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An Effectiveness Review of Section 404 of the Sarbanes Oxley Act (2002)

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An Effectiveness Review of Section 404 of the Sarbanes Oxley Act (2002)

Abstract

The accounting scandals that occurred in the early 2000s launched the current day regulations set fourth in the Sarbanes Oxley Act. The Sarbanes Oxley Act is comprised of several titles, all aimed to help eliminate financial accounting errors and the potential of fraud. Within this piece of legislation, there is one section that has created a lot of discussion. Section 404, which discusses the way in which disclosures of internal control deficiencies are handled, is the topic of this paper. In addition to a literature review of a research paper written by Sarah Rice and David Weber, this paper will look at different elements to see if this section of the Sarbanes Oxley Act has changed the regulatory environment. Through comparative studies, this paper is aimed to see if the legislation created to stop these financial scandals from happening, was successful and effective.

Keywords

Sarbanes Oxley, Regulation, Section 404, Effective

Subject Categories

Accounting

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An Effectiveness Review of Section 404 of the Sarbanes Oxley Act (2002)

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Introduction: Events leading to the creation of the Sarbanes Oxley Act

In the mid-1990s, we saw the beginning of a 'new economy' in the United States, one that consisted of a lot more players with a lot more influence. The stock market reflected this change, with stock averages rising through the early 2000's. Some of the largest beneficiaries were the new entrants undertaking IPOs. With the introduction of information technology and a change in the equity investing culture, millions of individuals entered the stock market for the very first time. In the second quarter of 2000, the bubble had busted, stocks had plummeted and investors fled the market. All of the companies who were initiating IPOs disappeared, very similar to that of the 1929 crash, this led to many other atrocities. Most of these scandals are very well known now, and they include, Enron, Tyco, WorldCom and Adelphia.

Enron is one of the most famous financial scandals that this generation has seen. In order to satisfy the credit rating agencies, the leadership of Enron lobbied to raise Enron's credit rating, but without any success. They were interested in lowering their debt ratio through reducing hard assets and increasing Enron's return on assets (ROA). This deduction would then make the company look more attractive to investors and the credit rating agencies. Many companies used 'special purpose entities' (SPE) to access capital and hedge risk. By using these they are able to increase leverage and ROA without having debt on its balance sheets. The SPE then can borrow a large amount of money from financial institutions to purchase assets or conduct other business without the debt or assets showing up on their financial statements. They can also sell leveraged SPE's and book a profit, and through FASB guidelines, they were able to avoid classifying them as a subsidiary and would not have to report the SPE's financial position on their financial statements. (Thomas, 2002)

Enron took the use of SPEs to a new level and they were able to take advantage of this loophole. Enron began using these SPE's in many of their business deals and compounded a management fee of

30 million dollars, which went straight into Andrew Fastow's, former Enron CFO, pocket. In addition, by capitalization of Raptor Vehicles, one of their SPEs, they were able to record a note receivable and the corresponding increase in shareholder's equity for \$1.2 billion when they issued common stock. Through odd footnotes and disclosures on their financial statements, Enron began to crumble and thus started one of the largest financial busts we have seen. (Thomas, 2002)

Other corporate scandals were also brought to light in the early 2000s, one being Tyco. Through its decentralized corporate structure and lack of accurate internal accounting records, it allowed the CEO of the company to steal 137 million dollars in unauthorized bonuses as well as selling 410 million dollars in inflated stock. (Markon & Frank, 2002) After Enron, and then Tyco, when WorldCom announced that it had overstated earnings in 2001 and the first quarter of 2002 by more than 3.8 million dollars, financial analysts were stunned. They were able to overstate due to the fact that they were classifying payments for using other companies' communications networks as capital expenditures. They later announced that it had also manipulated its reserve accounts in recent years, affecting an additional 3.8 billion dollars. Actions by the federal regulator agency, Securities and Exchange Commission, were swift. WorldCom was charged with fraud and was barred from destroying their financial documentation, limiting its payments to past and current executives and requiring an independent monitor. (Romero & Berenson, 2002) Lastly, two executives from the cable-television company Adelphia were arrested for massive fraud, in the federal government's attempt to crack down on "corporate malfeasance". They too, were charged with securities fraud, wire fraud and bank fraud. (Markon & Frank, 2002)

These are just a few of the cases seen in the early 2000's that caused the United States Congress to create the Sarbanes Oxley Act (SOX) and tighten the regulations on internal accounting practices and increase the accuracy in financial reporting. One of the common issues around all of these scandals is

that they all suffered from or exhibited corrupt internal controls in regards to reporting their financial statements. This is the reason Section 404 of the Sarbanes Oxley Act is so important and worth dissecting and looking into in more detail. This study will address what the Sarbanes Oxley Act consists of and how the most controversial section of it operates (Section 404). The study will also, examine the different trends in financial misstatements and internal control financial reporting weaknesses.

Introduction: Components of the Sarbanes Oxley Act

After the events described above occurred, the United States Congress decided something must be done in order to stop these terrible acts from happening again. Their response was the Sarbanes Oxley Act; this was aimed to restore the public confidence in financial information. SOX was introduced by Senator Paul Sarbanes and Representative Michael Oxley. Representative Oxley created a bill, which was referred to as the “Corporate and Auditing Accountability, Responsibility and Transparency Act”, which was passed by the House of Representatives and was sent over to the Senate to be reviewed by the Banking Committee. At this time, Senator Sarbanes, chairman of the Banking Committee, was working on his own proposal focusing on the same issue. Congress created a Conference Committee to join these two proposals and created what we now know as the Sarbanes-Oxley Act. This passed the House (423-3) and passed the Senate (99-0). SOX contains eleven titles targeted to strengthen corporate accountability and public accounting responsibilities. The first title creates and organizes the Public Company Accounting Oversight Board (PCAOB). This board is directed by the Securities and Exchange Commission and has various responsibilities. They have the responsibility of (1) registering public accounting firms that prepare audit reports, (2) establishing auditing ethics, independence and other regulatory rules and audit standards, (3) conducting inspections, investigations and disciplinary proceedings and (4) imposing sanctions. (Grey & Ehoff 2015)

Title II focuses on auditor independence where there are three main topics discussed. First, primary audit engagement partners must rotate off the engagement at least every five years. Second, registered accounting firms cannot audit clients with a Chief Executive Officer, Chief Financial Officer, controller or chief accountant who was employed by the accounting firm during the one-year period preceding the audit. Lastly, the third change narrowed the scope of the services that accounting firms provide to clients. The biggest change is that accounting firms can no longer supply companies with their consulting services if they are an auditing client, but they can still give offer their audit clients tax services.

The third title discusses corporate responsibilities including their development of an audit committee and its purpose. All CEOs and CFOs must sign financial reports filed with the SEC, verifying that the reports are fair and present the correct information and are free from misstatements. They are additionally required to establish and maintain effective internal controls. This brings to the forefront the fact that the leadership of the corporation is responsible for the numbers they are displaying to the public and they need to receive all consequences they deserve after the publication of those numbers. The fourth title and the one that we will be looking at in much further depth, discusses the enhanced financial disclosures. Annual reports must include an assessment by the CEO and CFO of the organizations internal controls. (Grey & Ehoff 2015) This allows government regulators to monitor and see if the company is focusing enough on their internal controls to prevent fraud and other forms of financial misstatements that would cost the company and the public large financial losses.

Introduction: Detail Review of Section 404

Section 404 of SOX is one of the most controversial pieces of SOX legislation which has been greatly debated since its inception in 2002. (Luez 2007) Section 404 deals with management's assessment of its internal controls and the auditor's role. This requires a foreign private issuer to

maintain internal control over financial reporting, evaluate the effectiveness of internal control as of the end of each fiscal year, and evaluate any change in its internal control that occurred during the fiscal year. Management must provide a report on the issuer's internal control over financial reporting that contain other things including a statement of management's responsibility for establishing and maintaining adequate internal control over financial reporting. The officials in charge of SEC reporting must also create and present a statement identifying the framework used by management to evaluate the effectiveness of the issuer's internal control over financial reporting. Management must also discuss any disclosure of any material weakness and they must present a statement that the independent auditor, that audited the financial misstatements, include an attestation report on management's assessment on the issuer's internal controls in the annual report. (Cohen, etc. 2005) With all these additional steps that need to be taken, the external auditing firms needed to increase their audit fees. With these increases in costs, it has been argued that this is actually hurting smaller public companies. Through analytical processes, this paper will explore if Sarbanes Oxley is affective by looking at trends in fraud and other financial misstatement cases through data collected from the Wharton Research Data Service (WRDS) and Audit Analytics. In addition, this paper will analyze the relationship between certain factors and the relative frequency of misstatements over the past 20 years to see if the cost of keeping up with the regulations is truly needed for the majority of public corporations in the US.

Objectives and Basis for Research:

The topic of regulation and how much the government should be involved in the decisions that public companies make is a much debated topic. My area of interest is to look at how the level of involvement of federal regulators correlates to the protection of the general public from massive amounts of fraud, financial misstatements and their repercussions. Is SOX doing what it is designed to

do? Are we better off now because of the legislation or are we just becoming more aware of these types of crimes?

The topic of effectiveness of section 404 is not a heavily studied topic in academic literature. Most academics, when researching and studying this section of SOX, are more concerned with the cost implications of the increased compliance factors. A study done by Ashbaugh, Collins, and Kinney (ACK) (2007), alongside Doyle, Ge and McVay (DGM) (2007) provided the first evidence relating firm characteristics to internal control deficiencies (ICD). Both sets of studies disclosed that control risk factors associated with organizational complexity and significant organizational change are related to disclosure of internal controls. ACK looked into the notion of whether incentives to discover and report ICDs affected disclosure rates but the evidence was not significant. ACK (2007) found that firms that were more complex, those that hold more inventory, and have faster and larger growth, tend to be more apt to report their ICDs. In addition, their study did show that those companies that had less money to invest into internal controls, greater internal control risk and those that have greater reporting incentives, report their internal control weaknesses. (ACK, 2007). DGM initiated a comparative study, looking at accruals quality and how they interact with ICDs that were material in nature. Their results showed that firms with weak internal controls over their financial reporting, generally, had weak accruals quality. Through, their study they looked and compared the different types of material weakness, which include company level and, more auditable, account-specific level. They found that the company level material weakness drove most of their data to the results that led them to their conclusion. (DGM, 2007)

A study done by Sarah Rice and David Weber (2011) differ from the studies talked about previously in that they were able to “separate the reporting of internal control weaknesses from their underlying existence”. By separating these weaknesses and looking at companies that all had

weaknesses, they were able to determine the factors that affect detection and disclosure of financial misstatements. Their results showing that the SOX 404 reporting may not be as effective as it should be in reporting, detecting and disclosing material weaknesses. In addition, the effectiveness has not improved overtime and that the decline in reporting these weaknesses is not reflective of the improvements in the internal control reporting process. This study shows that the idea of effectiveness in SOX 404 reporting needs to be questioned and looked at more by academics because it is going unnoticed. In the paper written by Rice and Webber, they discuss that the only instance that internal control financial controls are to be deemed effective is if no material weaknesses exist. They looked at the cases in which the company restated which indicates that there were cases of weaknesses in internal controls.

Through those cases, they identified certain areas that may have caused these weaknesses. They were identified as external financing needs, size, financial health, recent managerial turnover, the occurrence of previous restatements and control weaknesses reported prior to SOX 404. In addition, they looked at the external auditor's role and the characteristics associated with them. This included size of the audit firm, auditor effort, non-audit fees paid, and recent auditor switches. (Rice and Weber, 2011) Through looking at all of these characteristics, they found certain statistical relationships with the amount of financial restatements which indicate internal financial reporting weaknesses. Some of their findings included that larger firms enjoyed economies of scale and have superior resources to dedicate to internal control testing, increasing the likelihood for detection. By contrast though, they have increased in organizational complexity, which in turn would make it harder to detect. In addition, firms in poor financial health may lack the necessary resources to conduct adequate tests of internal controls. Lastly, they discovered that the type of accounting firm dictates whether or not certain internal financial reporting weaknesses will be reported. They found that the Big Four firms would report fewer internal control weaknesses than the smaller regional, non-Big Four firms. (Rice and Weber, 2011) With this

data, it confirms that there is a need for more research and investigation into the effectiveness of Section 404 and if it truly is detecting the internal control weaknesses before they become a larger issue affecting the public. Through research and analysis, this paper is going to go into if Section 404 is increasing the amount of financial reporting weaknesses in companies, which in turn, will give light on SOX as a whole and answer the question of effectiveness of governmental regulation and internal accounting.

Literature Review:

The internal control system that a company creates is a very important aspect to their credibility and their position in the eyes of the public and the government that regulates them. The effectiveness of these control systems determines a lot of outcomes and can cause the company and the public to endure a lot of financial harm if these control systems are not intact and covering all prospective areas of concern. One piece of legislation that was key in building up these internal control systems was the SOX act of 2002. This was enacted to help reestablish the public trust in the capital markets after numerous high-profile accounting scandals. The one section that firmly addresses internal control systems is Section 404, which is also a very controversial and tested topic. This section requires both management and the independent auditor to report annually on the effectiveness of their internal control systems over financial reporting.

The importance of this section is that it has caused many companies to have increased audit fees which may or may not be necessary. Many people have noted that some of the anticipated warning signs that these reports are intended to deliver, have failed and some accounting errors have slipped through the cracks. In the article written by Sarah C. Rice and David P. Weber, entitled, "How Effective is Internal Control Reporting under SOX 404? Determinate of the (Non-) Disclosure of Existing Material Weakness", they discussed how effective SOX 404 reports are in providing advanced warning of these

impending accounting problems. Secondly, they discussed the determinants of the related effectiveness of those reports, their focus being on the factors that influence the reporting of control weakness, rather than their existence.

The methods they used in conducting research started as identifying firms that restated previously issued financial statements to correct misstatements in the original reports. This ensured them that all the firms they were looking at had financial control weaknesses at the time they needed to file a misstatement. This allowed them to determine if the weaknesses were originally reported as intended under SOX 404. They looked at multiple factors that were expected to be associated with either management or the auditor's abilities to detect control weaknesses. These included, external financing needs, size, financial health, recent managerial turnover, the occurrence of previous restatements and control weaknesses reported prior to SOX 404, size of outside auditor, and other factors dealing with the outside auditor. To isolate the "irregularities" which are represented by intentional misstatements, opposed to unintentional errors, they used the Hennes, Leone, and Miller restatement classification scheme (2008). This is important due to the fact that managers who are making intentional misstatements are aware of the weaknesses in their organization, which they argue that detection has likely occurred for these firms. Their results showed that a large portion of firms with material weaknesses fail to report those weaknesses in a timely manner. Accordingly, 32.4% of their sample firms reported the existence of a material weakness during their misstatement period. Through the years, this number has decreased and it was down to 13.6% during the late 2000's and early 2010's.

Through Rice and Weber's (2011) analysis of certain metrics, they were able to come to conclusions on some of the determinants. They reasoned that firms in need of raising external capital are less likely to report existing weaknesses. They stated that this is consistent with recent evidence that reported control problems lead to higher costs of capital. In addition, they believed that larger

firms are less likely to report existing weaknesses. On average factors of the control environment complexity outweigh any resource or scale advantages related to size. Firms that had previous misstatements or control weakness existence had an increased chance of having more in the future. When it comes to auditor size, they hypothesized those firms that were not using a Big Four firm were less likely to report existing weaknesses. This needs to be handled cautiously due to the direct role that auditors play in the certification of the financial statements they are reviewing. Due to their size and resources they are able to work around the control weaknesses and avoid misstatements that would lead to the inclusion in their sample. In the same light, audit fees are directly associated, according to their analysis, to the detection of control weaknesses. Conversely, non-audit fees paid to firms had a negative effect on detection, which may be due to the effect it has on auditor objectivity.

Rice and Weber (2011) began with a set of firms that restate previously issued financial statements to correct misstatements in the original reports. In both the academic and practitioner literature, if a company issues a restatement, it is indicative that that company has internal control problems. "Recall that PCAOB AS 2 defined a material weakness as a deficiency in internal controls that creates a 'more than likelihood' that a material misstatement in the financial statements will go undetected...indicating that a company's internal control must have had at least one weakness." (Turner and Weirich, 2006) Although, they only looked at firms that had restatements, not all restatements result in an internal control weakness. The PCAOB allows for the possibility of 'extenuating or unique circumstances'. With this in mind, the authors of this article did look at the disclosures and eliminated the restatements that fit the PCAOB's requirement and were minor errors that did not result in an internal control deficiency. This leaves their sample to only include those reports that were significant enough to be considered a weakness.

Rice and Weber (2011) gathered their restatement data from Audit Analytics, which identifies the internal announcement dates, in addition to, the beginning and ending dates for the restatement period. They choose to look at the data that had announcement dates that occurred by the end of 2009, with misstatement periods that include the SOX 404 effective date, which is November 15, 2004. Through these criteria they were able to find 1,077 restatement observations with matching internal control reports. They eliminated any reports that were subsequent restatement entries from a singular company. This allowed them to eliminate 193 observations from the 1,077 they started with. They also took out all the entries that did not have all necessary information to construct their models. This came to 218 observations that were eliminated from the total 1,077 observations they started with. These were taken out after identifying the firms who reported misstatements and stated that they were not attributable to internal control weaknesses. Through analysis and reading the control related disclosures occurred following the restatement, 139 more observations were discarded. 39 observations were ambiguous as to whether or not their restatements were linked to a certain internal control, they too were taken out of the study. This leaving 488 observations that contained all the requirements the authors were looking for in an observation. These observations are the ones that have restatements that are definitely linked to an internal control weakness. Out of the 488 observations, 67 reported that they fixed the internal control in question, 263 acknowledge the existence of control weaknesses after the misstatement occurred and 158 report the existence on control weakness during the restatement period.

Rice and Weber (2011) used multiple determinants when looking at their observations, they first considered the impact of prior financial reporting problems and look at that as an indicator if they will experience more financial reporting problems in the future. This is a specific indicator made by the PCAOB's auditing guidance. With this in mind, they look to see if any of the firms in their observation pool have restated between 2000 and the effective stat date of SOX 404 (November, 2004). Along the

same lines as previous misstatements, they look to see if they reported anything under SOX 302, which was effective before SOX 404. Since this would be voluntary on managements behalf, it would indicate that management would be more aware of their control weaknesses. With this in mind, they expect it to be positively related to reporting misstatements under SOX 404.

Those firms that take advantage of economies of scale have an increased amount of resources and are able to distribute these resources into controls testing, which in theory, would enable them to detect internal control deficiencies quicker and more effectively. This may not be true if you consider that these larger firms are more complex than their smaller counterparts. Another aspect to consider when looking at size would be to understand the fact that these larger firms have larger public profiles. These public profiles may cause an incentive for these firms to not disclose internal control weaknesses so they can keep a better profile to the general public. Due to many variables when looking at the size of a company and how it interacts with their misstatement rates, they were unable to determine an effect it has on restatement patterns.

In addition to size and prior restatements, Rice and Weber (2011) looked at the general health of the company with the logical thinking that those who are in poor financial health will have fewer resources to detect these deficiencies. Those managers who over see an unhealthy company may be incentivized to not disclose their material weaknesses and mislead their investors. Pressures from the public is not the only pressure managers feel. The capital based market put a lot of pressure on managers especially if external financing and access to external capital is occurring in the near future. This attribute is considered by the authors. Managers who are in need of excess capital, especially coming externally, will be more apt to neglect to report internal control weaknesses. Although this attribute cannot be directly observed, the authors used an ex post measure of actual financing activity during the first year subsequent to the misstatement period. With public and non public pressures

affecting a company's reaction to misstatements, the authors believe that these are negatively associated with that of reporting financial misstatements.

Comparing auditor size is an important aspect of their study due to the fact that a major portion of SOX 404 is dealing with the relationship between the auditor and their client (suspected company of misstatement). Their logical reasoning is that if a firm is large and has many resources, the quality of the audit should be higher than that of a smaller firm. These resources should allow the firm to be able to detect the internal control deficiencies at a higher rate than that of a smaller firm. With this in mind, they believe the relationship to be positive to that of reporting misstatements. Another attribute that needs to be considered would be that of audit fees, since these were hotly contested when SOX 404 was brought to the public's attention. With new parameters for auditors, the firms could have raised their fee since they were responsible to look even deeper and use more resources when conducting their audit. Since there is an increase in audit fees, the authors believe that this would increase the effort brought forth by the auditors and this would positively effect the reporting of existing weaknesses. Although, the accounting firm may be hired for the audit, they can also charge the company for non-audit related services. This has the potential to effect reporting through knowledge spillover and compromised auditor independence. These two instances cause a positive and negative affect, respectively, on whether weaknesses are reported, thus resulting in the inability of determining a projected sign for this determinant.

In business, companies switch auditing firms frequently due to the response from their shareholders. Shareholders are more likely to blame the auditing firm for the control weakness rather than the company they support. If an auditor writes an adverse opinion for their SOX 404 requirement, the shareholders would less likely to ratify the continuation of the use of this firm. This puts the auditor in an uncomfortable position and may lead the auditor to be less exact when looking at misstatements.

This would cause continuing auditors to not be as pushy with their disclosures on internal control weakness. Conversely, the change in an auditor may prove to be beneficial for detection primarily because the new auditor would be able to blame the weakness in internal controls on the previous auditor. The same can be said for changing management. The psychology and reactions to internal control weaknesses use the same logic as that of changing auditors. The new management would be able to put blame on old management while continuing management may not be as apt to disclose weaknesses, in order to please the shareholders.

The described determinants above are the basis for the Rice and Weber's (2007) research and findings. These determinants fit into their statistical analysis that can be used to determine the effectiveness of SOX 404. The empirical results to follow are based on the formula created by the authors in **Figure 1**, below.

Figure 1:

$$\begin{aligned}
 REPORT\ ICW = & \\
 & \alpha + \beta_1 PRIOR\ RESTATE + \beta_2 MW302 + \beta_3 SIZE + \beta_4 LOSS + \beta_5 \Delta XFIN + \beta_6 BIGN \\
 & + \beta_7 AUDIT\ FEES + \beta_8 NON\ AUDIT\ FEES + \beta_9 AUDITOR\ CHANGE \\
 & + \beta_{10} MGT\ CHANGE + \beta_{11} SOX\ YEAR + \varepsilon
 \end{aligned}$$

The results from their study suggest that the firms that originally stated that their control systems were effective at the time of the misstatement have not diminished over time. As part of their study, Rice and Weber (2011) compared the variables across groups based on whether or not they were to report material misstatements. Restatements, based on their results, were more likely if the company had any prior restatements, material weaknesses reported under SOX 302, higher audit fees, accounting losses, auditor changes and management changes. They were less likely when looking at the size of the company and those who use larger auditing firms (i.e. Big Four). And lastly, the variables associated

with changes in external financing and non-audit fees proved to be statistically insufficient. These results are from a univariate comparison which is not sufficient when considering the other factors that need to be taken into account. Within their results they provide the reader with Pearson correlations between the regressors, which follows logic.

In addition to a univariate comparison, Rice and Weber (2011) used statistical regression to look at the determinants and try to come to some sort of conclusion. As expected, there is a positive association if a company has had a prior restatement and has reported a material weakness under SOX 302. A company is 8.8% and 15.5% more likely to report existing material internal control weaknesses, respectively. In addition, they found that the size of a company has a negative effect, indicating that a larger company is less likely to report a material weakness. Compared to other studies done on this, the authors are specifying that if internal control weaknesses do exist, larger firms are less likely to report. This is contrasted by the traditional method of using size of the firm as a proxy for internal control investment.

Figure 2:

TABLE 4
Determinants of the Reporting of Existing Internal Control Weaknesses under SOX 404

Parameter	Predicted Sign	Estimated Coefficient	Standard Error	Marginal Effect
<i>INTERCEPT</i>	±	0.1607	0.3888	
<i>PRIOR RESTATE</i>	+	0.3011	0.1360**	0.0877
<i>MW302</i>	+	0.4989	0.2611*	0.1545
<i>SIZE</i>	±	-0.0981	0.0489*	-0.0263
<i>LOSS</i>	±	0.5304	0.1482***	0.1624
<i>Δ XFIN</i>	-	-1.0456	0.4318**	-0.2953
<i>BIG4</i>	+	-0.5513	0.1911***	-0.1687
<i>AUDIT FEES</i>	+	0.0064	0.0015***	0.0018
<i>NONAUDIT FEES</i>	±	-0.0090	0.0038**	-0.0025
<i>AUDITOR CHANGE</i>	+	0.3514	0.2124*	0.1057
<i>MGT CHANGE</i>	+	0.3461	0.1357**	0.1003
<i>SOXYEAR</i>	±	-0.2001	0.0607***	-0.0564
Likelihood ratio, chi-square		124.41***		
Pseudo- <i>R</i> ²		0.202		
Observations		488		

This table presents probit regression results with *REPORT ICW* as the dependent variable. Variables are as defined in appendix B and the sample is as described in table 1. Marginal effects are evaluated at every observation in the estimation sample and then averaged over those individual effects. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

The estimated coefficient on the author's loss determinant resulted in a positive correlation suggesting that a firm that is in poor financial health is more apt to report because the incentives outweigh any reduction in resources available for internal control testing. In addition to studies done by DGM (2007), who interpret firms who are in poor financial health are more likely to have internal control issues, they interpret these results as a firm that is in poor financial health are more likely to report the weaknesses that do exist. Along with public pressures, firms who deal with external financing experience pressure from the private sector. This coefficient has a negative correlation which is agreeable to the fact that they would be less forthcoming to reporting weaknesses since it could lead to an increase in the cost of capital they are trying to receive. After some analysis they came to the conclusion that this determinant caused a 3.3% decrease in the likelihood that a firm would disclose a material weakness. (Refer to **Figure 2**).

The authors hypothesized that the auditor size would cause a positive relationship, meaning that the larger the auditing firm the more likely the company in question would report a deficiency. While looking at their empirical results, they found that this determinant has a negative relationship, indicating that the larger the firm the less likely they are to report material weaknesses. The reasoning for this is that the larger firms may be better able to 'audit around' the control weakness. The authors warned readers to use due care in generalizing the results to firms without restatements. The audit fee coefficient, though, remained consistent with their hypothesized results. The positive correlation is reflected in the fact that the higher the audit fee, the greater the effort the auditing team will put into their client's audit. With this greater effort, more weaknesses will be revealed and reported. This determinant has created a 10.4% increase in the likelihood of existing weaknesses being reported. This is significant when you compare this statistic to that of the prior restatement coefficient and the reporting under SOX 302 coefficient. This increase lands right in between these two determinants signaling that this determinant significantly effects whether or not firms report weaknesses. Non-audit

fees, again, are consistent with the hypothesized results which causes a negative correlation between the determinant the likelihood of reporting weaknesses. Through their analysis, they came to the conclusion that the auditor objectivity outweighs any of the knowledge spillover created with an increase in non-audit fees. This causes a decrease in the likelihood of a firm reporting an internal control weakness by 4.3%, which is not as strong as audit fees, but is still significant.

When looking at both auditor change and management change, results showed that these two determinants result in a positive correlation, meaning that with these changes, weaknesses are more likely to be reported. Specifically, an increase of 10.6% and 10% increase in reporting, respectively. This is caused by the easiness of the new auditor or manager to deflect blame for the existence for those weaknesses to the previous auditor or manager. Lastly, the authors looked at a determinant of SOX YEAR which can be viewed as the number of reports per year. This determinant has a negative correlation relating to the fact that the number of reported weaknesses has gone down over the years. This determinant is statically significant and continues to hold true after controlling for other factors in their model.

The analysis stated previously is all done by using a univariate method, although this is effective, the authors believe to look at the same determinants using a bivariate method. This would include separating the detection rate and the disclosure rate. Their results were very similar to their main study, using the univariate method. One of the determinants worth mentioning is the prior restatement coefficient. Through the bivariate method, it was discovered that it had a negative correlation for disclosure. This allowed them to come to the conclusion that the results from the univariate method is comprised of a positive correlation on detection but the correlation on disclosure is mixed.

The authors study looks at the firms who have had restatements in the previous years and analyze the different determinants to understand if SOX 404 is effective in its mission. Their study differs from

that of DGM and others in that they were able to look at the internal control weaknesses with the assumption that they already exist. Since they are able to assume that they already exist, they are able to look at the factors that effect detection and disclosure. Their results indicate that a major contingency of companies and auditors fail to report internal control weaknesses. Approximately only 32.4% report these deficiencies and this number has been declining. This decline in reporting is heavily due managerial and auditor incentive to not disclose these weaknesses. The overall study brings to light that the overall effectiveness of SOX 404 is not up to the prescribed standard and has not improved over time, it gives support to the criticism that there are holes in the internal control reporting practice. Furthermore, their results show that the majority of restating firms had no advanced warning of these control problems that, ultimately, lead to their misstatement.

Research Methods:

The basis for my own research was based on the data generated from Audit Analytics through the Wharton Research Data Services (WRDS). Through this service I was able to look at all the misstatements in their database between the years of 1995 and quarter one of 2015. The other attributes that were pulled from the database were, file date, auditor name at the time of filing, audit fees, average total assets, company name, resulted in fraud, resulted in adverse opinion and resulted in SEC investigation. After looking over all of the data generated I determined which factors I would like to analyze further. With the data given I decided to look at the comparison of the total number of misstatement cases and the misstatement cases that actually resulted in fraud. I looked at this comparison on a time line trying to see if there is noticeable difference between the pre-SOX and post-SOX environment. In addition, I looked to see if there was a difference between auditor size, again, pre-SOX vs. post-SOX. Thirdly, I used the total average asset size as a proxy for size of the company to see if the size of a company, through a more complex organizational structure, effected their internal control

systems. Lastly, I compared audit fees and their range over time to see if the increases and decreases in audit fees correlated to that of the increases and decreases in the number of fraud cases. This section will go into greater detail of each of the different parameters I discussed above the methods and resources I used.

To compare the number of misstatement cases that resulted in fraud to those that did not result in fraud, I used the excel output from WRDS to filter out the dates I wished to look at and the results I desired. This being said, I filtered out those that resulted in fraud for each year in between 1995 and 2015. I did the same comparison for those misstatements that did not result in fraud, or the total number of possible misstatements. These results were then plotted in a line graph and can be found in **Figures 3 and 4**, respectively, in the appendix. In addition to year, I also compared the data from **Figure 1** to the data I collected on the average audit fees for each year between 1995 and 2015. The data was graphed on a timeline showing the flow of average audit fees through the years. This can be found in **Figure 6**.

The next test I completed was to compare the current Big Four accounting firms and those that do not fall into that category. The first step was to find the percentage of misstatements that resulted in fraud for each of the following Big Four accounting firms (PwC, EY, Deloitte, and KPMG) and then for all other accounting firms. The percentages were divided into three different categories, average, pre-SOX and post-SOX. Each of the five categories were broken up this way and can be found in the chart labeled **Appendix 1** in the appendix. After completing the table, these percentages were then put into a bar graph for each of the 5 categories so it will be easier to compare the percent of misstatements that resulted in fraud between the different Big Four accounting firms and those firms that are not large enough to be considered a Big Four firm. (**Figure 5**)

As a proxy for a size of a company being studied, I chose to look at the total average assets a company has. In order to compare the averages of companies who had misstatements that resulted in fraud and those that did not result in fraud, I used a Z-Test. A Z-Test is used to compare two means of a set of data where the standard deviation is known and you have a data set that is greater than 30. Since my data satisfied all of those requirements, I was able to use this statistical test. These were the methods used and allowed for these results to be analyzed and create an assumption on each of the factors chosen.

Results:

While looking at the data from the yearly analysis, we can see a general trend of reported misstatements hit a peak in 2006 and then a very quick and steady decline in the amount of reported misstatements. Now, with the fact that SOX and section 404 was fully integrated 2004, it is expected that we would see results for a couple years. With this in mind, the number of reported misstatements followed the expected trend, although just because they were not reported does not mean that there were less internal control deficiencies. As noted early in this paper, the research done by Rice and Weber, noted that both the auditors and management have incentives to not report. While we look at the misstatements that resulted in fraud we see a spike in 2002, which can be accounted for all of the events that led to the creation of SOX. We then see a dip and then another spike in 2006, which corresponds to the spike in reported misstatements in 2006. After those spikes, the total number of misstatements and the misstatements that resulted in fraud followed the same trend. So purely looking at the trend line, we can deduce that overall and broadly speaking, SOX has been effective and section 404 has reduced the number of financial errors. One thing to keep in mind is that this does not account for the personal incentives the management and auditors make in order for their ego and the respect of the public.

Another aspect worth noting, is the role the auditor plays and how their role has changed over the years and through the introduction of SOX. Through analyzing the amount of misstatements each of the major accounting firms found that resulted in fraud has declined immensely when comparing it to pre-SOX and post-SOX era. PricewaterhouseCoopers (PwC), one of the Big Four, reported about 4.57% of their reported misstatements resulted in fraud before SOX was implemented and then plummeted down to 1.87% after SOX. This decrease can be attributed to the auditors improving their audit and finding these internal control deficiencies before they turn to anything hazardous. It could also be attributed the amount of misstatements being reported as seen in **Figure 3**.

Figure 3:

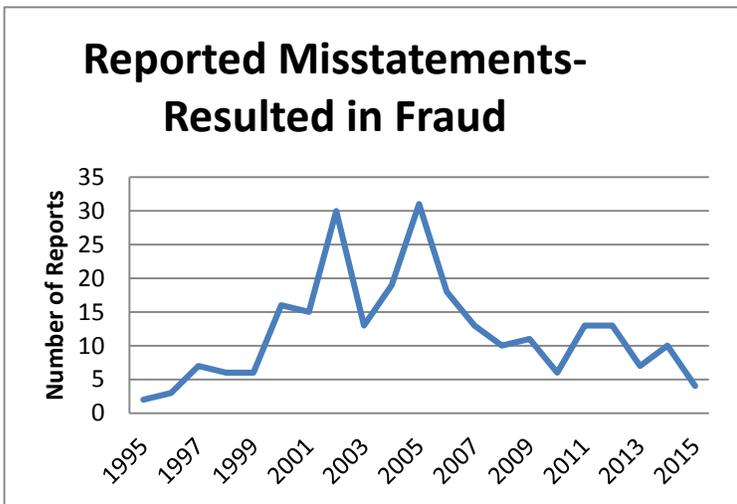
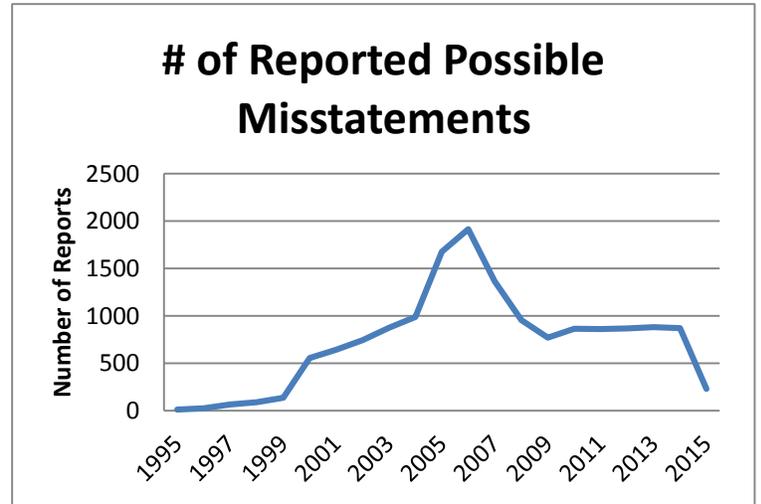


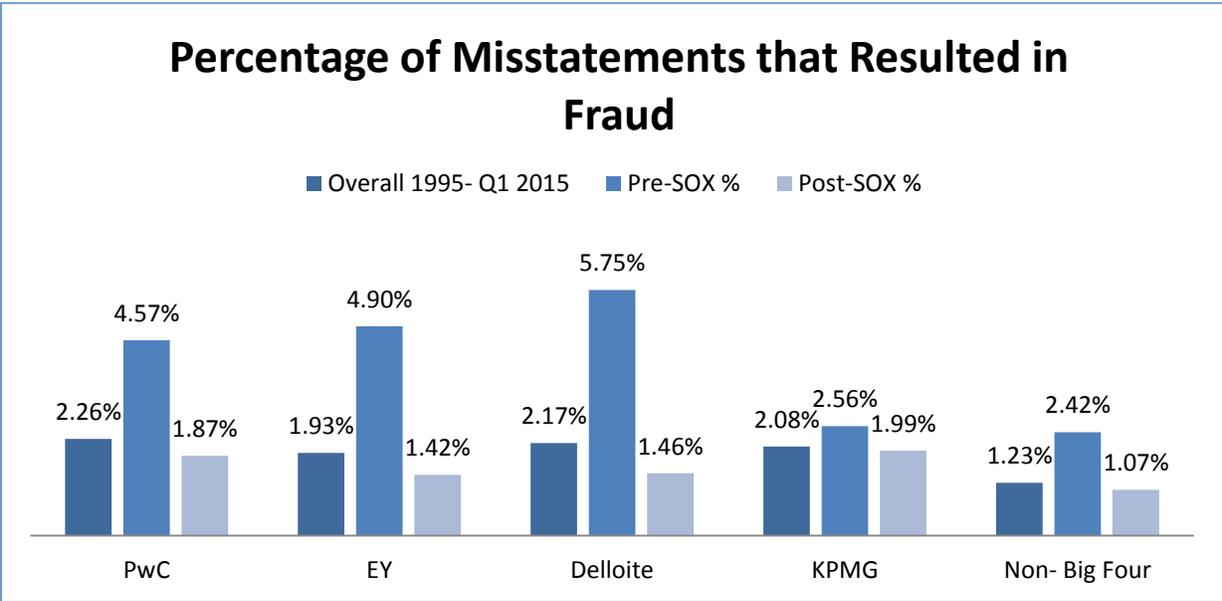
Figure 4:



When we look at the other firms like EY, Deloitte and KPMG we see the same trend. EY went from 4.90% to 1.42%, Deloitte went from 5.75% to 1.46% and KPMG went to 2.56% to 1.99%. These trends can be explained very similarly to that of PwC. The difficulty in determining the real cause of these decreases could be through the legislative success of SOX but it could also be explained by the human behavior of the auditors. Lastly, comparing the the Big Four to the non-Big Four, we can see that overall, the amount of misstatements that resulted in fraud is overall lower than that of those from the

Big Four firms, with the exception of KPMG. Before SOX they had 2.42% of reported misstatements result in fraud which fell down to 1.07% post-SOX. This can be attributed to the fact that the smaller firms may not have as many resources to complete an as thorough job as that of the bigger auditing firm. In addition, the smaller firms generally have smaller clients which would be less complex than the larger clients and more open and easier to find internal control deficiencies before and after intensive regulations were put into place.

Figure 5:



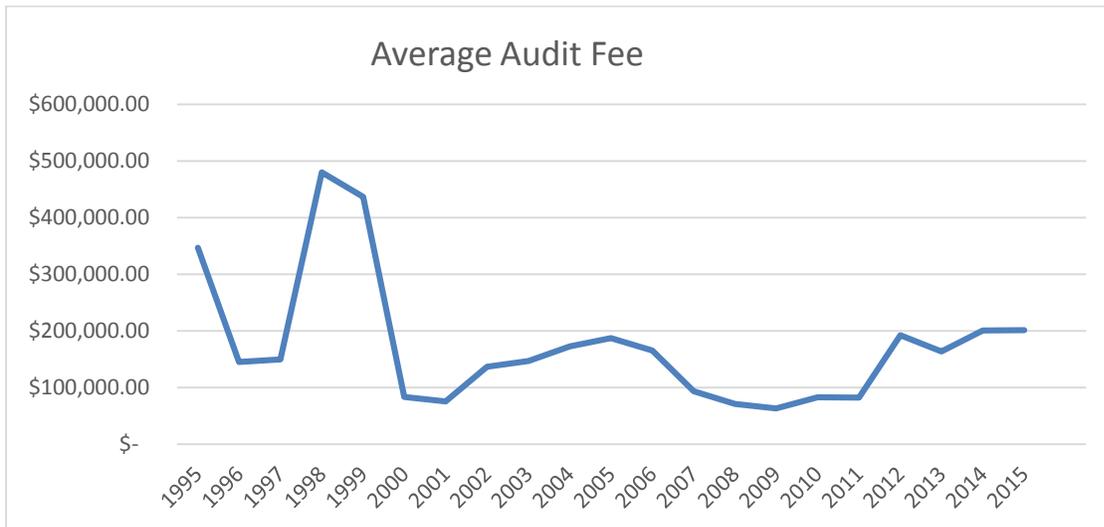
When we talk about size of a company, there are many metrics that you can use to measure it. In this instance, the average total assets were used as a proxy for size. Overall, the average total assets used for companies that experienced misstatements that resulted in fraud was \$26,152,357,360.00 which is about 30% higher than the average of the total average of those companies who had misstatements that did not result fraud which is \$20,286,804,327.00. Although, this seems like a significant difference when you look at the percentages, one thing to consider are the sample sizes.

When calculating these averages, there were only 74 sample points for those companies that had cases of fraud. Compared to the 5,125 entries available for the companies that had misstatements that did not result in fraud, these two sample sizes are not very close in size. When doing a Z-test comparing these two averages, the result was that they were not significantly different, statistically speaking. This differing outcome, when comparing the percent differential and the statistical analysis, could be due to the fact that the sample sizes were so different. With this in mind, the conclusion is that the size of a company solely based on assets does not have a factor on whether or not the firm will have internal control deficiencies that result in criminal behavior. This does not include the complexities in the internal control environment that the company may create on its own. This is an important aspect to note due to the fact that the size of a company dictates a lot of the internal control issues. It dictates the size of the auditor, and the amount they pay in audit fees, which will be discussed next.

The last factor discussed in this results section, is one that is studied heavily in the academic papers related to this topic. Audit fees being paid by these companies to the accounting firms has caused a lot of controversy due to the conflict they may cause. Looking at the data (**Figure 6**) that was collected through the WRDS and after taking inflation into consideration, it seems as though there was no trend or correlation between audit fees and the number of misstatement cases. We see a peak in 1998 and then another drastic change in the other direction by 2000. From 2000 to 2005 we see a gradual increase in the amount firms are charging which correlates to the timeline of SOX. With another decrease from 2006 to 2009 and an uptick ever since the general trend for the 2000's and 2010's has been an upward trend. If we were to take out the 1990's we would be able to see that trend. The spike in 1998 could have been a reaction to the adoption process of of the International Financial Reporting Standards. This adoption process put extra risk onto the auditing firms, forcing them to increase they audit fees, the post-adoption period allowed them the lower their audit fees to reflect the lowering of the risk being taken in. Then with the implementation of SOX and section 404, we can see this being

reflected in the increase in audits throughout the 2000s. Unfortunately, these increases do not have a strong correlation in any direction. It could possibly be said that throughout the 2000s, as audit fees increased, the number of misstatements being reported went down. This as it may be accurate does not encompass all of the factors affecting the decrease in audit fees.

Figure 6:



Conclusion:

Through the analysis of data collected from the Wharton Research Data Service, and a literature review of “How Effective is Internal Reporting Under SOX Section 404? Determinants of the (Non) Disclosure of Existing Material Weaknesses” new insight on the topic of ICDs has been brought forward. These sources allowed me to be able to analyze whether or not SOX and section 404, specifically, have been effective and to see if they have been able to deter corporations from committing these moral insensitivities. Overall, the article written by Rice and Weber gave a lot of information and data to support the fact that section 404 is not up to par with what it is supposed to be doing. It was able to talk about not only the hard numbers that went along with the data, but also the psychological thoughts going behind the determinants and bringing in the human element and considering that. It is very

important to always keep in mind that all of the decision makers in these studies are humans and that they will generally make human mistakes and gravitate towards what will be the easier track for them to take. Through their analysis of determinants that they chose to look at, they were able to determine that section 404 is not being the most effective for multiple reasons. Their study has shown that there are holes in the internal control reporting practice and companies are not getting an advanced warning when these control deficiencies are created.

Through my own analysis, I chose to look at misstatements that resulted in fraud and their relative frequency over time. Purely based on frequency, it was projected that overall the amount of misstatements occurring over time has decreased. We also saw that the Big Four firms saw the most dramatic decrease in the number of fraud cases. As it was stated in the previous sections, looking at the frequency can be a little hard to see as fact due to the humanistic reasons on incentives. In addition, it was important to note that the size of a company based on total assets, is not statistically significant which is somewhat consistent with Rice and Weber's study. Lastly, the average audit fees overall have been increasing throughout the 2000s. All of these factors indicate that the SOX and section 404 has helped with the overall well being of financial reporting but does not come close to any of the other factors that are involved in the decision to have secure internal controls.

The data and knowledge collected do have some some conflicting results, mainly looking at the overall frequency of misstatement reporting. The main result that has come out of this study is that the incentives created through the audit have had huge affects on reporting misstatements and trying to determine if there are internal control deficiencies. With all of this data and hard numbers, the overall takeaway is that people make decisions that benefit them or the company that they are involved with. The one way to negate this whole process is to eliminate the incentives and to have an as open as

possible process that is sought on finding out fact instead of forging fact to fit your desired outcome that makes you look the best to your audience.

Appendix:

Appendix 1:

Auditor Name	# of Total Misstatements	# of Total Misstatements: Resulted in Fraud	Overall 1995- Q1 2015
PwC	2,252	51	2.26%
EY	1,654	32	1.93%
Delloite	1,892	41	2.17%
KPMG	1,392	29	2.08%
Non- Big Four	8,187	101	1.23%
Auditor Name	Prior to SOX Total Misstatements (1995-2002)	Prior to SOX Total Misstatements- Resulted in Fraud	Pre-SOX %
PwC	328	15	4.57%
EY	245	12	4.90%
Delloite	313	18	5.75%
KPMG	234	6	2.56%
Non- Big Four	991	24	2.42%
Auditor Name	Post SOX- Total Misstatements (2003- Q1 2015)	Post SOX- Total Misstatements - Resulted in Fraud	Post-SOX %
PwC	1,924	36	1.87%
EY	1,409	20	1.42%
Delloite	1,579	23	1.46%
KPMG	1,158	23	1.99%
Non- Big Four	7,196	77	1.07%

Appendix 2:

	Balsh FY Total Assets	Highwater Balsh Total Assets
Average w/o Fraud	\$ 20,286,804,327.00	\$ 30,507,878,523.00
Average w/ Fraud	\$ 26,152,357,360.00	\$ 40,165,912,933.00
% Differential	28.91%	31.66%

Z-Test: Two Sample for Means

	Misstatements Resulting in Fraud	Misstatements Not Resulting in Fraud
Mean	\$26,152,357,360.00	\$20,286,804,327.00
Known Variance	\$14,169,600,000,000,000,000.00	\$16,625,700,000,000,000,000.00
Observations	74	5,125
Hypothesized Mean Difference	\$6,000,000,000.00	
z	(0.13)	
P(Z<=z) one-tail	0.4494	
z Critical one-tail	1.64	
P(Z<=z) two-tail	0.8987	
z Critical two-tail	1.96	

Since the Z test statistic does not fall within the rejection region (-1.96, 1.96), we fail to reject the null hypothesis of no difference between the means of the two samples.

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