:** Sarbanes-Oxley, section 404 (b); Effective; External auditors; Internal controls; Financial reporting.

## INTRODUCTION

### Research problematic

Accordingly to Rice and Weber (2012), the Sarbanes-Oxley Act of 2002 was enacted to help restore public trust in the United States capital markets after several high-profile accounting scandals, such as those of Enron and Worldcom. In the attempt to reduce the incidence of corporate fraud, US Senator Paul Sarbanes and US Representative Michael Oxley have created a specific section on the Sarbanes-Oxley Act: section 404. This section demands an annual assessment of internal controls and procedures related to financial reporting to be performed by the management of the company and its external auditors and disclosed to public in a report entitled Internal Controls over Financial Reporting (ICFR). However, as indicated by Rice and Weber (2012), the SOX Act, section 404, divides opinions as to the achievement of its primary purpose: to increase investors' trust on financial reporting of public listed companies in the United States. Donelson *et al.* (2017) found the existence of a close link between internal controls material weaknesses and the future revelation of a fraud. Their results indicate that companies that previously had internal control material weaknesses are 1.24 percentage points more likely to have a fraud revelation within the next three years compared to firms without a material weakness. However, studies performed by Rice and Weber (2012) indicate that the majority of companies and their auditors do not report the existence of weaknesses in internal controls, but rather that controls are effective. According to their results, only 32.4% of firms reported a material weakness in their SOX 404 reports - or Internal Controls over Financial Reporting (ICFR) - during the misrepresentation period. Therefore, the usefulness of these reports, and of



SOX section 404 as a whole, would be compromised in increasing investor's trust on financial reporting of public listed companies in the United States.

Research objective and research question

Auditing Standard No. 2 (PCAOB 2004), section E94 establishes:

*“For the implementation of Section 404 of the Act to achieve its objectives, the public must have confidence that all material weaknesses that exist as of the company's year-end will be publicly reported”.*

Considering the finding presented by Rice and Weber (2012) that only 32.4% of companies properly report the existence of internal control material weaknesses during the misrepresentation period, could the public expect external auditors, as independent third-parties, to provide effective opinions regarding the control environment of their clients? Based on this question, this study aims to assess the effectiveness of external auditors' opinions presented on Internal Controls over Financial Reporting (ICFR) reports. In order to achieve such goal, the related question intends to be answered: how effective are external auditors' opinions disclosed on Internal Controls over Financial Reporting (ICFR)? By effective, we mean external auditors' opinions that are disclosed to the public free from errors and that conform to the reality of the internal control environment witnessed by these professionals.

The context studied is applicable to the US capital market, because the regulations related to the performance of an audit over the internal control environment of companies is demanded by such country – enforced by the Sarbanes-Oxley Act Section 404. It is important to highlight that US Senator Paul Sarbanes and US Representative Michael Oxley understood that forcing companies that were public listed in the US to assess their control environment was an important tool to reduce accounting scandals seen on the American capital market during the late 1990s and beginning of 2000s, and therefore, restore investor's trust on the country's capital market.

## Contributions

Rice and Weber (2012) indicate that for SOX 404 successfully decrease investor skepticism regarding the reliability of external auditors' opinions, Internal Controls over Financial Reporting (ICFR) reports should contain meaningful information. That is, companies are not reporting that their internal controls are effective when they are actually ineffective. However, apparent auditor failures to identify internal control weaknesses have raised up concerns related to the overall effectiveness of such reports. Rice and Weber (2012) state that the reliability of these reports should be an important consideration for future researches. Therefore, the first contribution of this study is to test whether the public can rely on external auditors' opinions expressed on SOX 404 reports.

Second, the increase of efforts in order to become or continue to be a US public listed company has significantly increased since the 2002 acceptance of the SOX Act. The former president of the New York Stock Exchange (NYSE), W. Farley (2017), stated on the testimony of such company that:

*“While costs associated with becoming a public company have always been significant, compliance with certain provisions of SOX sets considerably higher barriers - not just financially for public companies - but also for entry into public markets for private companies, particularly for small and midsize private companies. Compliance with SOX Section 404 specifically has proven to be a significant hurdle: designing, implementing, and maintaining complex systems required to satisfy SOX's internal controls over financial reporting requirements can command millions of dollars in outside consultant, legal, and auditing fees, in addition to other internal costs”. W. Farley (2017)*

Thus, a second contribution of this study is to test if an increase in efforts and disbursements with audit fees are justifiable by external auditors' issuing effective and reliable opinions and reinforcing a more transparent and ethical capital markets environment, that is, an environment where accurate information is available for the stakeholders. In addition, since previous

studies indicate that internal controls material weaknesses are a red flag for an increase in the probability of a company facing future financial statement fraud or restatements, if external auditors are negligent in providing a quality and independent opinion to stakeholders, the increase of disbursements made with audit fees are less justifiable.

Finally, this research differs from previous studies – such as those of Donelson *et al.* (2017) and Rice and Weber (2012) – because the focus of it is to assess the effectiveness of the Internal Controls over Financial Reporting (ICFR) opinions provided exclusively by the external auditors, as an attempt to verify if this independent third-party does actually issue to public more independent and reliable opinions. It is worth mentioning that although Donelson *et al.* (2017) and Rice and Weber (2012) studies are similar to this one, Donelson's objective was to analyze whether disclosed internal control weaknesses are linked to the future revelation of financial statement fraud, whereas Rice and Weber's studies aimed to analyze how effective are SOX 404 reports in providing advance warning of accounting problems.

#### Broad view of the research

Section 404 of the SOX Act became effective November 15, 2004, requiring that both management and auditors provide an annual assessment of the effectiveness of the existing internal controls over financial reporting (ICFR) of public listed companies in the United States. Based on this regulation, this study intends to focus on assessing how effective are external auditors' opinions disclosed on the internal controls over financial reporting (ICFR) reports. We undertook a comparative analysis, correlation analysis and logistics regression with 106 companies that either restated their financial statements (53 observations) or had "clean financial statements" (53 observations) at any given moment between the years of 2005 until 2017. In line with Rice and Weber (2012) results, we found that only 34% of companies with financial statements deemed to be unreliable (that is, financial statements that presented accounting errors or fraud) have received an adverse

internal control over financial reporting (ICFR) opinion issued by the external auditor during the misrepresentation period or its prior year. If we were to conclude simply by this statistic, we would infer that external auditors are likely to issue favorable internal control opinion for companies with internal control material weaknesses. However, we also found that the average presence of an adverse internal control opinion issued by the external auditor during the misrepresentation period or its prior year for companies with unreliable financial statements is statistically significantly higher than for companies with financial statements deemed to be reliable (that is, financial statements without accounting errors or fraud). Therefore, external auditors are somewhat effective in identifying and disclosing red flags to the public that certain companies have internal control material weaknesses that could lead to future accounting problems. In addition, we found a statistically significant relation between the presence of an adverse internal control opinion issued by the external auditor (AEAICFR) and the following variables: presence of restated/fraudulent financial statements caused by internal control material weakness, with a positive correlation (PICMW), the presence of a Big4 auditor during all analyzed years, with a negative correlation (BIG4) and greater auditor effort, with a positive correlation (AUDIT FEES). Finally, our results also indicate that there is no difference between the internal controls over financial reporting (ICFR) opinions disclosed by the external auditors from those disclosed by companies' managers (correlation between these variables are equal to 1, indicating a perfect correlation). Such finding drives us to conclude that auditors and companies' management agree which Internal Control over Financial Reporting (ICFR) opinion should be disclosed to public and release the exact same opinion, in order to avoid public disputes and image damages for these two parties.

This study is structured as follows. Chapter one presents our literature review on the Sarbanes-Oxley Act Section 404, financial statements fraud and restatements, internal control material weaknesses and external auditors' responsibilities towards detecting and disclosing internal control

material weaknesses. Then, we provide the theoretical argument and development of our two hypotheses in Chapter two. Further, we explain our sample selection process and research design in Chapter three. Data analysis, results and discussions are presented in Chapter four and, finally, we conclude our study in Chapter five.

# CHAPTER I

## LITERATURE REVIEW AND HYPOTHESES

### DEVELOPMENT

#### 1.1 Introduction

Section 404 of the SOX Act became effective November 15, 2004, requiring that both management and auditors provide an annual assessment of the effectiveness of the existing internal controls over financial reporting (ICFR) of public listed companies in the United States. Such section is applicable for companies classified by the Securities and Exchange Commission (SEC) as either an “Accelerated filers”<sup>1</sup> or “Large Accelerated Filers”<sup>2</sup>. Such requirement is an attempt of the US government to restore public trust in the American capital markets after several high-profile intentional manipulation of financial statements, which lead to accounting scandals and financial statement frauds. The act determines that in case of the detection of any internal control material weakness<sup>3</sup> in the business

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<sup>1</sup>A company classified by the Securities and Exchange Commission (SEC) as an accelerated filer must meet all of the following conditions as of the end of its fiscal year: 1- The company had an aggregate worldwide market value of the voting and non-voting common equity held by its non-affiliates of \$75 million or more, but less than \$700 million, as of the last business day of its most recently completed second fiscal quarter; 2- The company was subject to the reporting requirements of Section 13(a) or 15(d) of the Exchange Act for at least 12 calendar months; 3- The company previously filed at least one annual report to stockholders under Section 13(a) or 15(d) of the Exchange Act. (SEC, 2019)

<sup>2</sup>A company classified by the Securities and Exchange Commission (SEC) as a large accelerated filer must meet all of the following conditions as of the end of its fiscal year: 1- The aggregate worldwide market value of the voting and non-voting common equity held by non-affiliates (or public float) was \$700 million or more as of the last business day of its most recently completed second fiscal quarter; 2- The company has been subject to the reporting requirements of Section 13(a) or 15(d) of the Exchange Act for at least 12 calendar months; 3- The company has previously filed at least one annual report under Section 13(a) or 15(d) of the Exchange Act. (SEC, 2019)

<sup>3</sup> Material weaknesses are the most severe category of ICFR deficiencies, based on the likelihood and materiality of associated misstatements. The less severe categories are termed

environment, it should be properly reported to public as a manner to provide advance warning to market participants that there is a possibility of material misstatements or fraud over the firm's financial reporting.

*"The reporting of material weaknesses is intended to provide advance warning to market participants that the possibility of material misstatements remaining undetected is more than remote." Rice and Weber, 2012.*

Throughout this chapter, we will discuss five main topics which the referred literature supports our research objective of assessing the effectiveness of external auditors' opinions presented on Internal Controls over Financial Reporting (ICFR) reports. The first topic will discuss the Sarbanes-Oxley Act Section 404 and its implications, the second topic will discourse about financial statement fraud and restatements, the third topic will approach if internal control material weaknesses is a warning sign for fraud, the fourth topic will discuss about the disclosures of internal control material weaknesses performed by companies and, finally, the fifth topic will approach factors that may affect external auditors' opinions disclosed on SOX 404 reports.

## 1.2 The Sarbanes-Oxley Act Section 404

### 1.2.1 Costs of SOX 404 implementation and perceived public opinion

As one of the most controversial sections of the Sarbanes-Oxley Act, the effectiveness of the demands stated on section 404 of the Act in identifying and disclosing control weaknesses has remained limited. Coates and Srinivasan (2014) indicate that SOX required companies to pay audit firms for what were initially costly, time-consuming, and what many understood as unjustified reviews of companies' policies, procedures and technologies for preventing theft and fraud. Indeed, the then-new demands imposed upon US

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"control deficiencies" and "significant deficiencies". PCAOB's auditing standards (AS5) defines a material weakness as "a significant deficiency, or combination of significant deficiencies, that results in a reasonably possible likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected".

public listed companies translated to new significant direct costs. As an attempt to avoid the decrease of the numbers of companies going public in the US market because of the Act, Coates and Srinivasan (2014) explain that the Securities and Exchange Commission (SEC) deferred implementation of section 404 for companies with market capitalizations of less than \$75 million, and extended that deferral several times, until 2010, when Congress made it permanent in the Dodd-Frank Act. Also, in 2006, SEC adopted a rule permitting firms to defer implementation of section 404 for up to two years after going public, which it was extended to up to five years in 2012 for all companies with market capitalizations under \$700 million and revenues and non-convertible debt under \$1 billion.

If implementing the new demands made by Section 404 of the SOX Act appeared to be significantly costly, previous literature tries to observe how market participants viewed these new impositions. The former chairman of the New York Stock Exchange (NYSE), Thomas Farley, commented that section 404 (b) deserved much of the responsibility for the decreasing number of public corporations in the United States. He lamented that this provision imposes a "significant cost" on businesses, however it "does not make it clear that we have reduced fraud and (did) not greatly inspired confidence." Per contra, a survey conducted by the Journal of Finance by Brau and Fawcett (2006) with 336 Chief Financial Officers (CFO) of companies interested in going public indicated that SOX section 404 requirements were not a "significant concern" for such officers. Additionally, a survey conducted by the Financial Executive Research Foundation FERF (2005) found that 83% of large company CFOs believed that SOX had increased investor confidence, and 33% agreed it had reduced fraud. More broadly, Coates and Srinivasan (2014) indicate that contrary to vehement criticism of SOX in some media reports and analyses by political entrepreneurs, the reception of the Act among the constituencies most affected by it are more receptive than expected. Statement which is reinforced by the Government Accountability Office GAO (2013) survey indicating that 80% of all companies viewed



auditor attestation under section 404(b) as benefiting the quality of the company's controls, 53% viewed the requirement as allied to their company's financial reporting, 46% viewed their ability to prevent and detect fraud increase because of section 404(b), and 52% reported greater confidence in the financial reports disclosed by companies that need to comply with the Sarbanes-Oxley Act.

Coates and Srinivasan (2014) also indicate some other reasons why the public is likely to exaggerate SOX's actual long-term direct costs. First, they fail to recognize that audit fees were rising prior to SOX, and would likely have continued to increase as a result of the financial failures that led to the creation of the Act. Thus, the researches indicate that some costs attributed to section 404 would have been incurred even without SOX. Second, the public fails to acknowledge that firms were already required prior to the Act to have effective internal control systems, but many did not, so some costs attributed to SOX should instead be attributed to firms "catching up" on their legal obligations.

#### 1.2.2 Impacts of SOX 404 requirements on financial reporting quality

A number of studies provide evidence that financial reporting quality has improved for US listed firms in the post-SOX period. Arping and Sautner (2013) find a reduction in analyst forecast error for European firms listed in the US and that are subject to SOX regulations in comparison to foreign companies not cross-listed in the American market. Also, Chhaochharia and Grinstein (2007) indicate that firms that just met earnings benchmarks used less accrual and more real earnings management post-SOX when compared to before SOX period. Likewise, Iliev (2010) found that section 404 filers above the \$75 million exemption from section 404 had significantly lower accruals and discretionary accruals in 2004 compared to firms just below the threshold due to a more conservative reporting. Coates and Srinivasan (2014) indicate, however, that such accounting quality benefits may not have been caused by

SOX itself but from the arisen market discipline following a period where internal controls were widely seen to have collapsed.

### 1.2.3 Impacts of SOX 404 requirements on external auditors' opinion

Another set of studies focus on how SOX requirements impacted the quality of work performed by external auditors. After the implementation of the SOX Act, a number of small audit firms exited the market for public company audits, which led to an increase in quality of the disclosed external auditors' opinions (Defond and Lennox, 2011). These researchers indicate that the non-exiting auditors perform better quality audits than the exiting ones and that the creation of the Public Company Accounting Oversight Board (PCAOB) has increased the pressure for low quality auditors to exit the market due to its strict inspections. Additionally, Dyck *et al.* (2007) find that auditors greatly increased their effectiveness in detecting and reporting fraud in public companies after SOX.

### 1.2.4 Sarbanes Oxley Act and the disclosure of internal controls material weaknesses

Rice and Weber (2012) found that management and auditors may not always be forthcoming with the disclosure of internal control material weaknesses. The researchers used a sample of firms that restated previously issued financial statements to correct misstatements in the original reports and found that only a minority of these firms acknowledge the existence of control weaknesses during their misstatement periods, and that this proportion has declined over time. More specifically, Rice and Weber (2012) results indicate that only 32.4 percent of the studied firms report the existence of a material weakness during the misstatement period, as opposed to reporting it after the need for a restatement has been announced. Moreover, this proportion is decreasing over time, reaching a low of 13.6 percent in the year of 2009 (the most recent of the five years of the researcher's sample). These results may support some criticisms that the reporting of internal control weaknesses has

sometimes been ineffective in practice (Turner, L. and Weirich, 2006), and that interpreting the recent decline in reported material weaknesses as evidence of improvements in underlying internal control practices is likely premature (Whitehouse, 2010). Another consideration is that not all internal control weaknesses are disclosed. Some weaknesses are remediated prior to the end of the reporting period and, thus, they no longer need to be disclosed.

*“The incentive to remediate may be particularly high for managers committing fraud, so as not to draw attention to the firm’s accounting system.” Donelson et al., 2017*

### 1.2.5 Impacts of disclosing internal controls material weaknesses

If section 404 of the SOX Act is perceived as one of the main factors that caused the raise of costs to companies go and remain public in the United States, another relevant factor to be considered is how the market responds to SOX 404 reports disclosed with adverse internal control opinions. Ashbaugh - Skaife *et al.* (2009) find a 93 basis point increase in cost of equity when a first disclosure of an internal control material weakness is reported. Additionally, Kim, J.-B. *et al.* (2011) found that investors react negatively to the disclosure of internal control weakness reports increasing also the cost of debt. Further, Cheng *et al.* (2013) indicate that firms that remediate their control environment weaknesses benefit by a 151-point decrease in cost of equity and firms also improve their investment efficiency after remediation of internal control weaknesses. Other consequences for disclosing an internal control material weakness is negative stock market returns (Beneish *et al.*, 2008; Hammersley *et al.*, 2008), accruals that do not map well into cash flows (Doyle *et al.*, 2007), more restatements and SEC enforcement actions (Ashbaugh-Skaife *et al.*, 2007) and less precise management forecasts (Feng *et al.*, 2009).

The perceptions of the public regarding the demands imposed by the Sarbanes-Oxley Act, the impacts of these demands on the quality of work performed by auditors and on financial reporting as a whole have implications

for the overall effectiveness of SOX 404 to achieve its objectives. After all, the Act was primarily created to greatly inspire confidence on the financial reports disclosed by US public listed companies. Below we discuss literature related to the occurrence of financial statement fraud and misstatements, as well as further examine if opinions given by auditors regarding the control environment of companies could present a warning sign to investors regarding future revelation of accounting problems.

### 1.3 Financial Statement fraud and restatements

Since Section 404 of the SOX Act was enacted to help restore public trust in the United States capital markets after several high-profile accounting scandals, the following lines of literature are dedicated to research possible incentives, triggers and barriers that companies encounter when committing financial statement fraud.

#### 1.3.1 Financial statement fraud trigger, incentives and barriers

Accordingly to Hogan *et al.* (2008), the wave of financial scandals during the 21st century elevated the awareness of fraud and the auditors' responsibilities for detecting it. These researchers also noticed that the frequency of financial statement fraud has not seemed to decline since the passage of the Sarbanes-Oxley Act in 2002. A study conducted by PricewaterhouseCoopers (2005) concludes that in the post-Sarbanes-Oxley era there was an increase by 140 percent in the discovered number of financial misrepresentation. PwC links the increased number in fraud discoveries due to an increase in the amount of fraud being committed or due to the presence of more stringent controls and risk management systems being implemented.

Hogan *et al.* (2008) conducted a study summarizing relevant academic research about the characteristics of firms committing financial statement fraud. They observe the existence of a significant amount of literature that lists the following factors as probable triggers for companies to commit financial statement fraud:

- Pressures to meet analysts' forecasts;
- The existence of unreasonable growth goals;
- Compensation incentives;
- The need for financing, and;
- Poor company's performance.

On the other hand, Hogan *et al.* (2008) summarized literature that lists the following factors as key roles in reducing the opportunity to commit fraud:

- Effective corporate governance, including independent members in the board of directors, audit committee and the presence of strong internal controls, and;
- The presence of a quality public accounting firm performing the financial statements audit.

Ultimately, Hogan *et al.* (2008) concluded that financial statement fraud is often committed on revenue recognition, on the presence of discretionary accruals and on transactions with related parties.

On a more detailed analysis, Dechow *et al.* (1996) find that an important motivation to manipulate earnings is the desire to attract external financing at a low cost. It is important to mention that earnings manipulation is not necessarily linked to frauds. Dechow *et al.* (1996) mention that the term "manipulate earning" can be related to reporting practices that are either within or outside the bounds of Generally Accepted Accounting Principles and they exemplify "...*earnings manipulation outside of GAAP entails potential legal costs that can be avoided through earnings manipulation within GAAP*". Additionally, Efendi *et al.* (2007) find that financial misstatements are more likely for firms constrained by debt covenants, firms raising equity capital or firms that have Chief Executive Officers (CEO) as chairman of the board. Efendi *et al.* (2007) also concluded that the likelihood of a misstated financial statement increases when the CEO has a sizable amount of stock options "in-the-money", that is the CEOs can sell stock

above its current market price during the manipulation period (Efendi *et al.*, 2007). When it comes to reducing the opportunity to commit fraud, Albrecht and Albrecht (2003) note that having an effective control structure is probably the single most important step to eliminate opportunity to commit fraud.

Auditing Standards No 99 (AU Section 316) lists the following factors as important elements that increase the opportunity to commit financial statement fraud:

- Industry in which the firm is included (e.g. banking and financial services industry, manufacturing industry, educational, retail sector, etc);
- Entities with complex related parties' transactions;
- Ineffective monitoring of management;
- Complex organizational structure such as those that involve several legal entities, and;
- Lack of effective internal controls.

David (2005) finds that effective independent corporate governance mechanisms is also a relevant factor that reduces the opportunity to commit fraud. The researcher results indicate that fraud firms have fewer independent board members, fewer audit committee meetings, fewer financial experts on the audit committee, a smaller percentage of Big 4 auditing firms, and a higher percentage of CEOs who are also chairman of the board.

### 1.3.2 Restatements versus Fraud

Alali and Wang (2017) presented a survey with the revealed yearly distribution of corporate financial restatements and frauds in the United States during the years of 2000-2014. This survey used the Audit Analytics database, which scans corporate filings and press releases to identify restatements and frauds. In order to differentiate fraud from restatements, Audit Analytics defines corporate financial restatements as "errors due to unintentional misapplication of U.S. Generally Accepted Accounting Principles" and

corporate financial frauds as “intentional manipulation of financial data or misappropriation of assets”. The survey found that the number of discovered financial restatements begins in 2000 at 4% of total public reporting companies, peaks in 2006 at 17% of total reporting companies, then decreases to approximately 8% of total reporting companies per year after 2007. Alali and Wang (2017) commented that these statistics appear to support that the passage of the Sarbanes-Oxley Act in 2002 and the implementation of SOX section 404 led to increased restatements. Another important fact to notice is that the number of discovered financial frauds is considerably lower than that of financial restatements during the analyzed period.

Table 1.1- Frequency of Financial Statement Restatements versus Frauds

Year	Restatement Percentage	Fraud Percentage	Restatement and Fraud Percentage	Total Reporting Companies
2000	4%	0.10%	0.01%	12,210
2001	5%	0.10%	0.02%	11,682
2002	6%	0.20%	0.04%	11,340
2003	7%	0.10%	0.04%	11,118
2004	8%	0.10%	0.09%	10,820
2005	15%	0.10%	0.17%	10,798
2006	17%	0.10%	0.07%	10,626
2007	12%	0.10%	0.05%	10,601
2008	9%	0.10%	0.03%	10,411
2009	7%	0.10%	0.01%	10,318
2010	8%	0.00%	0.02%	10,362
2011	8%	0.10%	0.02%	10,559
2012	8%	0.10%	0.02%	10,646
2013	8%	0.00%	0.02%	10,454
2014	9%	0.10%	0.02%	9,873
<b>Total</b>	<b>9%</b>	<b>0.10%</b>	<b>0.04%</b>	<b>161,818</b>

Source: Exhibit 1 - Characteristics of Financial Restatements and Frauds: An Analysis of Corporate Reporting Quality from 2000–2014; The CPA Journal; 2017

Since the herein mentioned literature suggests that both fraud and restatements may be caused due to a lack of effective internal controls, we use a sample of financial statements restating firms or companies with fraudulent

financial statements to verify the auditors' disclosed opinions during the misrepresentation period or its prior year.

#### 1.4 Internal control material weaknesses: A warning sign for fraud and restatements

##### 1.4.1 The relation between internal controls material weakness and fraud/restatements

It exists an extensive debate on whether control strength significantly affects fraud risk. The Securities and Exchange Commission (SEC) former Commissioner Goldschmid stated that strong controls could significantly deter management from committing fraud (Solomon, 2003). However, management is also able to override controls, fact which could jeopardize all the costly efforts made by companies to comply with the SOX Act section 404. "Controls cannot be relied upon to prevent, detect, or deter fraudulent financial reporting perpetrated by senior management" - AICPA (2005). In addition, auditors respond to weak controls by increasing substantive procedures, which also increases the likelihood that auditors detect fraud and mitigate the risk of managers committing fraud (Smith *et al.*, 2000).

Donelson *et al.* (2017) conducted a study with focus on whether disclosed material weaknesses indicate that management could be engaging in unrevealed accounting fraud or will engage in accounting fraud in the future. They found a statistically significant positive association between material weaknesses and the future revelation of fraud. Accordingly to the researchers, firm-years with a material weakness are, on average, 1.24 percentage points more likely to have a future fraud revelation. They attribute this relation to weak controls giving managers a greater opportunity to commit fraud. Donelson *et al.* (2017) indicate that this relation could also be explained by a management characteristic that does not emphasize quality and integrity over financial reporting. In addition, Donelson *et al.* (2017) results point out that the link between material weaknesses and unrevealed fraud is entirely driven by entity-level material weaknesses - not through specific accounts linked to



control weaknesses. The researchers contributed to the literature providing evidence that those control opinions that do cite material weaknesses provide a meaningful signal of an increased fraud risk.

There are several other factors that could also explain the existence of a positive relation between internal controls material weaknesses and the future revelation of fraud. On this matter, Donelson *et al.* (2017) explore the “specific opportunity explanation”. That is the possibility that internal control weaknesses could provide managers with an opportunity to commit fraud in a specific account, since poor control over specific areas would allow the performance of fraud. Another possible explanation explored by Donelson *et al.* (2017) relies upon a “general opportunity to commit fraud”. Companies with weak entity-level controls would not enable fraud in a particular account, but would allow for fraud commission in any account. A third explanation provided by the researchers is the possibility that internal control weaknesses reflect the cultural characteristics of the firm and its management. A lack of interest in having effective internal controls is due to a propensity for poor financial reporting integrity and a firm culture tolerant of fraud and other misconduct.

Additionally, Donelson *et al.* (2017) mention a potential alternative explanation for the relation between internal controls material weaknesses and the future revelation of fraud. This explanation is related to the idea that material weaknesses do not lead to higher underlying fraud risk, but instead, their disclosure leads to greater discovery and prosecution of fraud. This could occur because the disclosure of an internal control material weakness provides evidence that lawyers or regulators can use to build cases; leads to investigation by other parties increasing the possibilities of fraud being uncovered; or causes auditors to conduct more substantive procedures, leading to more fraud discovery.

Finally, the idea that misstatements are indicative of internal control problems has longstanding support in academic literature. Kinney Jr and McDaniel (1989) argue that the need to correct a misstatement implies a

violation of a firm's internal control system. In addition, the Public Company Accounting Oversight Board (PCAOB) standards for auditing Internal Controls over Financial Reporting (ICFR) explicitly identify restatements as a "strong indicator that a material weakness in internal control over financial reporting exists". Auditing Standard No. 2 (paragraph 140) PCAOB (2004) states that restating previously issued financial statements to reflect the correction of a misstatement is a strong indicator that a material weakness in internal control exists. Also, an adverse Section 404 opinion with a recent accounting restatement suggests that internal control problems were severe enough to have already caused accounting misstatements (Hermanson *et al.*, 2009).

#### 1.4.2 Auditor's assessment of fraud risk

Hogan *et al.* (2008) indicate that despite existing auditing standards and guidance on auditor's responsibility for discovering and reporting financial statement fraud, there remains an expectation gap between what investors believe that are auditors' responsibility in terms of detecting fraud and what auditors are willing to assume as their responsibility. Current professional standards require auditors to provide "reasonable assurance" that financial statements are free from material misstatements due to fraud or error, however it has not yet been clearly defined and widely accepted what "reasonable assurance" means. Hogan *et al.* (2008) indicate that the lack of a commonly accepted definition of reasonable assurance in conjunction with limitations of audit methods in identifying fraud have widened the expectation gap regarding auditor responsibility for detecting financial statement fraud. Hogan *et al.* (2008) results indicate that several factors that affect the quality of audits, or their assertiveness, have been found to be associated with the likelihood of client firms reporting fraudulent financial information. Specifically these factors are: audit firm size, the level of auditor industry specialization, the length of auditor tenure and the experience of the auditor.

However, characteristics such as time budget pressure and accountability to superiors can also impact auditor's ability to assess fraud.

Additionally, Auditing Standard No. 5 PCAOB (2007) instructs auditors to carefully consider the risk of management override of controls, since they suggest a link between entity-level controls and fraud: "The auditor should evaluate whether the company's controls sufficiently address identified risks of material misstatement due to fraud and controls intended to address the risk of management override of controls.". However, Donelson *et al.* (2017) studies indicate that the issuance of a material weakness by an auditor specifically for the risk of management override of controls is rare. The researchers found no material weakness opinion for firms with future fraud revelation mentioning such risk as a reason for the weakness. Therefore, we do not expect to encounter this specific category of material weakness issued on auditors SOX 404 reports.

### 1.5 Internal control material weaknesses disclosures

#### 1.5.1 General determinants for internal control material weaknesses disclosures

Several factors may influence a firm's disclosure of internal controls material weaknesses. Rice and Weber (2012) found that companies in need of raising external capital are less likely to report existing weaknesses, suggesting the existence of capital market-based incentives to avoid disclosure. These researchers also found that clients of Big 4 auditors (Deloitte, Ernst&Young, KPMG and PricewaterhouseCoopers) are less likely to report internal control weaknesses, fact which could be explained to larger audit firms being able to "audit around" control weaknesses. Ge and McVay (2005) give an alternative explanation regarding these firms being less likely to report weaknesses. Large audit firms tend to have larger clients than smaller audit firms, and thus, to the extent that material weaknesses are also associated with company size, large audit firms might encounter fewer internal control problems. In addition, larger audit firms are expected to have

higher exposure to legal liability than other audit firms. Therefore, if such firms historically promoted stronger internal control standards for their clients, we would most likely see fewer weaknesses disclosed in SOX 404 reports.

On the other hand, Rice and Weber (2012) found that firms with accounting losses, prior restatements, and control weaknesses previously reported are more likely to be forthcoming with their weaknesses. These results are consistent with additional diligence being placed on firms in poor financial health or with a history of accounting and control problems. Hermanson *et al.* (2009) indicate that firms with recent auditor or managerial changes are more likely to report their weaknesses. These new parties have incentives to avoid sharing the blame for the existence of control issues and, therefore, they are more likely to push for disclosure when the underlying control problems can be attributed to a previous auditor or manager. Rice and Weber (2012) found that larger audit fees are associated with a greater likelihood of reporting existing weaknesses, since greater auditor effort is positively associated with the likelihood of detection. In contrast, non-audit fees paid to the external auditor are negatively associated with the likelihood that existing weaknesses are disclosed, which Rice and Weber (2012) suggest that it could be arisen from a decrease on external auditor independency and objectivity.

#### 1.5.2 External auditors' determinants for internal control material weaknesses disclosures

SOX 404 reports are subject to the scrutiny of independent auditors, which should increase the probability of existing weaknesses being detected and disclosed. Since a firm's management have various incentives when deciding whether to disclose or not an internal control material weaknesses, we focus this study on the effectiveness of the opinions issued by the external auditors on SOX 404 reports. Also, we focus on this specific group because audit firms are subject to PCAOB's inspections and therefore they have external pressures to be forthcoming with reporting existing weaknesses.

Because of such considerations, Rice and Weber (2012) indicate in their studies that the external auditor could play a relevant role in reporting internal control weaknesses. In particular, the researchers considered that higher quality audits should increase the likelihood that existing weaknesses are detected. Moreover, Rice and Weber (2012) highlight that greater audit effort increases the probability that existing control weaknesses are detected and could also reflect an increase in substantive testing necessitated by the lack of effective controls.

Despite the aspects that increase the likelihood of external auditors reporting existing material weaknesses, a PCAOB inspection of internal controls over financial reporting (ICFR) audits conducted in the first-year of the implementation of Auditing Standard No. 5 noted several instances of auditors ignoring risk levels when selecting controls to be tested, failing to test system-generated data on which controls were dependent on, and not gathering sufficient evidence to conclude whether controls were operating effectively (PCAOB, 2009). Another consideration that could influence external auditors when it comes to reporting existing weaknesses is explored by Hermanson *et al.* (2009). The researchers examine the link between adverse SOX 404 opinions and shareholder dissatisfaction towards auditors and the results indicate that shareholders are less likely to continue with the same audit firm following an adverse SOX 404 opinion. These results suggest that shareholders view auditors as partly responsible for the existence of control problems. More generally, Ettredge *et al.* (2011) find that auditors are more likely to be dismissed after issuing an adverse SOX 404 opinion. Therefore, auditors could have incentives not to force the disclosure of existing weaknesses.

### 1.5.3 Conclusion and development of first hypothesis

Given the previously mentioned literature review, summarized below, there is a reason to consider that auditors are likely to have issued favorable

internal control opinions for companies with internal control material weaknesses.

1. Donelson *et al.* (2017) found a statistically significant positive association between material weaknesses and the future revelation of fraud.
2. Rice and Weber (2012) results indicate that only 32.4 percent of the studied firms report the existence of a material weakness during the misstatement period. That is, 67.6 percent of the sampled firms only report the existence of internal control material weaknesses after the need for a restatement has already been announced.
3. A PCAOB inspection of Internal Controls over Financial Reporting (ICFR) audits conducted on 2009 noted several instances of auditors ignoring risk levels when selecting controls to be tested, failing to test system-generated data on which controls were dependent on, and not gathering sufficient evidence to conclude whether controls were operating effectively.

Based on prior literature, we develop the following hypothesis:

H<sub>1</sub>: External auditors are likely to have issued favorable internal control opinion for companies with internal control material weaknesses.

The term “external auditors” stand for the auditors engaged to give an opinion on behalf of the companies’ public accounting firm. Whereas, “favorable internal control opinion” stands for the opinion that was issued by the external auditors on the ICFR reports indicating that the company maintained, in all material respects, effective internal controls over financial reporting. Finally, the term “companies with internal control material weaknesses” stands for companies that have either infringed Generally Accepted Accounting Principles (GAAP) and that have then been fined by

regulating entities, such as the Securities and Exchange Commission (SEC), and/or for firms that have restated previously issued financial statements.

We focus our hypothesis strictly on the opinions issued by the external auditor because we expect this group to be more impartial and objective towards material weaknesses disclosures than firm's management. In addition, we have a particular interest in this group's opinions in order to assess if the significant increase on audit fees demanded by section 404 of the Sarbanes-Oxley Act are justifiable by auditors providing an effective opinion whether certain companies might be engaging in accounting fraud.

## 1.6 Factors that may affect external auditors' SOX 404 opinions

### 1.6.1 Shareholders' influences on external auditor

Several factors may influence an auditor when it comes to disclosing a material weakness, which can put these professionals in a delicate decision process whether to divulgate or not the existing weaknesses. Among these factors, shareholder satisfaction can play an important role on auditor's decision, since previous studies indicate that existing shareholders may prefer less conservative auditors (Hermanson *et al.*, 2009). A study conducted by Hermanson *et al.* (2009) aimed to examine how shareholder dissatisfaction with auditors varies depending on the type of weaknesses disclosed by the independent parties. For a nonrestatement sample of firms, the researchers found that shareholders are less likely to vote for auditor ratification if the company received an adverse Section 404 internal control opinion because of noncompany-level material weaknesses. In such cases, the study indicates that shareholders may view the auditor as being too conservative when no company-level material weaknesses are cited and no recent accounting restatements have been issued. On the other hand, for a restatement sample of firms, shareholders are less likely to vote for auditor ratification if the company received an adverse Section 404 opinion with or without company-level material weaknesses cited. Hermanson *et al.* (2009) also found that in companies with recent accounting restatements, shareholders may blame the

auditors for being partly responsible for the existence of the material weaknesses.

In the first years of implementation of SOX 404 (b) section, auditors were being criticized due to their conservativeness when applying audit procedures to test internal controls over financial reporting (Reason, 2006). "Public company executives complained vigorously about rigid and overreaching audits" - Reason (2006) and PCAOB pressured internal control auditors to be more efficient.

Hermanson *et al.* (2009) find that investors view an adverse opinion on internal control as an indication that the auditors either did not point out the internal control problems in a timely manner or did not persuade or help the client to remedy the problems. Consistent with this perception, Turner (2005) "When material weaknesses at companies such as WorldCom and Enron were exposed, investors rightly asked, 'Where were the auditors?'".

Hermanson *et al.* (2009) studies also found that shareholders may view the auditor as being too conservative when only noncompany-level material weaknesses are cited, because the auditor has issued an adverse internal control opinion for a less pervasive weakness, and no error has resulted from that weakness. Accordingly to Hermanson *et al.* (2009), for companies without recent accounting restatements, shareholders do not react negatively to company-level material weaknesses, because they might believe that the auditor has identified important problems that should be addressed to prevent future accounting problems. These researchers' studies indicate that, in summary, shareholders blame the auditors if they are too conservative and identify "non-relevant" internal control problems for nonrestating companies and also blame the auditors for not helping to identify and correct important control weaknesses for restating companies. This may be especially true when auditors are criticized as being too conservative and inefficient in implementing Section 404 (Hermanson *et al.*, 2009). Therefore, auditors have a thin line between performing a quality work and disclosing to public all relevant internal control weaknesses found on the course of their work and not



being perceived as “too conservative” by the shareholders, which could cause them to frequently lose auditing contracts.

#### 1.6.1.1 Potential consequences of external auditors’ failure to report existing control weaknesses

Understanding the consequences of SOX 404 reporting failures is also important because it bears on auditors’ incentives to detect and disclose internal control weaknesses. Consistent with such concern, the PCAOB (2012) found that 22 percent of the internal control audits reviewed for 2011 were deficient, as were 15 percent for 2010.

Rice *et al.* (2015) compare the consequences for firms that reported the existence of control weaknesses in a timely manner with those that did not. They found no evidence that penalties following a restatement are more likely for firms that fail to detect and disclose their control weaknesses as required. Instead, the researchers’ results indicate that firms that do report their control weaknesses in a timely manner are usually more likely to face penalties in the event of a later restatement, because management and auditors’ have a difficulty claiming that they were unaware of the control conditions that led to a restatement. Rice *et al.* (2015) conclude that the enforcement mechanisms surrounding SOX 404 are unlikely to provide strong incentives to detect and disclose existing control weaknesses. They suggest that the enforcement may even create perverse incentives to avoid reporting control weaknesses until their revelation is forced by a restatement and conclude that these results could help explain why the majority of restatements occur at firms that previously claimed to have effective internal controls.

First, Rice *et al.* (2015) argue that penalties surrounding restatements are likely to be more severe for firms that previously claimed that their controls were effective. However, they also mention reasons to instead expect that compliance with SOX 404 through the timely report of ineffective controls might actually increase the likelihood of penalties in the event of a later restatement. Reporting weaknesses brings attention of regulators and class action law firms as potential targets of investigations and litigation. Rice *et al.*

(2015) found that the likelihood of receiving an Accounting and Auditing Enforcement Releases (AAER) following a restatement is similar regardless of whether firms had reported their control weaknesses or instead claimed that their controls were effective prior to the restatement. The researchers attribute this result for the possibility that reported control weaknesses aid the SEC in identifying cases where potential enforcement actions are likely to succeed and make it difficult for management to claim that they were unaware of the problems that led to the restatement. Rice *et al.* (2015) also found that class action lawsuits are 5 to 10 percent more likely when firms report internal control weaknesses prior to restatements.

When it comes to auditor's resignation after the detection and disclosure of internal control material weaknesses, Rice *et al.* (2015) results indicate that auditor turnover is 6 to 9 percent more likely at firms that report control weaknesses prior to their restatements. However, this result appears to be driven by auditors opting to resign from riskier companies. The researchers indicate that auditors might view such clients as higher risk because, despite being aware of the existing control weaknesses, the auditors remained unable to prevent material misstatements from appearing in these clients' financial statements.

Under the SEC's implemented regulations, management is not permitted to conclude that the registrant's internal control over financial reporting is effective if there are one or more material weaknesses (17 C.F.R. §229.308(a)(3)). Thus, Rice *et al.* (2015) indicate that a violation of SOX 404 occurs when ineffective controls are claimed to be effective.

Finally, Rice *et al.* (2015) indicate that it is not clear whether more aggressive enforcement against intentional (versus unintentional) SOX 404 misreporting would be effective. The researchers support this idea indicating that if ignorance is a valid defense argument, then managers and auditors have decreased incentives to detect control deficiencies. Rice *et al.* (2015) also state that internal control certifications under SOX 404 are subject to the same general regulations as financial statements. Therefore, if Section 10(b) of the

Exchange Act (15 U.S.C. §78j) and related SEC Rule 10b-5 (17 C.F.R. §240.10b-5) prohibit registrants from making untrue or misleading statements about material facts, certifying that controls are effective, when they are later revealed to be ineffective, could be classified as a 10b-5 SEC rule violation.

#### 1.6.2 Management versus external auditor detection and disclosure of internal control material weaknesses

Although auditors may suffer from various pressures when deciding whether to disclose internal control material weaknesses, they still appear to disclose more accurate opinions than those provided by companies' management. Bedard and Graham (2011) conducted a study that aimed to analyze the extent of client versus auditor detection of internal controls deficiencies. The researchers found that auditors detect almost three-fourths of the existing internal control deficiencies. Their results also indicate that two-thirds of auditor-detected material weaknesses are signaled through control tests and concluded that without auditor control testing, many key flaws in ICFR could have been missed. A different study conducted by Kinney, J. W. R. and Shepardson (2011) indicate that material weaknesses are rarely disclosed to public unless misstatements are detected by auditors.

#### 1.6.3 Conclusion and development of the second hypothesis

Given the above mentioned literature review, there is a reason to consider that auditors, as independent third-parties, are more likely to disclose internal controls material weaknesses than companies' management, which leads to the following hypothesis:

H<sub>2</sub>: External auditors are more likely to have disclosed adverse internal control opinion than companies' management.

The term "external auditors" also stands for the auditors engaged to give an opinion on behalf of the companies' public accounting firm. Whereas, "adverse internal control opinion" stands for the opinion that was issued by

the external auditors on the ICFR reports indicating that the company did not maintained, in all material respects, effective internal controls over financial reporting (or maintained ineffective internal controls). Finally, the term “companies’ management” stands for the management of the publicly traded company in the US market that is also obliged by SOX Section 404(a) to issue an opinion regarding the effectiveness of their internal controls over financial reporting.

### 1.7 Conclusions

Taken as a whole, the above mentioned literature suggests that effective internal controls lead to quality financial reporting (Arping and Sautner, 2013; Chhaochharia and Grinstein, 2007; Iliev, 2010). Also, the enforcements imposed by the Sarbanes-Oxley Act resulted in smaller audit firms exiting the market for public companies audits and, therefore, increasing the quality of the disclosed external auditor’s opinion (Defond and Lennox, 2011). However, auditors still have incentives to be less conservative when performing their audits (Hermanson *et al.*, 2009) and the enforcement mechanisms surrounding SOX 404 are unlikely to provide strong incentives to detect and disclose existing control weaknesses, which could help explaining why the majority of restatements occur at firms that previously claimed to have effective internal controls (Rice *et al.*, 2015).

These findings have implications for the overall effectiveness of SOX 404 in providing investors with advance warning of potential accounting problems and financial statements fraud. We note, however, that while the studied sampling focus is on firms with financial statements that are later deemed to be unreliable (fraudulent or restated financial statements), this is precisely the group that internal control reporting provided by external auditors is intended to help investors identify. Thus, we believe this is an important population to study.

## CHAPTER II

### THEORETICAL ARGUMENT

#### 2.1. Introduction

The main objective of this research is to assess the effectiveness of external auditors' opinion disclosed on Internal Controls over Financial Reporting reports. In order to achieve such objective, two different theories are used below: the legitimacy theory and the self-determination theory. These theories support this research by addressing how auditors could accomplish their "social contract" with society, concepts further explained below, and motivations, behaviors and triggers that could help understanding the quality of work and disclosed information performed by auditors.

#### 2.2. The Legitimacy Theory

The legitimacy theory relies upon the concept of the existence of a "social contract" between the organizations and society. Deegan (2002) explains that society (as a collection of individuals) provides corporations with their legal authority to own and use natural resources and to hire employees. In this sense, Deegan (2002) further explores that organizations have no inherent rights to draw on community resources and output both goods and services and waste products to the general environment. The theory explains that society will only consider the activities performed by organizations as legitimate if the outputs derived from the organization's activities are perceived as beneficial and they exceed the costs to society. Deegan (2002) also mentions that an organization's survival will be threatened if society perceives that the organization has breached its social contract.

If society does not perceive the operations of a company as acceptable or legitimate, then it will effectively revoke the organization's "contract" to

continue its operations. Deegan (2002) cites as examples of the contract revocation consumers reducing or eliminating the demand for the products of certain business, factor suppliers eliminating the supply of labour and financial capital to the business, or constituents lobbying government for increased taxes, fines or laws to prohibit those actions which do not conform to the expectations of the community.

*“Organisations exist to the extent that the particular society considers that they are legitimate, and if this is the case, the society ‘confers’ upon the organisation the ‘state’ of legitimacy.” Deegan (2002)*

Dowling and Pfeffer (1975) mention that legitimacy is a vital resource for an organization’s survival. However, Woodward *et al.* (2001) indicate that it is a "resource" that the organization also can impact or manipulate. Deegan (2002) mentions that such manipulations may include targeted disclosures, or perhaps controlling or collaborating with other parties who in themselves are considered to be legitimate. In this sense, Deegan (2002) also explores that information is a major element that can be used by organizations to manage the stakeholder in order to gain their support and approval, or to distract their opposition and disapproval and, therefore, remain perceived as legitimate in the eyes of society.

The idea of a “social contract” that legitimizes the operations of a company is well explained by Shocker and Sethi (1973):

*“Any social institution - and business is no exception - operates in society via a social contract, expressed or implied, whereby its survival and growth are based on:*

- (1) the delivery of some socially desirable ends to society in general, and*
- (2) the distribution of economic, social, or political benefits to groups from which it derives its power.*

*In a dynamic society, neither the sources of institutional power nor the needs for its services are permanent. Therefore, an institution must constantly meet the twin tests of legitimacy and relevance by demonstrating that society*

*requires its services and that the groups benefiting from its rewards have society's approval."*

As explained by Lindblom (2010), legitimacy itself is a dynamic concept. If an organization starts losing its good perception of legitimacy, remedial strategies are predicted. Therefore, Deegan (2002) comments that since this theory is based on perceptions, any remedial strategies implemented by organizations, to have any effect on external parties, must be accompanied by disclosure. That is, the disclosure of information is necessary to change perceptions. Further on this matter, Cormier and Gordon (2001) explain that remedial action which is not publicized will not be effective in changing perceptions. The strategic importance (and power) of corporate disclosures, such as those made within annual reports and other publicly released documents are highlighted by these researchers.

In order to better illustrate the association between the legitimacy theory and the production of legitimacy provided by external auditors' through their disclosures, Power (2003) explores if financial auditing is always engaged in a process of self-reproduction. It is so, because, in order to generate trust in financial statements, the audit practice must first generate trust in itself. This researcher mentions that the production of legitimacy in the audit profession is an intimate part of a "technical" audit judgement process and that auditors produce assurance or increased confidence that the financial statements or other companies' information that have been audited are more reliable than they would be without an audit. Since society needs to perceive the audit profession as legitimate, Power (2003) explains that auditors use 'knowable' and 'auditable' techniques, such as statistical sampling, to legitimate its practice with an already legitimate academic technique. In addition, Lewis *et al.* (1992) regard the formal structure of the audit planning process as something that is not used other than to legitimate the authority of the auditor. Power (2003) also points out the importance of impression management when it comes to legitimatizing the audit profession. Auditors are known for working long hours with short breaks. The researcher explains that this

scenario may be needed to get the work done in some technical sense, however working long hours also plays an important role in social function, since it displays to clients and stakeholders the image of a hard working class of people.

Therefore, the legitimacy theory is applicable to this research in the sense that the continuity of audit firms depends upon the social responsibility that they have in providing to society accurate and reliable opinions, that is disclosing information free from errors to the public. Thus, the research objective of assessing the effectiveness of the external auditors' opinions disclosed to society is in line with this theory. Finally, auditors disclosing accurate opinions to public brings to society a perception that the firms' actions are appropriate in a socially constructed system of norms, values, beliefs and definitions. Hence, legitimacy for audit firms are achieved by the issuance of reliable opinions.

### 2.3. Self-Determination Theory

There are major determinants that may influence external auditors in the decision-making process whether to disclose existing internal control weaknesses. Factors such as different types of human motivation may result in a variety of decision outcomes. Below we explore the self-determination theory as an attempt to further understand the reasoning process of auditors when it comes to disclosing relevant information to public and elaborating their opinions.

Accordingly to Ackerman (2018), the self-determination theory links personality, human motivation, and optimal functioning. It is a theory that grew out of researchers Deci and Ryan's work on motivation in the 1970s and 1980s and that aim to explain the existence of two main types of motivation—intrinsic and extrinsic—and that both are powerful forces in shaping human's behavior. Deci and Ryan (2008) research indicate that extrinsic motivation is a drive to behave in certain ways based on external sources and external rewards. Such sources include grading systems, employee



evaluations, awards, as well as the respect and admiration of others. On the other hand, Deci and Ryan (2008) point that intrinsic motivation comes from within. There are internal drives that inspire humans to behave in certain ways, including their core values, their interests, and their personal sense of morality. Further analyzing these two types of motivation, the researchers explore the existence of a “controlled motivation”, linked to the extrinsic motivation, and an “autonomous motivation”, linked to the intrinsic motivation.

Accordingly to Deci and Ryan (2008), the controlled motivation is a type of motivation where an individual acts out of the desire for external rewards or fear of punishment searching to avoid shame, seeking approval, and/or protecting the ego. On this front of the theory, motivation is exclusively external and regulated by compliance, conformity, and external rewards and punishments. On the other hand, the researchers explain that autonomous motivation includes motivation that comes from internal sources, aiming to identify within an activity values that align with humans own sense of self.

Linking the motivations approach supported by the self-determination theory, a study conducted by Kadous and Zhou (2019) found that auditors with high intrinsic motivation tend to demonstrate behaviors necessary for high quality judgments in complex audit tasks. The researchers indicate that auditors whose intrinsic motivation for their job is salient, whether attributable to a stable trait or to an intervention, attend to a broader set of information, process information at a deeper level, and request more relevant additional evidence than do other auditors. Kadous and Zhou (2019) results indicate that making auditors’ intrinsic motivation for their job salient facilitates the critical analysis that is necessary for high performance on complex audit tasks. Additionally, Kadous and Zhou (2019) research supports the view that high quality cognitive processing can improve auditors’ professional skepticism by providing a foundation for skeptical judgments. In this context, the self-determination theory is applicable to support the idea that auditors with strong intrinsic motivation tend to provide better quality judgment than other auditors provide and, therefore, to present more accurate

opinions disclosed on their reports. In this sense, Gagné and Deci (2005) explain that when people are autonomously motivated at work they tend to experience their jobs as interesting or personally important and endorsed by relevant others. The researchers mention that when people perform effectively at these jobs, they experience satisfaction of the basic psychological needs and have positive attitudes toward their tasks. However, when they are controlled in their motivation to do boring tasks, effective performance is less likely to be achieved. Thus, Gagné and Deci (2005) suggest that intrinsic motivation (or autonomous motivation) will result in people doing their jobs well and experiencing a high level of job satisfaction. In contrast, the researchers explain that conditions that promote controlled motivation will result in less effective overall performance.

Applying the self-determination theory in the context of this study, we infer that both types of motivations could play an important role on the decision-making process of auditors disclosing relevant information to public as well as on the quality of work performed by auditors. Further exploring this theory, the “controlled motivation” may explain auditors’ choosing to disclose to public all material weaknesses that they encounter in the course of their work and complying with enforcement acts requested from them (e.g. PCAOB Auditing Standard 5) because of fear of punishment in the occurrence of errors. Since impression management is an important factor for auditors’ success (Power, 2003), protecting their reputation and avoiding shame caused by inaccurate opinions play an important role in the decision-making process of disclosing relevant information to public. As an example, the intention to avoid public disagreements and image damages could be a motivator for auditors and companies’ management to align their ICFR opinions before disclosing it to public in the context of this study. Whereas, the “autonomous motivation” explored by the theory is composed of elements such as the conservativeness level, moral values and work ethic of each individual. These self-related elements also directly impact how forthcoming each auditor tends to be when deciding whether to disclose relevant

information, or allowing his/her opinion to be biased by possible unethical factors.

#### 2.4. Fraud Triangle Theory

As discussed by Lou and Wang (2011), the risk of fraudulent financial reporting has led to new auditing standards and regulations targeting the need for investors, regulators and auditors to focus on preventing and detecting accounting fraud. The Sarbanes-Oxley Act, section 404, represents an expressive attempt of the US government to reduce the incidence of corporate fraud in the American capital market. Since Donelson *et al.* (2017) indicate the existence of a strong relation between internal control material weaknesses and the future revelation of fraud, it is also relevant for this study to explore theoretical bases that support the necessity of auditor to assess the control environment of public listed companies.

As indicated by Lou and Wang (2011), the fraud triangle theory became the core of many important auditing standards to assess the likelihood of fraudulent financial reporting. The fraud triangle theory was developed by Cressey (1953) and it aims to explain the reasoning behind an individual's decision to commit fraud. Cressey (1953) proposes that fraud is a "violation of a position of financial trust" and defines:

*"Trusted persons become trust violators when they conceive of themselves as having a financial problem that is non-sharable, are aware that this problem can be secretly resolved by violation of the position of financial trust, and are able to apply to their contacts in that situation verbalizations which enable them to adjust their conceptions of themselves as users of the entrusted funds or property. (In other words, they're able to rationalize their dishonest actions, and so they aren't — in their minds — inconsistent with their personal codes of conduct.)"* - Cressey (1953)

Such reasoning is broken down by Cressey (1953) into three categories, which combined would allow to explain a fraudulent behavior:

1. Pressure: It relates to a financial pressure (e.g. a person covered in debts or a CFO that needs to deliver financial statements that achieve the markets' expectations);
2. Opportunity: The means by which a person will defraud the organization, and;
3. Rationalization: Cognitive state in which the fraudster justify the crime in a way that is acceptable to his or her internal moral compass.

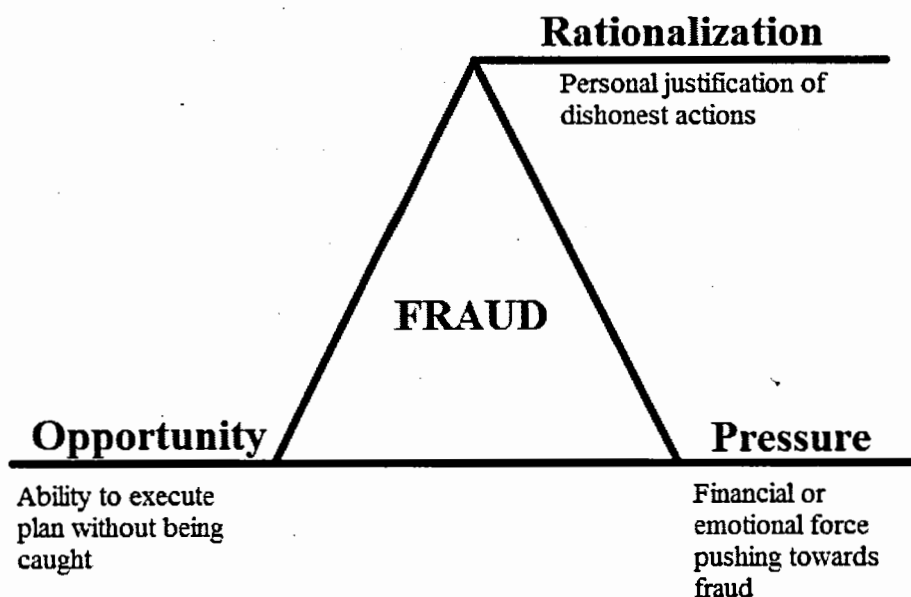


Figure 2.1- Fraud triangle<sup>4</sup>

In this sense, relevant fraud standards (SAS 99, ISA 240, and TSAS 43) accept the three elements presented on the fraud triangle theory as keys elements to be analyzed by auditors when assessing the likelihood of fraudulent financial reporting. Lou and Wang (2011) results indicate that a logistic model constructed from examples of fraud-risk factors is able to assess the likelihood of fraudulent financial reporting and can become a useful tool for auditors to assess the risk of fraud.

Applying the fraud-triangle theory in the context of this study, we infer that of all the three elements of the fraud triangle theory (rationalization, opportunity and pressure), section 404 of the Sarbanes-Oxley Act intends to

<sup>4</sup> Source: <https://www.brumellgroup.com/news/the-fraud-triangle-theory/>

directly reduce the “opportunity” one. Since companies were forced to publicly assess their control environment, as well as have it assessed by external auditors, firms became more aware of control breaches that could create an opportunity for employees to commit fraud. Therefore we include this theory in our literature review because it helps understanding that when auditors are effective in assessing the firms’ control environment, they help reducing the opportunity “window” of fraud performance, since the control breaches (opportunities) are closely monitored by independent third parties.

## 2.5. Conclusion

Throughout this chapter, three theories were presented to support the theoretical argument: the legitimacy theory, the self-determination theory and the fraud triangle theory. The first theory, legitimacy theory, supports the idea that public accounting firms opinions released to public can be a form of proving their legitimacy and therefore accomplishing their “social contract” with society. Whereas the second theory, the self-determination theory, supports understanding the motivations that can affect the decision-making process of an auditor when consolidating the opinions that will be disclosed to public, as well as the motivations that may affect the quality of work performed by auditors. Finally, the fraud triangle theory supports understanding that requirements performed by section 404 of the Sarbanes-Oxley Act were an attempt of the US government to reduce the “opportunity” element of fraud discussed by such theory. The exploration of the theoretical argument in conjunction with the literature review chapter give further support for the hypotheses development presented on chapter I and that are put into test on the following chapters of this research.

## CHAPTER III

### RESEARCH METHODOLOGY

As discussed in the previous chapters, the objective of this study is to assess the effectiveness of external auditors' opinions presented on Internal Controls over Financial Reporting (ICFR) reports. Hence, we developed two hypotheses to be able to achieve such objective. In this chapter, we discuss the methods used to test our hypotheses and the justification of employing such methods. At first, we present the sample selection procedure and the data sources in detail. After, we present the statistical model equation used to test both hypotheses presented in this research.

#### 3.1 Sample Selection

The targeted sample of our research consisted of public listed companies in the United States that fall into the categories of "Large Accelerated Filers" or "Accelerated Filers", and, therefore, are subject of the regulations imposed by the Sarbanes-Oxley Act, section 404 (b). In addition, our sample is composed of companies that have restated previously issued financial statements - and such restatements were caused due to the lack of effective internal controls -, and of companies that have "clean financial statements", that is, financial statements that were not restated. In summary, the sample consists of public listed companies in the US market that are classified as either "Large Accelerated Filers" or "Accelerated Filers" and that had their financial statements deemed to be unreliable - restating companies - or that had their financial statements deemed to be reliable - "clean financial statements".

As discussed on the literature review chapter, the idea that misstatements and fraud are indicative of internal control problems has historical support in academic researches. Kinney Jr and McDaniel (1989) argue that the need to correct a

misstatement implies a breach of a firm's internal control system. Additionally, Turner, L. and Weirich (2006) conclude the following about restating firms:

*“If these companies’ internal controls really had no weaknesses, why did the companies have errors that required restatements? Recall that PCAOB AS 2 defined a material weakness as a deficiency in internal controls that creates a ‘more than remote likelihood’ that a material misstatement in the financial statements will go undetected. If a company restated, then a material misstatement did in fact go undetected, indicating the company’s internal controls must have had at least one weakness.”*

Considering these arguments, we use restating companies or firms with fraudulent financial statements as a starting point to identify a sample of firms that likely have existing material control weakness during the restated or fraudulent period(s). After identifying such companies, we then analyze the Internal Controls over Financial Reporting (ICFR) reports related to the misrepresentation period and from the prior year from the restatement or financial statement fraud. This analysis aims to verify if the external auditors had indicated the existence of weaknesses during the misstatement period or prior to it. We delimited the analysis of the ICFR report issued for the prior year from the occurrence of the fraud or restatement, because weaknesses in the control environment prior to two years from the occurrence of fraud or restatement may be related to processes and/or human resources very different from those existing at the time that the financial statement problems occurred, which would compromise the results identified within this analysis. Additionally, we collected in this sample companies classified as “Large Accelerated Filers” or “Accelerated Filers”, because only these categories are subject of the rules imposed by the SOX Act, section 404 (b) and, therefore, need to have their internal controls environment assessed by external auditors. Therefore, companies that fell into different categories than those two mentioned above could not be considered to compose this sample. In addition, we also analyzed a sample of “Large Accelerated Filers” or “Accelerated Filers” firms with financial statements deemed to be reliable (“clean financial statements”) for a two year period. These companies, in conjunction with the restating

firms, compose the final sample, because they support the comparison of the frequencies of auditors issuing adverse ICFR opinions. Further explaining, with this sample, we also aim to compare if auditors have issued more adverse ICFR for companies with financial statements deemed to be unreliable than for those deemed to be reliable.

In order to test  $H_1$  and analyze if external auditors have issued favorable internal control opinions for companies with internal control material weaknesses, we have two main points to observe:

1. If the company has internal control material weaknesses - which we identify in this study by companies that restated their previously issued financial statements due to either error or fraud, and;
2. If the auditor has issued a favorable internal control opinion for the company during the misrepresentation period or the prior year from such period.

It is worth mentioning that for our sampled firms with financial statements deemed to be unreliable, we also observed if the external auditors have restated their previously issued opinion after the occurrence of the restatement or fraud. The fact that an external auditor had to reissue its opinion due to an incorrect favorable opinion regarding the control environment of a company confirms our understanding that the sampled firms, indeed, had material weaknesses in their internal control environment during the misrepresentation period.

Finally, in order to test  $H_2$  and confirm if auditors are more likely to have issued adverse internal control opinion than companies' management, we have three main points to analyze:

3. The opinions issued by company's management regarding its internal control environment;
4. The opinions issued by company's external auditors regarding its internal control environment, and;



5. Perform a comparison between the opinions issued by these two different parties, in order to verify if the auditors have issued adverse opinions more frequently than companies' management.

The sample described above allows the analysis of both hypotheses ( $H_1$  and  $H_2$ ) to be performed.

In terms of data sources, on a first moment, for the sample related to companies with financial statements deemed to be unreliable, we began collecting the sample by analyzing the Accounting and Auditing Enforcement Releases (AAER) disclosed by SEC in their website<sup>5</sup>, in order to gather companies that committed financial statements fraud. Then, we used the EDGAR search tool available at the SEC website to find 10-K forms<sup>6</sup> that had been amended (10-K/A forms) due to the issuance of unreliable financial statements - that is, financial statements that had to be restated. Finally, we verified through the 10-K forms, also available at the SEC website, if these companies were classified as either "Large Accelerated Filers" or "Accelerated Filers". Our sample of restating firms consists of 53 companies that have either fraudulent or restated financial statements at any given moment between the years of 2005 until 2017. These 53 companies regard the sample studied and not the population of companies with financial statements deemed to be unreliable in between the years of 2005 until 2017. For individual firms that have multiple restatements during our sample period, we keep only the last instance for each firm and do not analyze the prior misrepresentation years.

Whereas, for the sample related to companies with financial statements deemed to be reliable (53 observations), we began collecting the sample by analyzing a list of companies<sup>7</sup> that are publicly traded on the National Association of Securities Dealers

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<sup>5</sup><https://www.sec.gov/divisions/enforce/frictions.shtml>

<sup>6</sup> 10-K forms, as defined by the Securities and Exchange Commission (SEC), is an annual report that provides a comprehensive overview of the company's business and financial condition and includes audited financial statements. Although similarly named, the annual report on Form 10-K is distinct from the "annual report to shareholders," which a company must send to its shareholders when it holds an annual meeting to elect directors.

<sup>7</sup><https://www.nasdaq.com/screening/company-list.aspx>

Automated Quotations (NASDAQ), the New York Stock Exchange (NYSE) or American Stock Exchange (AMEX) and that have Market Capitalization superior than \$75 million (therefore, they classify as either “Large Accelerated Filers” or “Accelerated Filers”). In sequence, we randomly selected some companies from this list and attributed to them a year period that varied from 2005 until 2017. This time frame period was selected because:

- ✓ Minimum 2005: The section 404(b) of the SOX Act was enabled on 2004. Since we analyzed a two-year period for each instance, the minimum year period to be sampled is 2005;
- ✓ Maximum 2017: There is not a specific time frame in which a financial statement restatement can occur. It is possible that a financial statement will only be restated several years after it has been disclosed. Thus, in order to reduce the risk of classifying an instance in the sample as “clean financial statements”, however this instance ends up being restated in the future, we established a time frame limit at the year of 2017.

Further on, we verified if the sampled company for the sampled year could be classified as “clean financial statements” – that is, the financial statements was reliable due to the lack of a presence of a restatement. The instances that successfully achieved all these criteria were selected to compose the sample. Our sample of non-restating firms consists of 53 companies that have “clean financial statements” at any given moment between the years of 2005 until 2017.

Finally, the deferred implementation of Section 404 allowed by SEC and discussed during section 1.2.1 of this research did not affect our sampling, since we assured that all companies’ ICFR reports that composed the sample contained both the opinions from the external auditor and from the companies’ management regarding the internal control environment.

Hence, our final sample is composed of 106 firms that:

1. Either restated their financial statements (53 observations) or had “clean financial statements” (53 observations) at any given moment between the years of 2005 until 2017, and;
2. Are publicly listed in the US capital market, and
3. Are classified as “Large Accelerated Filers” or “Accelerated filers”.

In order to retrieve the Internal Controls over Financial Reporting (ICFR) opinions issued by the external auditors and companies management, we also used the EDGAR search tool provided by the SEC website. These opinions are disclosed on the 10-K forms under sections “Report of Independent Registered Public Accounting Firm” (for external auditor’s opinion) and “Management’s Report on Internal Control over Financial Reporting” (for management’s opinion).

Tables 3.1 and 3.2 present the sampled firms used to test our first and second hypotheses.

Table 3.1- Sample of restating financial statement firms used to test the first and second hypotheses

#	Company	#	Company	#	Company
1	AKORN, INC.	21	JDA SOFTWARE GROUP INC	41	ROYAL GOLD, INC.
2	AMTRUST FINANCIAL SERVICES, INC.	22	KBR, INC.	42	STONEMOR PARTNERS L.P.
3	ASPEN TECHNOLOGY, INC.	23	LOGITECH INTERNATIONAL S.A.	43	SYNCHRONOSS TECHNOLOGIES, INC.
4	AVI BIOPHARMA, INC.	24	MAGNACHIP SEMICONDUCTOR CORP	44	TALEO CORPORATION
5	AVID TECHNOLOGY, INC.	25	MALVERN BANCORP, INC.	45	TECH DATA CORPORATION
6	AZZ INC.	26	MAXWELL TECHNOLOGIES, INC.	46	THE KRAFT HEINZ COMPANY
7	BRISTOW GROUP INC.	27	MEDICIS PHARMACEUTICAL CORP	47	THE PHOENIX COMPANIES, INC.
8	COMSCORE, INC.	28	MERGE TECHNOLOGIES INCORPORATED	48	UTSTARCOM, INC.
9	CONSECO, INC.	29	NET 1 UEPS TECHNOLOGIES, INC.	49	VERISIGN, INC.
10	CUBIC CORPORATION	30	OPKO HEALTH, INC.	50	WESTMORELAND COAL COMPANY
11	DELL INC.	31	ORMAT TECHNOLOGIES, INC.	51	WIRELESS FACILITIES, INC.
12	ESTERLINE TECHNOLOGIES CORP.	32	ORTHOPIX INTERNATIONAL N.V.	52	WORKHORSE GROUP INC.
13	EZCORP, INC.	33	OSIRIS THERAPEUTICS INC.	53	ZEBRA TECHNOLOGIES CORP
14	FORMFACTOR, INC.	34	OVERSTOCK.COM, INC.		
15	GENERAL ELECTRIC COMPANY	35	PAPA JOHNS INTERNATIONAL INC		
16	GREEN MOUNTAIN COFFEE ROASTERS	36	PENN NATIONAL GAMING, INC.		
17	GUIDEWIRE SOFTWARE, INC.	37	PERRIGO CO PLC		
18	HANGER, INC.	38	PPG INDUSTRIES, INC.		
19	HILL INTERNATIONAL, INC.	39	RAMBUS INC.		
20	HURON CONSULTING GROUP INC.	40	RIGNET, INC.		

Table 2.2 - Sample of non-restating financial statement firms used to test the first and second hypotheses

#	Company	#	Company	#	Company
1	ANTHEM, INC.	21	FEDEX CORPORATION	41	WORTHINGTON INDUSTRIES, INC.
2	ARES CAPITAL CORPORATION	22	GLOBAL PAYMENTS INC.	42	ALAMO GROUP, INC.
3	AVANGRID, INC.	23	METLIFE, INC.	43	ANIXTER INTERNATIONAL INC.
4	BOEING COMPANY	24	MGM RESORTS INTERNATIONAL	44	ARTISAN PARTNERS ASSET MGMT
5	CAMDEN PROPERTY TRUST	25	NEENAH, INC.	45	AVON PRODUCTS, INC.
6	ORACLE CORPORATION	26	SHUTTERSTOCK, INC.	46	BARNES GROUP, INC.
7	EMPLOYERS HOLDINGS INC	27	VMWARE, INC.	47	BB&T CORPORATION
8	FEDERAL REALTY INVESTMENT TRUST	28	SL GREEN REALTY CORP	48	BRF S.A.
9	FORESTAR GROUP INC	29	STIFEL FINANCIAL CORPORATION	49	CBRE GROUP, INC.
10	LTC PROPERTIES, INC.	30	TALLGRASS ENERGY, LP	50	CLEAR CHANNEL OUTDOOR, INC.
11	PHYSICIANS REALTY TRUST	31	TC PIPELINES, LP	51	COOPER TIRE & RUBBER COMPANY
12	REXNORD CORPORATION	32	TEGNA INC.	52	CORESITE REALTY CORPORATION
13	SYSTEMAX INC.	33	TIM PARTICIPACOE S.A.	53	DELTA AIR LINES, INC.
14	ELDORADO RESORTS, INC.	34	TIMKEN COMPANY (THE)		
15	ESPERION THERAPEUTICS, INC.	35	UNDER ARMOUR, INC.		
16	ALLISON TRANSMISSION HOLDINGS	36	VEEVA SYSTEMS INC.		
17	APTARGROUP, INC.	37	VISHAY INTERTECHNOLOGY, INC.		
18	BERRY GLOBAL GROUP, INC.	38	WESTERN ALLIANCE BANCORPORATION		
19	BROADRIDGE FINANCIAL SOLUTIONS	39	WESTPAC BANKING CORPORATION		
20	EAGLE MATERIALS INC	40	WEYERHAEUSER COMPANY		

## 3.2 Research Design

The test of  $H_1$  and  $H_2$  are conducted based on one statistical model provided below. First, we identify the dependent and independent variables used in the model to test  $H_1$  and further explain the methodology applied to test each one of the hypotheses ( $H_1$  and  $H_2$ ). Second, we explain the variables that needed to be controlled in order to reduce the effect of these confounding variables in our results.

### 3.2.1 Test of hypothesis 1

#### 3.2.1.1 Dependent variable

In order to test  $H_1$ , we identify the auditors' adverse internal control opinion as the dependent variable, since these opinions should vary in function of the presence of internal control material weaknesses and several other factors listed below on the "control variables" section. Thus, the *AEAICFR* (adverse external auditor opinion issued in the internal controls over financial reporting) is an indicator or dummy variable that is affected by the independent variable described below and all the other controlled variables further described in this chapter.

#### 3.2.1.2 Independent variable

In order to test  $H_1$ , we identify the presence of internal control material weaknesses (*PICMW*) as the independent variable. In this statistical model, we identify such presence as a determinant of *AEAICFR*. That is, the *PICMW* should directly affect whether the external auditor will present an adverse or favorable internal control opinion. Hence, we create *PICMW* as an indicator variable equal to 1 if the sampled company restated previously issued financial statements or committed financial statement fraud and these actions were enabled due to the presence of internal control material weaknesses, and 0 otherwise.

### 3.2.1.3 Control variables and expected results

In order to mitigate the risk of inaccurate results achieved by this research, we controlled the variables listed below as an attempt to reduce the effect of confounding variables. Based on previous literature, we also explain why such variables needed to be properly controlled.

#### Management Adverse Opinion

We also created “Management Adverse Opinion” (MAO) as an indicator variable that follows the same logic than the AEAICFR variable, however it regards specifically the internal control opinions issued by companies’ management. Thus, this variable is set for 1 if we identify the presence of an adverse Internal Controls over Financial Reporting (ICFR) opinion given by companies’ management during the analyzed period (t) or its prior year (t-1), and zero otherwise. Since the studies conducted by Bedard and Graham (2011) and Kinney, J. W. R. and Shepardson (2011) demonstrate that auditors detect almost three-fourths of the existing internal control deficiencies and that material weaknesses are rarely disclosed to public unless misstatements are detected by auditors, we expect the MAO variable to be negatively correlated to the AEAICFR variable.

#### Firm Size

As indicated by Rice and Weber (2012), larger firms may be subject of economies of scale and have superior financial and human resources to dedicate to internal control testing, thereby increasing the likelihood of detection. However, Rice and Weber (2012) also argue that larger firms are likely to have more complex organizational and reporting structures which may increase the difficulty of detecting control weaknesses; hence, it is unclear the effects of firm size on the detection and disclosure of existing internal control weaknesses by auditors. In addition, Rice and Weber (2012) state that firm size may also affect disclosure incentives, since larger firms

have higher public profiles and are subject to greater pressures from capital market participants. In this study, we follow the methodology used by Mehran (1995) and we measure firm size (*SIZE*) as the natural logarithm of the firm's total assets at the end of the analyzed year (*t*). Due to the conflicting effects described above, we do not predict a result for this control variable.

#### Firm Financial Health

Rice and Weber (2012) also discuss the existence of greater litigation and reputation concerns for the external auditors of firms in poor financial health. Hence, we expect firms with negative income before income taxes to be positively associated with external auditors reporting existing internal control weaknesses on the Internal Controls over Financial Reporting (ICFR) reports. We proxy for poor financial health using *LOSS* as an indicator variable set to 1 if the firm reports a loss (negative income before income taxes at the end of the analyzed *t* period), and 0 otherwise.

#### Big 4 auditor

As discussed during the literature review section, higher quality audits should increase the likelihood that existing weaknesses are detected (Rice and Weber, 2012). In addition, previous research indicates that larger audit firms provide higher quality audits than smaller ones (Teoh and Wong, 1993). Considering these studies, we expect the presence of large audit firms to be positively related to external auditors reporting existing internal control weaknesses on ICFR reports. We set *BIG4* equal to 1 if an ICFR opinion was supplied by one of the largest four audit firms (Deloitte, Ernst and Young, KPMG, PricewaterhouseCoopers) during the analyzed period or during its prior year, and 0 otherwise.

#### Greater auditor effort



Rice and Weber (2012) studies also suggest that greater audit effort increases the probability that existing control weaknesses are detected and could also reflect an increase in substantive testing necessitated by the lack of effective controls, fact which could also increase the likelihood of detection of existing problems. Hence, we expect greater audit effort to be positively associated with external auditors reporting existing internal control weaknesses on ICFR reports. In order to measure auditor effort, we use the approach suggested by Kinney, W. R. *et al.* (2004) and create the *AUDIT FEES* variable. This measure takes into consideration the audit-related fees paid during the analyzed t year scaled by the square root of the firms' total assets. The data related to fees spent with audit services are publicly disclosed in the SEC's website in either the 10-K forms or the SCHEDULE 14A (DEF 14A) forms.

#### Presence of first year auditor

As indicated during the literature review section, shareholders are less likely to vote for auditor ratification following an adverse ICFR opinion (Hermanson *et al.*, 2009). Reinforcing this idea, Ettredge *et al.* (2011) found that auditors are more likely to be dismissed after issuing an adverse ICFR opinion. Thus, Rice and Weber (2012) suggest that continuing auditors might have incentives not to force the disclosure of existing weaknesses. However, as also indicated by Rice and Weber (2012), such incentives are weaker for newly engaged auditors who can blame the existence of control weaknesses onto the previous auditor. Therefore, we expect the presence of a first year auditor to be positively associated with external auditors reporting existing internal control weaknesses on ICFR reports. Thus, we create the *NEW AUDITOR* variable as a proxy to indicate whether during the analyzed period or during its prior year the firm presented a newly engaged audit firm, being this scenario equal to 1, and 0 otherwise.

#### 3.2.1.4 Statistical model

The logistic regression is the most appropriate statistical model for trying to explain the possible relationships between the dependent variable and the explanatory variables. The software used for statistical testing was SPSS 25 from IBM.

The dependent variable of the present research is dichotomous and, therefore, can only take two possible values: 0 if the external auditor did not present an adverse opinion disclosed on the Internal Controls over Financial Reporting (ICFR) reports during the analyzed period (t) or its prior year (t-1) or 1 if the external auditor presented an adverse opinion disclosed on the Internal Controls over Financial Reporting (ICFR) reports during the analyzed period (t) or its prior year (t-1).

Many previous research studies demonstrate the widespread use of logistic regression in the analysis of results related to fraud in the financial statements, problems related to the communication of incorrect financial information, and in a broader sense, the quality of the audit (Beasley, 1996; Geiger and Raghunandan, 2002; Knechel and Vanstraelen, 2007; Kim, H. *et al.*, 2015; Lecompte, 2017). However, before proceeding with the application of the model, it is important to ensure that the premises underlying the logistic regression model are respected (Stafford and Bodson, 2006). Thus, we confirmed that the dependent variable is dichotomous, while the independent variables are all exclusively of a continuous or dichotomous characters. In addition, the observations related to the dependent variable sample are absolutely independent, that is, a company cannot have received an adverse ICFR opinion from the external auditor and a favorable ICFR opinion from the external auditor at the same moment. The auditors either disclosed an adverse opinion or a favorable opinion. However, we observed the presence of multicollinearity between the variables AEAICFR and MAO. For all the 106 instances analysed in our sample, the external auditor's ICFR opinion and the company's management ICFR opinion were exactly the same. Therefore, we exclude the MAO variable from our statistical model and comply with the

premise of the inexistence of perfect or high multicollinearity between the variables. We also observed that there is no residual extreme values in our statistical model. Finally, with regard to recognized industry practices, the sample is adequate in size<sup>8</sup> and features.

### 3.2.1.5 Statistical test

Considering all the above listed variables, and based on Rice and Weber (2012) statistical model, we argue that an adverse opinion disclosed by the external auditor in the ICFR reports is a function of several determinants that influence this group's abilities to detect and disclose existing weaknesses. To provide empirical evidence and test our first hypothesis, we estimate the following statistical model:

$$AEICFR_i = \alpha + \beta_1 PICMW_i + \beta_2 MAO_i + \beta_3 SIZE_i + \beta_4 LOSS_i + \beta_5 BIG4_i + \beta_6 AUDIT FEES_i + \beta_7 NEW AUDITOR_i + \varepsilon$$

Where:

*AEICFR*: Existence of an adverse external auditor opinion disclosed on the Internal Controls over Financial Reporting (ICFR) reports during the analyzed period (t) or its prior year (t-1) for the company *i*;

*PICMW*: Indicates the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year;

*MAO*: Indicates the presence of an adverse internal control opinion issued by company's management during the analyzed period (t) or its prior year (t-1);

*SIZE*: Natural logarithm of the firm's total assets at the end of the t year;

*LOSS*: Indicates whether the firm reports a loss at the end of the t year;

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<sup>8</sup> The minimum sample size recognized as adequate in the literature is 10 observations (David W. Hosmer, *Applied logistic regression*, sous la dir de Stanley Lemeshow, 2nd ed. éd., Series: Wiley series in probability and statistics. Texts and references section (New York : New York, 2000).

*BIG4*: Indicates the presence of a Big4 auditor during all analyzed years (t or t-1);

*AUDIT FEES*: Audit-related fees paid during the t year scaled by the square root of the firms' total assets;

*NEW AUDITOR*: Indicates the presence of a new auditor during any of the analyzed years (t or t-1);

$\alpha$ : Slope at origin;

$\beta_1$  to  $\beta_7$ : Parameters to estimate;

$\varepsilon$ : Random error.

### 3.2.2 Test of hypothesis 2

The second hypothesis aims to confirm if external auditors have issued more adverse internal control opinion than companies' management. In order to be able to test this hypothesis, we have compared the means between two variables: "Adverse external auditor opinion" (AEAICFR) and "Management Adverse Opinion" (MAO). The AEAICFR variable is set as an indicator variable that is equal to 1 if the company's auditor disclosed an adverse internal control opinion during the analyzed period or its prior year, and 0 otherwise. Whereas MAO is set as an indicator variable that follows the same logic than the AEAICFR variable, however it regards specifically the internal control opinions issued by companies' management. Considering both of these variables and comparing their means – AEAICFR and MAO – we were able to test H<sub>2</sub> and confirm if external auditors have issued more adverse internal control opinion than companies' management.

### 3.3 Conclusion

The statistical model provided for H<sub>1</sub> aims to test a function of external auditors' adverse internal control opinion at the t year (AEAICFR) in the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year (PICMW). We included 7 other controlled variables that could also affect the outcomes of such function. In case that the

coefficient for variable (PICMW) is positive and statistically significant, it might indicate in which level external auditors are effective in evaluating the control environment of their clients and providing investors and stakeholders advanced warning that certain companies' financial statements may not be reliable.

By interpreting the coefficient of the independent variable( $\beta_1$ ), we can conclude in which degree the presence of an internal control material weakness at the "t" period is related to an adverse ICFR opinion issued by the external auditor at the "t" or "t-1" period. In addition, if the coefficient of management's adverse opinion – ( $\beta_2$ ) is positive and statistically significant, we can infer that auditors and companies' management very likely agree which ICFR opinion should be disclosed to public, in order to avoid open disputes between such parties.

Finally, the test related to  $H_2$  was performed by comparing the means of the variables AEAICFR and MAO. Such comparison allow us to conclude if external auditors have issued more adverse internal control opinion than companies' management. As described above, in case if there is no difference between these means or such difference is low, we can infer that auditors and companies' management very likely agree which ICFR opinion should be disclosed to public, in order to avoid disputes that could jeopardize the image of both parties.

## CHAPTER IV

### DATA ANALYSIS, RESULTS AND DISCUSSION

The main objective of our study is to analyze how effective are external auditors' opinions disclosed on the Internal Controls over Financial Reporting (ICFR) reports. We developed two research hypotheses to be able to answer our research question. In the previous chapter, we explained in details the procedures to test each one of the hypotheses. In this chapter, we present the results of the tests of our hypotheses, the regression analysis and discuss whether our research hypotheses are rejected or confirmed.

#### 4.1 Descriptive statistics

Table 4.1 provides descriptive statistics on the pooled sample of 106 firms' internal controls over financial reporting (ICFR) observations related to a period of 2005 until 2017. The descriptive statistics regards the following variables: SIZE, AUDIT FEES, PICMW, AEAICFR, MAO, LOSS, BIG4 and NEW AUDITOR. The variables DIRECTLY WEAKNESS and RESTATED AUDITOR OPINION are not analyzed on the macro descriptive statistics level, because these variables only relate to those observations in which the binary variable PICMW is equal to 1 (that is, in instances that the presence of restated financial statements caused by internal control material weakness on the t year exist).

As it can be seen on Table 4.1, the mean value for the natural log of the sampled firms' total assets (SIZE) is 21,621, ranging from 16,596 to 27,235. The median for this variable is less than the mean, indicating that the variable is skewed to the right (positively skewed) and that there are extreme large companies in terms of assets in our sample. It is worth mentioning that since our sample needed to be composed from companies classified as either

“Accelerated Filers” or “Large Accelerated Filers”, it was unlikely that the sample presented smaller firms in terms of total assets. For the greater auditor effort variable (AUDIT FEES), the mean value of the audit-related fees paid during the analyzed year scaled by the square root of the firms’ total assets is 60,521, ranging from 7,202 to 244,644. The standard deviation for this variable is 42,087 and it is higher than half of the mean value. This fact indicates that we have a high standard deviation for AUDIT FEES. All the other variables presented on Table 4.1 are binary, therefore they present a minimum value of 0 and a maximum value of 1.

As previously mentioned, half of this sample (53 firms) is composed of firms with the presence of restated financial statements caused by internal control material weakness at the analyzed year (PICMW =1), and the other half (53 firms) is composed by firms with “clean financial statements” at the analyzed year (PICMW = 0). Therefore, the mean value for the PICMW variable is 0,500. When analyzing the descriptive statistics for the presence of an adverse ICFR opinion issued by the external auditor during the analyzed year or its prior year (AEAICFR), we observe that 19.8% of the firms have received an adverse ICFR opinion by their external auditors. We further analyze the distribution of these adverse opinions between companies with financial statements deemed to be reliable (PICMW = 0) and companies with financial statements deemed to be unreliable (PICMW = 1) on the “comparative analysis” section. It is also interesting to notice that the presence of an adverse ICFR opinion issued by companies’ management during the analyzed year or its prior year (MAO) has the exact same values for the statistical measures mean, median, standard deviation and variance than the values found for the AEAICFR variable. Such fact demonstrates that external auditors and companies’ management agree which ICFR opinion should be disclosed to public and always release the exact same opinion. A possible explanation for this phenomenon is that in order to reduce the occurrence of public disputes between these parties and mitigate the risk of reputational damage for them, the opinions disclosed are always matched before being released to public. However, new researches could further

explore the reasons and consequences involved in the occurrence of this phenomenon.

Further analysing Table 4.1, we observe that only 26.4% of the sampled firms report negative income before income taxes at the end of the analyzed year (LOSS). We also investigate (on the “comparative analysis” section) if the occurrence of losses is higher for firms that had their financial statements deemed to be unreliable (PICMW = 1) than for firms with their financial statements deemed to be reliable (PICMW = 0). In addition, we observe that 89.6% of the sampled firms were audited by Big4 companies (PwC, Deloitte, Ernst&Young or KPMG). When cross analysing the AUDIT FEES variable with the BIG4 variable, we can infer that even though the majority of the sampled companies were audited by the 4 largest audit firms in the world, the audit fees charged by these firms still significantly vary between the sampled companies. Finally, only a minority of the companies sampled (8.5%) presented an auditor change during the analyzed period (between the “t” period and “t-1”).



Table 3.1- Characteristics of the variables in the sample

Variables	N	Minimum	Maximum	Mean	Median	Std. Deviation
SIZE	106	16.596	27.235	21.621	21.426	1.903
AUDIT FEES	106	7.202	244.644	60.521	51.463	42.087
PICMW	106	0	1	0.500	0.500	0.502
AEAICFR	106	0	1	0.198	0.000	0.400
MAO	106	0	1	0.198	0.000	0.400
LOSS	106	0	1	0.264	0.000	0.443
BIG4	106	0	1	0.896	1.000	0.306
NEW AUDITOR	106	0	1	0.085	0.000	0.280

- This table does not include the RESTATED AUDITOR OPINION and DIRECTLY WEAKNESS variables because they are indicative measures for sampled companies with financial statements deemed to be unreliable (PICMW = 1).

- Definitions of variables: SIZE is the natural logarithm of the firm's total assets at the end of the t year; AUDIT FEES are audit-related fees paid during the t year scaled by the square root of the firms' total assets; PICMW indicates the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year; AEAICFR indicates the presence of an adverse internal control opinion issued by the external auditor during the analyzed period (t) or its prior year (t-1); MAO indicates the presence of an adverse internal control opinion issued by company's management during the analyzed period (t) or its prior year (t-1); LOSS indicates whether the firm reports a loss at the end of the t year; BIG4 indicates the presence of a Big4 auditor during all analyzed years (t and t-1); NEW AUDITOR indicates the presence of a new auditor during any of the analyzed years (t or t-1).

## 4.2 Comparative analysis

In order to compare the differences existent in the characteristics of the pooled sample of 106 firms' internal controls over financial reporting (ICFR) observations related to a period of 2005 until 2017, we divide the descriptive statistics in two different groups of sample: companies with financial statements deemed to be reliable (group 1) and companies with financial statements deemed to be unreliable (group 2). On a first step, we analyze the *t* test results for these two different groups with the goal of verifying the presence of statistically significant differences between the means of the groups for each analysed variable. Later, based on the results found on the *t* test, we perform an additional comparative analysis over the descriptive statistics found for these two different groups.

### Descriptive statistics comparative analysis

Given that all variables in the equation present statistically significant different means between group 1 (companies with financial statements deemed to be reliable) and group 2 (companies with financial statements deemed to be unreliable), except for the NEW AUDITOR variable, we proceed with the comparative analysis of means.

First, we verify that the mean for the SIZE variable for companies with financial statements deemed to be reliable is 22.248, whereas for companies with financial statements deemed to be unreliable is 20.994. Given that the standard deviation for both of the analyzed groups is low (1.738 for the group of reliable financial statements and 1.868 for the group of unreliable financial statements) and that the mean values are slightly different between them, we observe that the size of the companies between the two different groups does not considerably vary. As discussed by Rice and Weber (2012) larger firms may be subject of economies of scale and have superior financial and human resources to dedicate to internal control testing, thus their chances to have financial statement reporting problems would decrease. However, Rice and

Weber (2012) also argue that larger firms are likely to have more complex organizational and reporting structures which may increase the difficulty of detecting control weaknesses. Hence, when observing the inexistence of considerable differences in the values for the company size variable, we can infer that firm's size plays a supporting role whether the company presents quality financial statements or unreliable ones.

Second, we found a considerable difference between the mean value for disbursements made with AUDIT FEES by companies with financial statements deemed to be reliable from those with financial statements deemed to be unreliable (47.964 for group 1 and 73.078 for group 2). It is also worth highlighting that the standard deviation for group 2 is higher than from group 1 (49.196 and 28.896, respectively), which indicates that the audit fees charged by auditors highly range for companies with financial statements deemed to be unreliable than for those with financial statements deemed to be reliable. By observing the mean values for AUDIT FEES, we can infer that audit firms charge higher audit fees for companies with internal control problems and that have a higher chance of presenting problems and errors in their financial statements, because the risk of auditors' failure exposure is higher in those cases. Additionally, as indicated by Rice and Weber (2012), greater audit effort could reflect in an increase in substantive testing necessitated by the lack of effective controls. Thus, the audit fees charged by audit firms would also be increased in this scenario.

In addition, the PICMW binary variable is presented in the Table with the sole reason to divide the entire population of 106 observations into two different groups: 53 companies with financial statements deemed to be reliable (PICMW = 0) and 53 companies with financial statements deemed to be unreliable (PICMW = 1).

Third, we compare the measured values for the existence of an adverse external auditor opinion disclosed on the Internal Controls over Financial Reporting (ICFR) reports during the analyzed period (t) or its prior year (t-1) – variable AEAICFR. We found a considerable difference between the means

for group 1 and group 2 (0.057 and 0.340). For companies that the financial statements were deemed to be reliable during the analyzed year (t year), the external auditors have issued an adverse internal control opinion during the analyzed year (t) or t-1 only in 5.7% of the cases. Whereas, for companies that the financial statements were deemed to be unreliable during the analyzed year (t year), the external auditors have issued an adverse internal control opinion in 34% of the cases. It is worth highlighting that the opinions observed for this variable are those originally disclosed for the analyzed year (t year) or its prior year (t-1). Therefore, at that moment of time, the auditor was not aware of the fact that the financial statements would be deemed to be unreliable in the future. This result is very aligned to those found by Rice and Weber (2012). In their studies, the researchers found that only 32.4% of companies report the existence of a material weakness during the misstatement period, as opposed to reporting it later, after the need for a restatement has been announced. In this research, considering that companies' management opinions (MAO) and that the external auditors' opinions are always the same as found in our sample, only 34% of the companies report the existence of a material weakness during the misstatement period, as opposed to reporting it later, after the need for a restatement has been announced. Therefore, when comparing the means between these two groups, we can infer that the external auditors are somewhat effective in disclosing red flags to the public that certain companies have internal control material weaknesses, since the percentage of firms that received an adverse internal control opinion are significantly higher for group 2. However, it is still important to mention that 66% of companies have received a favorable internal control opinion from the external auditor during the analyzed t or t-1 year and that this opinion was only restated after the detection of a financial statement problem had already been disclosed to public.

Forth, we observe that the presence of negative income before income taxes (LOSS) at the analyzed year is considerably higher for those companies with financial statements deemed to be unreliable than for those deemed to be reliable (39.6% and 13.2%, respectively). As explored by Cressey (1953),

companies with poor financial performance could present the “pressure” symptom of the Fraud Triangle Theory, since they feel pressured to achieve stakeholders’ financial performance expectations. Therefore, they are more susceptible to manipulate their results or even commit accounting fraud.

Fifth, we observe that the presence of a BIG4 firm is 13.2 percentage-points superior for the sampled companies with financial statements deemed to be reliable than for the companies with financial statements deemed to be unreliable (means of 0.962 and 0.830, respectively). However, the vast majority of the sampled companies were audited by one of the 4 largest audit firms, therefore we do not have sufficient variety of data in order to make conclusions whether Big4 firms are more effective in detecting and disclosing internal control material weaknesses than non-Big4 firms.

Finally, we observe that the presence of a NEW AUDITOR is 5.6 percentage-points superior for the sampled companies with financial statements deemed to be unreliable than for the companies with financial statements deemed to be reliable (means of 0.113 and 0.057, respectively), however it is worth reminding that accordingly to the t test presented above, there is no statistically significant difference between the means of these two groups. We also noticed that out of the total adverse opinions given by external auditors in the analyzed full sample (106 observation), 19% of these opinions were provided by first-year auditors.

Table 4.2, disclosed below, summarizes the findings regarding the comparative descriptive statistics for the sample studied.

Table 4.2 - Comparative characteristics of the variables of the sample

Variables	Group 1 - Companies with financial statements deemed to be reliable						Group 2 - Companies with financial statements deemed to be unreliable					
	N	Minimum	Maximum	Mean	Median	Std. Deviation	N	Minimum	Maximum	Mean	Median	Std. Deviation
SIZE	53	19,451	27,231	22,248	22,161	1,738	53	16,596	27,235	20,994	20,826	1,868
AUDIT FEES	53	8,043	124,374	47,964	44,253	28,896	53	7,202	244,644	73,078	60,485	49,196
PICMW	53	0	0	0,000	0,000	0,000	53	1	1	1,000	1,000	0,000
AEAICFR	53	0	1	0,057	0,000	0,233	53	0	1	0,340	0,000	0,478
MAO	53	0	1	0,057	0,000	0,233	53	0	1	0,340	0,000	0,478
LOSS	53	0	1	0,132	0,000	0,342	53	0	1	0,396	0,000	0,494
BIG4	53	0	1	0,962	1,000	0,192	53	0	1	0,830	1,000	0,379
NEW AUDITOR	53	0	1	0,057	0,000	0,233	53	0	1	0,113	0,000	0,320

- This table does not include the RESTATED AUDITOR OPINION and DIRECTLY WEAKNESS variables because they are indicative measures for sampled companies with financial statements deemed to be unreliable (PICMW = 1).

- Definitions of variables: SIZE is the natural logarithm of the firm's total assets at the end of the t year; AUDIT FEES are audit-related fees paid during the t year scaled by the square root of the firms' total assets; PICMW indicates the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year; AEAICFR indicates the presence of an adverse internal control opinion issued by the external auditor during the analyzed period (t) or its prior year (t-1); MAO indicates the presence of an adverse internal control opinion issued by company's management during the analyzed period (t) or its prior year (t-1); LOSS indicates whether the firm reports a loss at the end of the t year; BIG4 indicates the presence of a Big4 auditor during all analyzed years (t and t-1); NEW AUDITOR indicates the presence of a new auditor during any of the analyzed years (t or t-1).

### *t* Test for independent samples

Table 4.3 provides the results for the *t* test for independent samples on the 106 observations separated in two different groups: companies with financial statements deemed to be reliable (group 1, or PICMW = 0) and companies with financial statements deemed to be unreliable (group 2, or PICMW = 1). This test regards the following variables: SIZE, AUDIT FEES, AEAICFR, MAO, LOSS, BIG4 and NEW AUDITOR.

As it can be seen on Table 4.3, all variables divided between groups 1 and 2 present statistically significant different means at the level of 5%, with the exception of the NEW AUDITOR variable (since *p* is superior to 0.05, reaching a value of 0.301). The *p*value for variable AUDIT FEES is 0.002, which indicates that the mean value of audit fees for companies with financial statements deemed to be reliable (group 1) is significantly different than for companies with financial statements deemed to be unreliable (group 2). The average audit fees for companies with reliable financial statements (group 1) was 25.114 lower than for companies with financial statements deemed to be unreliable (group 2). Whereas, the *p*value for variable SIZE is 0.001, which indicates that the mean value of size for companies with financial statements deemed to be reliable (group 1) is significantly different than for companies with financial statements deemed to be unreliable (group 2). The average size for companies with reliable financial statements is 1.254 higher than for companies with financial statements deemed to be unreliable.

In terms of the presence of an adverse internal control opinion issued by the external auditor (AEAICFR), the *p* value < 0.0005 indicates that the mean value of the presence of an adverse opinion for companies with financial statements deemed to be reliable (group 1), is significantly different than for companies with financial statements deemed to be unreliable (group 2). The average presence of an adverse internal control opinion issued by the external auditor for companies with reliable financial statements is 0.283 lower than for companies with financial statements deemed to be unreliable. It is worth

mentioning again that the presence of an adverse internal control opinion issued by company's management at the analyzed period or its prior year (MAO) has the exact same statistical values than the AEAICFR variable. Therefore, the analysis provided for the AEAICFR variable is also applicable for the MAO variable.

Yet, the  $p$  value for the variable LOSS is 0.002, which indicates that the mean value of the presence of losses for companies with financial statements deemed to be reliable (group 1), is significantly different than for companies with financial statements deemed to be unreliable (group 2). The average presence of a loss for companies with reliable financial statements is 0.264 lower than for companies with financial statements deemed to be unreliable. Whereas, the  $p$  value for the variable BIG4 is 0.027, which indicates that the mean value of the presence of a Big4 auditor for companies with financial statements deemed to be reliable (group 1), is significantly different than for companies with financial statements deemed to be unreliable (group 2). The average presence of a Big4 auditor for companies with reliable financial statements is 0.132 higher than for companies with financial statements deemed to be unreliable. Finally, we observed that there is no statistically significant difference between the means of groups 1 and 2 for the NEW AUDITOR variable.



Table 4.3 – t-Test for independent samples

Variables	t value	Sig. (2-tailed)	Mean difference
df: 104			
AUDIT FEES <sup>2</sup>	-3,205	0.002**	-25,114
SIZE <sup>1</sup>	3,579	0.001**	1,254
AEAICFR <sup>2</sup>	-3,873	0.000**	-0,283
LOSS <sup>2</sup>	-3,202	0.002**	-0,264
BIG4 <sup>2</sup>	2,262	0.027**	0,132
NEW AUDITOR <sup>2</sup>	-1,041	0.301	-0,057
MAO <sup>2</sup>	-3,873	0.000**	-0,283

\*\* . The test is significant at the 0.05 level (2-tailed).

<sup>1</sup> Equal variances assumed

<sup>2</sup>Equal variances not assumed

- Definitions of variables: SIZE is the natural logarithm of the firm's total assets at the end of the t year; AUDIT FEES are audit-related fees paid during the t year scaled by the square root of the firms' total assets; MAO indicates the presence of an adverse internal control opinion issued by company's management during the analyzed period (t) or its prior year (t-1); LOSS indicates whether the firm reports a loss at the end of the t year; BIG4 indicates the presence of a Big4 auditor during all analyzed years (t and t-1); NEW AUDITOR indicates the presence of a new auditor during any of the analyzed years (t or t-1); AEAICFR indicates the presence of an adverse internal control opinion issued by the external auditor during the analyzed period (t) or its prior year (t-1).

Table 4.4 presents two additional variables analyzed specifically for those companies in the sample with financial statements deemed to be unreliable (53 observations): RESTATED AUDITOR OPINION and DIRECTLY WEAKNESS.

We observe that 73.6% of the ICFR opinions issued by the external auditor at the analyzed t year had to be restated from a qualified opinion to an adverse opinion after the accounting problems came to light. This finding confirms our understanding that the accounting restatements were caused by the existence of internal control material weaknesses at the t year (PICMW = 1). In addition, we notice that the percentage of RESTATED AUDITOR OPINION for the t year is higher than the percentage of companies that received an inaccurate opinion by the external auditor at the analyzed t and t-1 years (66%), because for 7.6% of the observations, the external auditor presented an adverse internal control opinion at the t-1 year, however a qualified opinion at the t year that had to be restated after an accounting problem came to light.

Finally, we performed an additional analysis associated to an indicative variable entitled DIRECTLY WEAKNESS. This analysis aimed to observe if the adverse internal control opinion issued by the external auditor was directly related to what caused the company to restate its financial statements at a future moment. For an example, if the company restated its financial statements due to an incorrect balance of the Freight Expenses account, however the weakness indicated in the external auditor ICFR report relates to the income tax provision calculation, we did not consider the weakness to be directly related to what caused the company to restate. When observing the indicative measure DIRECTLY WEAKNESS, we found that for the observations in which the external auditor had disclosed an adverse internal control opinion at the analyzed t year or its prior year (t-1), he/she was very assertive in identifying the internal control weakness that could cause accounting problems to the company in the future. Our research indicates that for 83.3% of the observations, the internal control weakness disclosed by the

external auditor at the t or t-1 year was what caused the company to have to restate on a future moment.

Table 4.4- Indicative measures for sampled companies with financial statements deemed to be unreliable

Variables	N	Yes (%)	No (%)
RESTATED AUDITOR OPINION	53	39 73,585%	14 26,415%
DIRECTLY WEAKNESS	18	15 83,333%	3 16,667%

*RESTATED AUDITOR OPINION*: Indicates the presence of a restated external auditor's opinion from a qualified to an adverse opinion regarding the internal control environment of a company after the accounting problems came to light. The analysis of this variable is only applicable if the *PICMW* is equal to 1.

*DIRECTLY WEAKNESS*: Indicates the presence of a reported weakness at the t or t-1 period that directly relates to what caused the firm to restate its financial statements. The analysis of this variable is only applicable if the *PICMW* is equal to 1.

#### Correlation analysis

For the purposes of this study, we opted to apply the Pearson's correlation analysis, because all the variables being studied are normally distributed. In addition, the variables contained in this study are not skewed or ordinal, therefore applying the Spearman's rank correlation coefficient is less applicable for such variables. Table 4.5 indicates the results achieved by Pearson's correlation analysis.

Correlation analysis for the presence of an adverse internal control opinion issued by the external auditor

As revealed by Table 4.5, the dependent variable AEAICFR has a significant correlation at the level of 1% with the following independent

variables: AUDIT FEES, PICMW, MAO and BIG4. As previously mentioned, the presence of an adverse internal control opinion issued by company's management (MAO) has a perfect correlation with the presence of an adverse internal control opinion issued by the external auditor (AEAICFR). Therefore the MAO variable is excluded from our statistical model and not further analyzed in this section.

The presence of an adverse internal control opinion issued by the external auditor (AEAICFR) is positively correlated with the greater auditor effort variable (AUDIT FEES), with a correlation factor of 0.334. This correlation level demonstrates the presence of a moderate correlation between such variables, indicating that, as suggested by Rice and Weber (2012) studies, greater audit effort increases the probability that existing control weaknesses are detected. It could also reflect an increase in substantive testing necessitated by the lack of effective controls, fact which would also increase the likelihood of detection of existing problems.

We also observed a positive correlation factor of 0.355 between the presence of an adverse internal control opinion issued by the external auditor (AEAICFR) and the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year (PICMW). In this research, we identified the PICMW as a determinant variable of AEAICFR. That is, we expected the PICMW to directly affect whether the external auditor would present an adverse or favorable internal control opinion. Although we found a moderate correlation between such variables, when compared to the other dependent variables analysed by this study, the PICMW is still the variable that has the strongest correlation with our dependent variable AEAICFR, indicating that auditors are somewhat effective in signaling to public that certain companies have severe deficiencies in their internal control environment in a moment prior to the occurrence of a financial statement restatement.

Finally, we observed a negative correlation factor of -0.297 between the presence of an adverse internal control opinion issued by the external auditor

(AEAICFR) and the presence of a Big4 auditor (BIG4). Opposite to what we were expecting, this correlation reveals that companies audited by Big4 firms are less likely to receive an adverse internal control opinion than companies that are audited by a non-Big4 firm. However, it is worth mentioning the presence of a weak correlation between such variables. Finally, Table 4.5 indicates the inexistence of a significant correlation between the presence of an adverse internal control opinion issued by the external auditor (AEAICFR) and the following variables: SIZE, LOSS and NEW AUDITOR.

#### Correlation analysis for the presence of a new auditor

As revealed by Table 4.5, the variable NEW AUDITOR has a significant correlation at the level of 5% with the following independent variables: LOSS and BIG4. The presence of a new auditor during any of the analyzed years (t or t-1) is 0.201 positively correlated with the presence of a loss at the end of the t year (LOSS). However, it is worth mentioning that these variables are weakly correlated. The correlation between the NEW AUDITOR and LOSS variables indicates that the presence of a loss for the audited company increases the probability of external auditor turnover. This finding corroborates with the discussion performed by Rice and Weber (2012) indicating that the presence of a loss results in greater litigation and reputation concerns for the external auditors of firms in poor financial health. Therefore, such concerns for the external auditor could explain the increase of auditor turnover in the presence of a loss.

In addition, the presence of a new auditor during any of the analyzed years (t or t-1) is 0.229 negatively correlated with the presence of a Big 4 auditor (BIG4). However, it is worth mentioning that the correlation between such variables is weak. Such correlation indicates that the presence of a Big4 audit firm decreases the probability of external auditor turnover. Finally, Table 4.5 shows no significant correlation between the presence of a new auditor during any of the analyzed years (t or t-1) and the following variables: SIZE, AUDIT FEES and the PICMW.

#### Correlation analysis with the presence of a Big 4 audit firm

As revealed by Table 4.5, the variable BIG4 has a significant correlation at the level of 5% with the following independent variables: SIZE and PICMW. The presence of a Big4 auditor during all analyzed years (t and t-1) is 0.219 positively correlated with larger companies (SIZE). The correlation between Big 4 audit firms and companies of larger size indicates that the larger a company is, the more frequently it will be audited by a Big4 firm.

Yet the presence of a Big4 auditor during all analyzed years (t and t-1) is 0.217 negatively correlated with the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year (PICMW). Such finding allows us to conclude that companies with financial restatements or fraud caused by the presence of internal control material weaknesses are less frequently audited by Big4 firms, fact which could also justify why adverse internal control opinions are less frequently provided by Big4 firms. Finally, Table 4.5 indicates no significant correlation between the presence of a Big4 auditor during all analyzed years (t and t-1) and the following variables: AUDIT FEES and LOSS.

#### Correlation analysis with the presence of a loss

As revealed by Table 4.5, the variable LOSS has a significant correlation at the level of 1% with the following independent variables: SIZE, AUDIT FEES and PICMW. The presence of a loss at the end of the t year is negatively correlated with larger companies (SIZE) with a correlation coefficient of 0.339, which indicates the presence of a moderate correlation between such variables. By interpreting this result, we find that the larger a company is, the least frequently it will have a loss. Yet, when analysing the correlation between the presence of a loss and greater auditor efforts (AUDIT FEES), we found the existence of a weak correlation, the positive correlation coefficient is 0.260. Such correlation coefficient indicates that the companies with financial losses more frequently disburse higher amounts with audit fees.

Such scenario could be associated with auditors having to spend more time to audit companies with financial losses in order to mitigate the risks associated with greater litigation and reputation concerns when auditing companies in poor financial health, as indicated by Rice and Weber (2012).

Finally, the presence of a loss is 0.300 positively correlated with the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year (PICMW). Such correlation measure allow us to conclude that companies with financial restatements caused by the presence of internal control material weaknesses more frequently present financial losses. Therefore, this finding indicates that companies with financial losses are more susceptible to manipulate their results or even commit accounting fraud, since they would present the “pressure” element of the Fraud Triangle Theory to achieve stakeholders’ financial performance expectations.

#### Correlation analysis for the presence of restated/fraudulent financial statements caused by internal control material weakness

As revealed by Table 4.5, the variable PICMW has a significant correlation at the level of 1% with the following independent variables: SIZE and AUDIT FEES. The presence of restated/fraudulent financial statements caused by internal control material weakness is negatively correlated with larger companies (SIZE). The correlation coefficient (0.331) indicates that the larger a company is, the least frequently it will have the presence of restated/fraudulent financial statements caused by internal control material weaknesses. Yet, when analysing the correlation between the presence of restated/fraudulent financial statements caused by internal control material weakness and greater auditor efforts (AUDIT FEES), we found the existence of a moderate positive correlation. The correlation coefficient (0.300) illustrates that the companies with the presence of restated financial statements caused by internal control material weakness more frequently disburse higher amounts with audit fees. Such scenario could be associated

with auditors having to spend more time to audit companies with internal control environments deemed to be deficient.

#### Correlation analysis for the presence of greater auditor effort

Crossing the variables that have not yet been analyzed, we found no statistically significant correlation between greater auditor effort (AUDIT FEES) and larger companies (SIZE).



Table 4.5- Pearson's correlation coefficients for the analyzed variables

Variables	AEAICFR	SIZE	AUDIT FEES	PICMW	MAO	LOSS	BIG4	NEW AUDITOR
Number of observations: 106								
AEAICFR	1							
SIZE	-.100	1						
AUDIT FEES	.334**	-.060	1					
PICMW	.355**	-.331**	.300**	1				
MAO	1**	-.100	.334**	.355**	1			
LOSS	.078	-.339**	.260**	.300**	.078	1		
BIG4	-.297**	.219*	.169	-.217*	-.297**	-.077	1	
NEW AUDITOR	.188	-.109	.110	.102	.188	.201*	-.229*	1

\*\* . The correlation is significant at the 0.01 level (2-tailed).

\* . The correlation is significant at the 0.05 level (2-tailed).

- This table does not include the RESTATED AUDITOR OPINION and DIRECTLY WEAKNESS variables because they are indicative measures for sampled companies with financial statements deemed to be unreliable (PICMW = 1).

- Definitions of variables: SIZE is the natural logarithm of the firm's total assets at the end of the t year; AUDIT FEES are audit-related fees paid during the t year scaled by the square root of the firms' total assets; PICMW indicates the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year; MAO indicates the presence of an adverse internal control opinion issued by company's management during the analyzed period (t) or its prior year (t-1); LOSS indicates whether the firm reports a loss at the end of the t year; BIG4 indicates the presence of a Big4 auditor during all analyzed years (t and t-1); NEW AUDITOR indicates the presence of a new auditor during any of the analyzed years (t or t-1); AEAICFR indicates the presence of an adverse internal control opinion issued by the external auditor during the analyzed period (t) or its prior year (t-1).

### 4.3 Results for the test of the first hypothesis

Table 4.6 provides the results for the logistics regression analysis used to test our first hypothesis. Such hypothesis proposes that external auditors are likely to have issued favorable internal control opinion for companies with internal control material weaknesses. In order to test this hypothesis, we employed a modified version of Rice and Weber (2012) statistical model regarding the report of internal control weaknesses. The main difference between these models is that the one created by Rice and Weber (2012) also includes variables that could affect the internal control opinion issued by companies' management, while ours specifically focus on variables that affect the external auditor. In addition, Rice and Weber (2012) model relies on a linear regression statistical model with all the companies analyzed in their sample presenting financial statements deemed to be unreliable. On the opposite side, our model is composed by companies with financial statements deemed to be reliable and with financial statements deemed to be unreliable. We focused on studying such sample in order to be able to compare the different opinions provided by the external auditors for companies with financial statements deemed to be reliable (PICMW = 0) from those with financial statements deemed to be unreliable (PICMW = 1).

After identifying the dependent, independent and all the control variables that could help explaining the adverse internal control opinion issued by the auditor, we created 6 different statistical models with the controlled variables in order to identify which one best predicts the outcome of our dependent variable (AEAICFR). It is worth mentioning that, due to the inexistence of variability between the internal control opinions issued by the external auditors (AEAICFR) and the internal control opinions issued by company's management (MAO), we exclude the MAO variable from our statistical models.

As presented on Table 4.6, among all the different models, model 4 reveals the best "Overall percentage of model" since its outcome would be correct 83% of the time compared to 80.2% for models 1,2 and 3 and 82,1% for models 5 and 6. When observing the coefficients for model 4, we noticed that the variable related to the

presence of restated/fraudulent financial statements caused by internal control material weakness at the t year (PICMW) has a positive coefficient of 2.109 and it is statistically significant at the level of 1%. Such fact demonstrates that our prediction that the PICMW directly affects whether the external auditor will present an adverse or favorable internal control opinion at the t year was correct. In addition, model 4 reveals that the presence of a Big4 auditor has a coefficient of -1.569 and it is statistically significant at the level of 5%. Contrary to our expectations, and from the results of the studies performed by Rice and Weber (2012) and Teoh and Wong (1993), the presence of a Big4 auditor is negatively related to the presence of an adverse internal control opinion issued by the external auditor (AEAICFR). As previously explored on section 4.3, the correlation analysis reveals that companies with financial restatements or fraud caused by the presence of internal control material weaknesses are less frequently audited by Big4 firms, fact which could explain why adverse internal control opinions provided by the external auditor are negatively correlated with audits performed by Big4 firms. In addition, an alternative explanation could rely on Big4 firms identifying internal control weaknesses at an earlier stage than other audit firms. This explanation would be related to the finding that Big4 firms perform higher quality audits than smaller accounting firms (Rice and Weber, 2012; Teoh and Wong, 1993). If auditors find weaknesses on an earlier stage, they can induct their clients to remediate the weaknesses in a prompt manner. In this case, if a material weakness is remediated before year-end and auditors have sufficient instances to test that the control in place has, indeed, been remediated, they are not obligated to disclose an adverse internal control opinion on the ICFR report.

As revealed by Table 4.6, three explanatory variables are statistically significant at the level of 1% or 5% for all the 6 models explored in this research: the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year (PICMW), the presence of a Big4 auditor during all analyzed years (BIG4) and greater auditor effort (AUDIT FEES). The only variable that is statistically significant for our model and that presented a behaviour contrary to what we were predicting is the BIG4 variable. All the other two statistically significant

variables are positively related to the presence of an adverse internal control opinion issued by the external auditor (AEAICFR), which confirms the expectations that greater auditor effort (AUDIT FEES) increases the probability that existing control weaknesses are detected (consistent with Rice and Weber, 2012) and that the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year (PICMW) is a determinant of external auditors disclosing adverse internal control opinions. In addition, it is worth highlighting that the 3 other controlled variables did not present a statistically significant relation with our dependent variable for any of the 6 different models tested in this section (non-statistically significant variables: SIZE, LOSS and NEW AUDITOR).

Finally, when analyzing the statistical model 6, which presents an overall percentage of model of 82.1% and includes all the explanatory variables, we observed that our independent variable PICMW is statically significant at the level of 5% and that its regression coefficient is positive 1.641. This coefficient indicates that when the PICMW variable changes one unit, the dependent variable (AEAICFR) changes 1.641 units. Also, the coefficient of the BIG4 variable is statically significant at the level of 1% and its regression coefficient is negative -2.353, which indicates that when the BIG4 variable increases one unit, the dependent variable (AEAICFR) decreases - 2.353 units. Last, we observed that the greater auditor effort variable (AUDIT FEES) is statistically significant at the level of 1% and that its regression coefficient is 0.021.

The results provided by the logistics regression indicate that external auditors are, at a certain degree, effective in providing a reliable opinion regarding the internal control environment of the audited companies, especially because the model includes observations of opinions for companies with financial statements deemed to be reliable and with financial statements deemed to be unreliable. However, it is worth highlighting that the Sarbanes-Oxley Act Section 404 (b) was created as an attempt to provide public with an advanced warning that a certain firm's financial statements could be unreliable – due to the presence of internal control material weaknesses. If we exclusively analyze the percentage of times in our sample that the external auditor has, indeed, provided advanced warning to investors that a certain firm had internal

control material weaknesses that could cause its financial statements to be unreliable, we observe that such advance warning was provided only for 34% of the sampled companies.

Table 4.6-Logistics regression analysis for the statistical models

	Overall percentage of model	Constant	Variables							
			PICMW	SIZE	LOSS	BIG4	AUDIT FEES	NEW AUDITOR		
<b>Model 1:</b>										
<b>Model 2:</b>										
<b>Model 3:</b>										
<b>Model 4:</b>										
<b>Model 5:</b>										
<b>Model 6:</b>										
<b>Predicted sign</b>			n/a	+	+/-	+	+	+	+	+
<b>Model 1</b>										
<b>Model 2</b>										
<b>Number of observations: 106</b>										

\*\*\*. The correlation is significant at the 0.01 level.

\*\*. The correlation is significant at the 0.05 level.

Table 4.6 - Logistics regression analysis for the statistical models

	Overall percentage of model	Constant	Variables						
			PICMW	SIZE	LOSS	BIG4	AUDIT FEES	NEW AUDITOR	
<b>Predicted sign</b>			n/a	+/-	+	+	+	+	+
<b>Model 3</b>	Coefficient	-3.138	2.207***	0.015	-0.148				
	Wald	0.827	10.162	0.010	0.060				
	Odds Ratio	0.043	9.089	1.016	0.863				
<b>Model 4</b>	Coefficient	-3.642	2.109***	0.102	-0.008	-1.569**			
	Wald	1.066	8.899	0.417	0.000	4.529			
	Odds Ratio	0.026	8.243	1.107	0.992	0.208			
<b>Model 5</b>	Coefficient	-2.853	1.605**	0.057	-0.627	-2.482***	0.022***		
	Wald	0.552	4.723	0.108	0.733	7.864	7.942		
	Odds Ratio	0.058	4.976	1.059	0.534	0.084	1.022		

Number of observations: 106

\*\*\*. The correlation is significant at the 0.01 level.

\*\*. The correlation is significant at the 0.05 level.

Table 4.6 - Logistics regression analysis for the statistical models

	Overall percentage of model	Constant	Variables						
			PICMW	SIZE	LOSS	BIG4	AUDIT FEES	NEW AUDITOR	
<b>Predicted sign</b>		n/a	+	+/-	+	+	+	+	+
Coefficient		-3.044	1.641**	0.059	-0.768	-2.353***	0.021***	0.856	
Wald	0.821	0.611	4.835	0.113	0.995	6.687	7.711	0.744	
Odds Ratio		0.048	5.163	1.061	0.464	0.095	1.021	2.353	

**Number of observations: 106**

\*\*\*. The correlation is significant at the 0.01 level.

\*\*. The correlation is significant at the 0.05 level.

- This table does not include the RESTATED AUDITOR OPINION and DIRECTLY WEAKNESS variables because they are indicative measures for sampled companies with financial statements deemed to be unreliable (PICMW = 1).

- Definitions of variables: SIZE is the natural logarithm of the firm's total assets at the end of the t year; AUDIT FEES are audit-related fees paid during the t year scaled by the square root of the firms' total assets; PICMW indicates the presence of restated/fraudulent financial statements caused by internal control material weakness at the t year; MAO indicates the presence of an adverse internal control opinion issued by company's management during the analyzed period (t) or its prior year (t-1); LOSS indicates whether the firm reports a loss at the end of the t year; BIG4 indicates the presence of a Big4 auditor during all analyzed years (t and t-1); NEW AUDITOR indicates the presence of a new auditor during any of the analyzed years (t or t-1); AEACFR indicates the presence of an adverse internal control opinion issued by the external auditor during the analyzed period (t) or its prior year (t-1).



#### 4.4 Results for the test of the second hypothesis

The Tables presented above provide evidences related to our second hypothesis. In this hypothesis, we state that external auditors were more likely to have disclosed adverse internal control opinion than companies' management. However, as already discussed in the above sections, we found no differences between the opinion disclosed by the external auditors and by those disclosed by companies' managers. As it can be seen on Table 4.1, the mean, median and standard deviation for the observations related to the AEAICFR and MAO variables are exactly the same. In addition, the correlation between these variables listed on Table 4.5 are 1, which is why the MAO variable was excluded from our statistical model.

The second hypothesis of this study was developed based on Bedard and Graham (2011) findings related to auditors detecting almost three-fourths of the existing internal control deficiencies in a company. Their results also indicate that two-thirds of auditor-detected material weaknesses are signaled through control tests and concluded that without auditor control testing, many key flaws in ICFR could have been missed. In addition, the Kinney, J. W. R. and Shepardson (2011) studies found that material weaknesses are rarely disclosed to public unless misstatements are detected by auditors. However, our results indicate that there is no difference between the opinions disclosed by auditors and those disclosed by companies' management. These results that seem to be contradictory by those presented by Bedard and Graham (2011) and Kinney, J. W. R. and Shepardson (2011) could be due to the fact that we were unable to analyze who was the party responsible for detecting the internal control weakness in a first place. Our results were based on public information presented on 10-K forms disclosed by SEC and they drive us to conclude that auditors and companies' management agree which ICFR opinion should be disclosed to public and release the exact same opinion, in order to avoid public disputes and image damages for these two parties. Therefore, we reject our second hypothesis and assume that external auditors

are likely to have disclosed the same internal control opinion than companies' management.

It is worth highlighting that since we were unable to assess internal documentation, such as working papers and reports, we were incapable to assess which party was responsible for detecting the internal control weakness. However, by mixing the results found by Bedard and Graham (2011) and Kinney, J. W. R. and Shepardson (2011) with ours, we are able to infer that if the weaknesses are mostly detected by external auditors, as indicated by Bedard and Graham (2011), the auditor figure can put pressure on the management of the company to be forthcoming about the existence of internal control weaknesses and, therefore, company's management agrees to disclose the exact same opinion that the auditor has regarding the internal control environment in the 10-K form.

#### 4.5 Summary of empirical results

In this chapter, we presented the results for the tests of our two hypotheses. The first hypothesis of this research assumes that external auditors are likely to have issued favorable internal control opinion for companies with internal control material weaknesses. We conducted a comparative analysis, correlation analysis and logistics regression in order to test the first hypothesis. The comparative analysis reveals that only 34% of companies with financial statements deemed to be unreliable have received an adverse internal control over financial reporting (ICFR) opinion issued by the external auditor during the misrepresentation period or its prior year. Thus, 66% of the sampled companies with financial statements deemed to be unreliable have received a favorable internal control opinion during the misrepresentation period. If we were to conclude simply by this statistic, we would infer that, indeed, external auditors are likely to have issued favorable internal control opinion for companies with internal control material weaknesses. However, we also found a statistically significant difference between the means of the two different sampled groups analyzed in this research: companies with financial statements deemed to be reliable (group 1)

and companies with financial statements deemed to be unreliable (group 2). The  $p$  value  $<0.0005$  indicates that the mean value of the presence of an adverse opinion for companies with financial statements deemed to be reliable (group 1), is significantly different than for companies with financial statements deemed to be unreliable (group 2). The average presence of an adverse internal control opinion issued by the external auditor for companies with reliable financial statements is 0.283 lower than for companies with financial statements deemed to be unreliable. Therefore, when comparing the means between these two groups, we can infer that the external auditors are somewhat effective in disclosing red flags to the public that certain companies have internal control material weaknesses, since the percentage of firms that received an adverse internal control opinion are significantly higher for the group of companies with financial statements deemed to be unreliable. In addition, we also found three statistically significant variables that support explaining the dependent variable AEAICFR (adverse external auditor opinion issued in the internal controls over financial reporting). First, the positive correlation factor of 0.355 between the presence of restated/fraudulent financial statements caused by internal control material weakness at the  $t$  year (PICMW) and the presence of an adverse external auditor opinion issued in the internal controls over financial reporting (AEAICFR) indicates that auditors are somewhat effective in signaling to public that certain companies have severe deficiencies in their internal control environment in a moment prior to the occurrence of a financial statement fraud/restatement. Second, the negative correlation factor of -0.297 between the presence of a Big4 auditor during all analyzed years (BIG4) and the presence of an adverse external auditor opinion issued in the internal controls over financial reporting (AEAICFR) indicates that, contrary to what we expected, companies audited by Big4 firms are less likely to receive an adverse internal control opinion than companies that are audited by a non-Big4 firm. We attribute such correlation to the fact that our sample indicates that companies with financial restatements or fraud caused by the presence of internal control material weaknesses (PICMW) are less frequently audited by

Big4 firms. An alternative explanation aligned to the idea that Big4 firms perform higher quality audits than smaller accounting firms (Rice and Weber, 2012; Teoh and Wong, 1993), could attribute this correlation to the notion that if Big4 auditors find weaknesses on an earlier stage than other auditors, they can induct their clients to remediate the weaknesses in a prompt manner. In this case, if a material weakness is remediated before year-end and auditors have sufficient instances to test that the control in place has, indeed, been remediated, they are not obligated to disclose an adverse internal control opinion on the Internal Controls over Financial Reporting (ICFR) report. Third, the positive correlation factor of 0.334 between greater auditor effort (AUDIT FEES) and the presence of an adverse external auditor opinion issued in the internal controls over financial reporting (AEAICFR) indicates that, as suggested by Rice and Weber (2012) studies, greater audit effort increases the probability that existing control weaknesses are detected. Finally, the results regarding the logistics regression analysis for the 4<sup>th</sup> statistical model – the one with the best “overall percentage of model” – reiterate that our prediction that the presence of internal control material weaknesses (PICMW) directly affects whether the external auditor will present an adverse or favorable internal control opinion at the t year was confirmed. We noticed that such variable has a positive coefficient of 2.109 and it is statistically significant at the level of 1%, hence the presence of internal control material weaknesses explains the presence of an adverse external auditor opinion issued in the internal controls over financial reporting (AEAICFR). In addition, the logistics regression analysis confirms that the presence of a Big4 auditor is negatively related to the presence of an adverse external auditor opinion (AEAICFR). The BIG4 variable has a coefficient of -1.569 and it is statistically significant at the level of 5%. Also, for the 6<sup>th</sup> statistical model (the one that considers all the explanatory variables), we observed that the greater auditor effort variable (AUDIT FEES) is statistically significant at the level of 1% and that its regression coefficient is 0.021. In sum, such results arisen from the logistics regression analysis indicate that external auditors are, at a certain degree, effective in providing a reliable

opinion regarding the internal control environment of the audited companies. However, the Sarbanes-Oxley Act Section 404 (b) was created as an attempt to provide public with an advanced warning that certain firms' financial statements could be unreliable – due to the presence of internal control material weaknesses. If we exclusively analyze in our sample the percentage of times that the external auditor has, indeed, provided advanced warning to investors that a certain firm had internal control material weaknesses that could cause its financial statements to be unreliable, we observe that such advance warning was provided only for 34% of the sampled companies.

The second hypothesis of this research assumes that external auditors are more likely to have disclosed adverse internal control opinion than companies' management. We conducted a comparative analysis and correlation analysis in order to test the second hypothesis. The comparative analysis reveals that there are no differences between the internal controls over financial reporting opinions disclosed by the external auditors from those disclosed by companies' managers. The mean, median and standard deviation for the observations related to the presence of an adverse external auditor opinion issued in the internal controls over financial reporting (AEAICFR) and the presence of an adverse companies' management opinion issued in the internal controls over financial reporting (MAO) variables are exactly the same. In addition, the correlation coefficients between these variables are 1, which corroborates that always the same opinion was disclosed between these parties. These results are contradictory from those presented by Bedard and Graham (2011) and Kinney, J. W. R. and Shepardson (2011), which mention that auditors are more likely to detect and disclose internal control material weaknesses than companies' management. Such finding could be due to the fact that we were unable to analyze who was the party responsible for detecting the internal control weakness in a first place. Our results were based on public information presented on 10-K forms disclosed by SEC and they drive us to conclude that auditors and companies' management agree which internal controls over financial reporting (ICFR) opinion should be disclosed to public and release the exact same opinion, in order to avoid public disputes

and image damages for these two parties. Therefore, we reject our second hypothesis and assume that external auditors are likely to have disclosed the same internal control opinion than companies' management.

## CHAPTER V

### CONCLUSION

#### 5.1 Discussion and conclusion

This research attempted to examine whether the external auditors' opinions disclosed at the internal controls over financial reporting (ICFR) were effective. More specifically, the objective of our research was to empirically assess whether external auditors were effective in providing investors and stakeholders with early warning that certain companies have severe internal control deficiencies before a financial statement fraud or restatement came to light. To this end, we developed two research hypotheses which were drawn based on previous related studies and theoretical arguments.

Our first hypothesis was proposed based on the studies performed by Donelson et al. (2017), Rice and Weber (2012) and a Public Company Accounting Oversight Board (PCAOB) inspection conducted on 2009. Section 404 of the SOX Act became effective November 15, 2004, requiring that both management and auditors provide an annual assessment of the effectiveness of the existing internal controls over financial reporting (ICFR) of public listed companies in the United States. Based on this regulation, this study decided to focus on assessing how effective are external auditors' opinions disclosed on the internal controls over financial reporting (ICFR) reports. We hypothesized that auditors are likely to disclose a favorable internal control opinion for companies with internal control material weaknesses. We undertook a comparative analysis, correlation analysis and logistics regression with 106 sampled companies in order to test this hypothesis. The results indicate that only 34% of companies with financial statements deemed to be unreliable have received an adverse Internal Controls

over Financial Reporting (ICFR) opinion issued by the external auditor during the misrepresentation period or its prior year. In addition, the correlation analysis and logistic regression demonstrate a statistically significant relation between the presence of an adverse internal control opinion issued by the external auditor (AEAICFR) and the following variables: presence of restated/fraudulent financial statements caused by internal control material weakness, with a positive correlation (PICMW), the presence of a Big4 auditor during all analyzed years, with a negative correlation (BIG4) and greater auditor effort, with a positive correlation (AUDIT FEES).

Our second hypothesis was proposed based on the studies performed by Bedard and Graham (2011) and Kinney, J. W. R. and Shepardson (2011). We hypothesized that external auditors were more likely to disclose adverse internal control opinion than companies' management. We undertook a comparative analysis and correlation analysis with 106 sampled companies in order to test this hypothesis. The results indicate that there is no difference between the internal controls over financial reporting (ICFR) opinions disclosed by the external auditors from those disclosed by companies' managers (correlation between these variables are equal to 1, a perfect correlation). Therefore, such results are contradictory to the ones presented by Bedard and Graham (2011) and Kinney, J. W. R. and Shepardson (2011), which mention that auditors are more likely to detect and disclose internal control material weaknesses than companies' management. Our results drive us to conclude that auditors and companies' management agree which Internal Control over Financial Reporting (ICFR) opinion should be disclosed to public and release the exact same opinion, in order to avoid public disputes and image damages for these two parties.

In order to link our results with the theoretical argument section, we recap that three theories were presented to support the analysis performed in this study: the legitimacy theory, the fraud triangle theory and the self-determination theory. The legitimacy theory was used in this study to support the idea that public accounting firms' opinions released to public can be a form of proving their legitimacy and therefore accomplishing their "social



contract” with society. Therefore, our findings that only 34% of companies with financial statements deemed to be unreliable have received an adverse Internal Control over Financial Reporting (ICFR) opinion issued by the external auditor during the misrepresentation period or its prior year could threaten the usefulness of the opinions disclosed by the external auditors, and thus, menace their legitimacy and “social contract” with society. However, it is worth highlighting that the requirements imposed by section 404 (b) of the Sarbanes-Oxley Act were an attempt of the US government to reduce the “opportunity” element discussed on the fraud triangle theory. Hence, in this matter, our results indicate that the requirement of an annual assessment of the internal controls environment related to financial reporting, indeed, supports reducing the “opportunity” element of the fraud triangle theory of committing fraud. Since internal controls deficiencies are more promptly brought to light with the required annual assessment, companies have a broader possibility of remediating such deficiencies and, thus, reducing the opportunities of fraud being committed. Such rationale is supported by our findings that external auditors are somewhat effective in identifying and disclosing red flags to the public that certain companies have internal control material weaknesses. As previously mentioned, our *t*-test analysis provides evidence that the average presence of an adverse internal control opinion issued by the external auditor during the misrepresentation period or its prior year for companies with unreliable financial statements is statistically significantly higher than for companies with financial statements deemed to be reliable. Finally, it is worth recapping that we mentioned the self-determination theory in this study to support understanding the motivations that can affect the decision-making process of an auditor when consolidating the opinions that will be disclosed to public, as well as the motivations that may affect the quality of work performed by auditors. In this sense, we noticed a positive correlation factor of 0.334 between greater audit effort and the presence of an adverse internal control opinion issued by the external auditor. Also, our results indicate that the internal control opinions disclosed to public by companies’ management is, in its vast majority, aligned with the opinions disclosed by the external

auditor. Therefore, we understand that even if the internal control material weaknesses are more frequently identified by external auditors, as indicated by Kinney, J. W. R. and Shepardson (2011), the intention to avoid public disagreements and image damages could be a motivator for auditors and companies management to align their ICFR opinions before disclosing it to public.

## 5.2 Implications of our study

The findings of our study have practical implications for companies that are enforced by the Sarbanes-Oxley Act, Section 404(b), for policymakers, investors and stakeholders. For companies that are enforced by the Act, we notice that they have space to question and criticize the high fees linked to the implementation of the SOX Act, section 404 (b), since only 34% of companies with financial statements deemed to be unreliable have received an adverse Internal Control over Financial Reporting (ICFR) opinion issued by the external auditor during the misrepresentation period or its prior year. However, for investors and stakeholders, even though the auditors are not highly effective in providing early warning of a future revelation of fraud or financial restatement, the ICFR reports still provide some guidance of the existence of severe internal control deficiencies that could lead to a fraud or restatement. Therefore, these reports support the achievement of the primary purpose of increasing investors' trust on financial reporting of public listed companies in the United States. This implication is backed by the finding that the presence of an adverse internal control opinion issued by the external auditor during the misrepresentation period or its prior year for companies with unreliable financial statements is statistically significant higher than for companies with financial statements deemed to be reliable. Finally, for policymakers and regulators, the findings indicate that SOX Section 404(b) provides a potential benefit of an early warning system for a future financial restatement or fraud revelation. Given the criticisms associated to the Act, policymakers and regulators could also consider ways to improve the accuracy of material weakness disclosures.

### 5.3 Limits of our study and recommendations for future works

Our research has some limitations that could affect the results found on this study. Because of these limitations, we recommend certain matters that could be addressed by future researchers. First, we mention a limitation linked to the fact that we could not distinguish which one of the two parties (external auditors or companies' management) was responsible for identifying the existent material weaknesses disclosed in some of the internal control over financial reporting (ICFR) reports of the sampled firms. This limitation, caused by the fact that we had access only to publicly disclosed information of the sampled companies, did not allow us to properly verify how effective are exclusively external auditors in assessing the internal control environment of their clients. We were particularly interested in assessing external auditors' effectiveness in detecting and disclosing internal control material weaknesses, because we would like to verify if this group, as independent third-parties, provided more reliable opinions than those disclosed by companies' management. Second, we were not able to assess the internal control reports issued by the external auditors to the companies' management. Since only internal control deficiencies classified as material weaknesses are disclosed on the Internal Controls over Financial Reporting (ICFR) reports, it exists a gap in this study in terms of external auditors detecting internal control deficiencies that led to a future revelation of fraud or financial restatement, however such deficiency not being classified as a material weakness. In this scenario, an adverse opinion would not be disclosed, even though the auditor was effective in detecting the internal control failure. Such limitation could imply in a decrease in the classification of an auditor being effective in identifying internal control weaknesses that lead a company to a future revelation of accounting fraud or restatement. Finally, we identify a third limitation in this research related to the fact of an uncertainty if all the sampled companies classified in the "group 1" as companies with financial statements deemed to be reliable have, indeed, reliable financial statements. There is not a specific time frame in which a financial statement restatement

or the discovery of a fraud can occur. Thus, it is possible that a financial statement will only be restated several years after it has been disclosed. Thus, the possibility that a company classified as an observation of “clean financial statements” in our sample ends up being restated in the future is not remote.

Throughout this study, we identified three possible concerns that could be considered by future researchers. First, future research could further examine whether auditor expertise or other characteristics mitigate the relation between material weaknesses and the future revelation of financial reporting fraud. Such approach would address the unexpected negative correlation between the presence of an adverse internal control opinion issued by the external auditor and the presence of a Big4 auditor. Second, we have identified three variables that are statistically significant associated with the disclosure of an adverse internal control opinion by the external auditor. Therefore, future research could further explore other variables that might affect this outcome. Finally, future research could focus on understanding possible reasons for audit failure to report to public existing internal control material weaknesses, as well as further investigate the consequences for the auditors and companies’ management of failing to report them.

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