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Earnings quality and internal control attestation: Evidence from JOBS Act

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Abstract

The purpose of this thesis is to examine the effect of internal control attestation exemption on earnings quality for Emerging Growth Companies (EGC) after JOBS Act in April 2012. My analysis is conducted on a sample of IPOs with available data from 2012 until recently. The results imply that earnings quality measured by Earnings Response Coefficient is not significantly associated with internal control attestation exemption. Leverage and the presence of a Big4 auditor have a significant positive association with earnings quality. These results provide empirical evidence to better understand the consequences of the JOBS Act on financial reporting quality.

Table of Contents

1 Introduction

The definition of internal control is *"a process created and overseen by the board of directors, management and others, in order to provide reliable financial reporting, effective and efficient operations and compliance with applicable laws and regulations"* (Gavin, 2009, page 29). Efficient internal controls are essential for a firm since they minimize the probability of fraud, intentional or unintentional errors, and earnings management. Market reaction and investors' perceptions is found to be associated with internal control (Holthausen and Verrecchia, 1988; Krishnan and Yu, 2011). The credibility of financial reporting is a key indicator for earnings quality where investors develops their perceptions for firms' future performance. Holthausen and Verrecchia (1988) have shown that the perceived credibility of financial reporting from investors is related to their market response.

Through years, government has implemented different rules and acts related to financial reporting. The JOBS Act signed in April 2012 is one of them which reduces disclosure requirements and internal control attestation is one of those disclosure exemptions. This exemption is left to be chosen voluntarily by the firm if they want to opt out into it or not. Thus the consequences of this decision is unknown. The group of firms that benefits from this act is called Emerging Growth Companies (EGC). These firms are those IPOs that fulfill some prerequisites. Therefore, the research question of this thesis is related to the effects on the credibility of financial reported numbers for those firms that do not choose to have an auditor attestation for internal control.

The research question that this thesis addresses is:

RQ: Does the decision to opt out for internal control auditor attestation exemption for EGC firms after JOBS Act affect earnings quality?

The effects of JOBS Act have been highly debated recently. Some argues that effects are inconsistent with the main goals of the Act, with fewer firms choosing to go public, high compliance costs and higher cost of capital (Guttentag, 2013). Investors' interest is not safeguarded since they are not aware of the ongoing events inside companies. Proponents of JOBS Act argues that the reduction of disclosure requirement has led to an increase in the number of IPOs (Dambra et al., 2014). Providing empirical results for the effects of one of the provisions of this act will add

arguments and contribute to the debate between regulators/ policymakers and practitioners / market participants over the merits of JOBS Act provisions. Previous research has shown a positive relation of earnings quality and internal auditor attestation (Doyle et al., 2007b). This is the main motivation of this thesis.

To answer this research question, a sample of 1455 IPOs after JOBS Act has been collected and their S-1 and 10-K filings are examined. For my thesis, only 10-K filings are analyzed and data for these filings are hand collected. The non-availability of data before the first 10-K filing (data are taken annually and the proxy for earnings quality is a market response variable) is the reason why only these filings are part of my thesis. The other data necessary to conduct the empirical analysis are collected from different databases through Wharton Research Database. The final sample have 482 firm-year observations for EGC firms. Earnings Response Coefficient (ERC) is used as a proxy for earnings quality. My research question is tested using the regression model of Chen et al. (2012). Random Effects (RE) method is suggested to be used for this panel data. There is no control group. My research question tests for the effects of the firms' decision to attest for internal control or not.

Results show that a lack of internal control attestation is not significantly associated with earnings quality. Non-earnings information, information environment, different accounting methods financial numbers, and non-sufficient cross-sectional variation can drive these results. Firms can choose to disclose more information than required in order to affect information environment for stakeholders by disclosing non-earnings information (their future plans or expectations, reasons behind their actions, earning numbers calculated with other than GAAP methods). Non-sufficient cross-sectional variation is related to the short time period and the small sample that this thesis has as a limitation. To conclude, the decision to have internal control attestation does not affect earnings informativeness. This result is supported by non-significant coefficient of attesting dummy on earnings response coefficient (ERC). As regard to variables that are significantly associated with earnings quality, I find that firms that are audited by Big4 financial companies and those that are highly leveraged do affect positively earnings response coefficient, consequently earnings quality. Results for Big4 are consistent with prior studies (Teoh and Wong, 1993). Financial reported numbers that are audited by Big4 financial companies are perceived as of higher quality and this is why market reaction is positive and investors revise upward their expectations

for firms' future performance. The result for leverage is not consistent with prior literature because the association of ERC and leverage is found to be negative (Core and Schrand, 1999). One explanation for this inconsistency may be that high leveraged firms may disclose extra information to explain their high levels of debt and future impacts and this can be perceived as of higher quality which influence positively market reaction.

In sum, this thesis provides preliminary evidence on the effects of internal control attestation on earnings quality. The decision to opt out with SOX 404(b) JOBS provision does not affect earnings quality. The majority of EGC firms have negative transitory and persistent earnings which drives investors' attention to other issues. Results of this thesis suggests to investors that they should not revise negatively their perceptions for those firms that do not have internal control attestation. As for firms themselves, they can cut out their costs by not providing attestation for internal control. Anyhow, firms have to support this decision with other actions. Results show that Big4 auditors improve earnings quality. Therefore, EGC firms have to be oriented to this group of auditors. Moreover, those firms that are highly leveraged have to disclose extra information which explain their capital structure and firms' future performance and cash flow. To conclude, SOX 404(b) JOBS exemption has not hurt earnings quality for EGC firms and this exemption may be applied to other countries in order to lower high audit fees faced by small companies like EGC firms.

This study contributes to the existing literature in several ways. It is important to the literature stream of disclosure requirements which study the importance of auditor attestation in the credibility of financial reports. The other stream of literature that it is related to is the one dealing with cost-benefit analysis of JOBS Act. It provides insights weather JOBS Acts provisions for internal control improves the quality and credibility of financial reporting. Literature regarding this Act is scarce, thus contribution to it is significant.

The remainder of the paper is organized as follows. Section two provides theoretical background. Section three develops the hypothesis. Section four discusses the research design. Section five provides empirical results. And lastly, section six summarizes conclusions.

2 Theoretical Background

This section will provide background information for acts implemented by government which influence internal control rules. Then, the literature review sub-section will summarize existing findings and previous research related to earnings quality, internal control, and JOBS Act.

2.1 Background Information

Internal controls are of a high importance for the company since they are designed to prevent and detect fraud. The Committee of Sponsoring Organizations, COSO, of the Treadway Commission established the Internal Control – Integrated Framework in 1992 which defines internal controls in order to ensure effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations (Mintz and Morris, 2016).

After some high profile accounting scandals (Enron, WorldCom, Global Crossing, Tyco International), the Sarbanes – Oxley Act (SOX) was introduced in the US in July 2002 to restore public's trust and confidence. Malfunction of internal control systems was criticized as one of the reasons behind these accounting scandals. Therefore, two sections of SOX are entirely focused on internal controls and their function. Section 302 of this Act requires validation of the internal control system from management and notification of board of directors and auditors for any material internal control weaknesses. Section 404(a) and 404(b) requires management to assess internal control adequacy and attestation of this assessment from external auditors. Management reports can be biased because of internal relations and performance based compensation. Thus, attestation from outside and independent parties is perceived as an extra assurance for the reliability of financial reporting and compliance with SOX 404(b) is found to be associated with market response measures (Chen et al., 2012).

Since SOX imposed high disclosure costs for the firms (Doyle et al., 2007), the US government decided to release JOBS Act, signed by President Obama in April 2012, in an effort to revitalize US capital markets. The purpose of this act was to make public capital markets more desirable for emerging growth companies by reducing disclosure and other burdens, thus decreasing costs of capital and revitalizing the market through the creation of new jobs. JOBS Act introduced a new class of firms, EGC (Emerging Growth Companies). EGC status is given to firms that have less

than one billion dollars in gross revenues in the recent fiscal year before IPO and less than $700 million public float. EGC status cannot be gained for those firms that have sold common equity in public market prior to December 8, 2011 and it cannot be hold for more than five years after publicly issuing common equity. Moreover, the moment that one firm goes above the threshold of the definition for an EGC, it will lose its status. The disclosure requirements imposed on EGCs are less but they are not totally eliminated, and these exemptions on requirements can continue up to five years.

The JOBS Act 's Title I discusses provisions that allows less disclosure related to financial statements, audit requirements, and shareholder participation in corporate governance issues. EGC firms are required to disclose only two years of audited financial statements (previously they had to disclose three years) and selected financial data for only audited periods. They are not required to apply new accounting standards after JOBS Act which are to be applied from public companies. If they choose to comply with certain accounting standards, they cannot reverse this decision. Moreover, they are exempted from audit requirements of Public Accounting Oversight Board (PCAOB). These requirements are related to audit firm rotation and auditor discussion and analysis for financial statements. As for regulation related with auditors, JOBS Act has exempted EGC firms from internal control attestation. More explicitly, these firms are not required to comply with SOX 404(b) which requires auditor attestation for effectiveness of internal control over financial reporting. Still, all firms that go public have to comply with SOX 302 and SOX 404(a) which requires management to validate internal control system and asses its adequacy. Executive compensation is another topic focused in JOBS Act. EGC firms are allowed to provide less disclosure on this topic, specifically: compensation for three named executive officers, three compensation tables, two years of summary compensation, no compensation and discussion analysis (CD&A), and exemption from say-on-pay, say-on-frequency, and say-on-parachute requirements.

These are the main exemptions from SOX that EGC firms can choose to accept. Their decision to comply or not with JOBS Act is made voluntarily. Thus, consequences, of these decisions are ambiguous, how they are perceived and what they affect.

2.2 Literature Review

2.2.1 Internal Control and Earnings Quality

The association between an internal control system and earnings quality has been examined in different studies. Holthausen and Verrecchia (1988) show that the perceived credibility of financial reporting from investors is related to their market response to earnings. Earnings and financial reporting quality are of essential interest to investment decision making processes. As Dechow, Ge, and Schrand (2010) define the meanings of "quality" to be the decision usefulness to equity valuation, investors' decision will be mostly based on this "quality" perception. One of the reasons for financial reporting's importance is that it represents the effects of underlying business model, the economic environment of the firm, and the financial performance (Schipper and Vincent, 2003). Investors have to determine default risk and compliance with debt covenants through these reported numbers.

Investors value the role of auditors to provide credible, qualified, and timely information to capital markets for internal control level (Wang, 2008). Krishnan and Yu (2011) show that auditor attestation for the effectiveness of internal control adds value for investors by increasing the perception of the revenue quality. Poor internal controls can lead to earnings management or unintentional errors which results in lower quality of financial reporting. Cohen et al. (2008) find a sharp decrease of the level of earnings management after the implementation of SOX. Several studies show that firms with certain characteristics or firms in countries where internal control regulations have been implemented experience increases in earnings quality (Altamuro and Beatty, 2006; Ewert and Wagenhofer, 2005; Doyle et al., 2007; Nagy 2010).

A stream of literature exists for the association between internal control weaknesses and stock market reaction as well. Gupta and Nayar (2007) conclude that internal control disclosures do convey important information for market participants. Hammersley et al. (2008) argues that internal control weaknesses disclosure leads to revision about firm's perceptions of risk and expectations for future profitability. They investigate whether specific characteristics of the weaknesses conveys important information for market participants and how they react on this. Their evidence shows that how the market reacts will depend on the severity of the internal control weakness. Further evidence on this topic is mixed. Beneish et al. (2008) find a negative association between internal control weaknesses and market/stock price reaction, but Ogneva et al. (2007)

document no direct association between internal control weaknesses and cost of equity which depends on risk premium required from investors. Dhaliwal, Hogan, Trezevant, and Wilkins (2011) conclude that firms reporting material weaknesses will have an increase on their credit spread on their publicly traded debt. More details are provided in the next section.

One of the measures of stock market reaction to earnings announcement is earnings response coefficient (ERC). The definition of ERC is "*the slope coefficient from a regression of abnormal stock returns on a measure of unexpected earnings*" (Easton and Zmijewski, 1989, page 118). Easton and Zmijewski (1989) have studied the cross-sectional variation of earnings response coefficient. They look at unexpected earnings on the market's expectations before and around the earnings announcement. Results show significant association between ERC and systematic risk, and ERC and firm size. Moreover, they suggest that non-earnings variables can also be associated with ERC. Collins and Kothari (1989) have also documented cross-sectional variation of ERC. Their results show that ERCs are positively related to earnings persistence and growth opportunities and negatively related to firm's systematic risk. These are identified as factors that contribute to cross-sectional differences in ERCs. Therefore, ERC can be used in research designs when cross-sectional variation between firms is assumed. ERC is used as a proxy for earnings quality (Holthausen and Verrecchia, 1988; Imhoff and Lobo, 1992; Teoh and Wong, 1993).

2.2.2 SOX 302, SOX 404, and Earnings Quality

The SOX internal control provisions have been part of an ongoing debate for their consequences and their costs and benefits. Supporters of SOX argue that financial reporting will improve since the probability for material internal control weaknesses will decrease (Altamuro and Beatty, 2010). Chen et al. (2013) provides evidence on higher earnings quality after SOX 404 implementation. On the other hand, opponents argue that these regulations limit managerial discretion to signal their private information and compliance costs are high.

Costs associated with the implementation of SOX 302 and SOX 404 are empirically tested by different papers. Beneish et al. (2008) find that there are high audit costs from SOX implementation which can affect the decision of firms to go public and comply with these regulations. Their study includes 330 firms with unaudited disclosures as required by SOX 302 and 383 firms with audit disclosures as required by SOX 404. Results show that material weaknesses under Section 302 affect negatively stock prices but there is no significant effect for

those under Section 404, concluding that disclosures under Section 404 are not informative. The explanation for this result is that the disclosure of internal control material weaknesses affects more adversely non-accelerated filers than accelerated ones because of information environments where they operate.

Krishnan et al. (2008) identify three categories for compliance costs of SOX 302 and SOX 404: internal labor costs, external consulting and technology expenses, auditor attestation charges. The mean of these costs for a sample of companies is calculated to be $2.2 million.

The association between earnings quality and internal control is documented in existing research. Doyle et al. (2007b) link reported material internal control weaknesses to lower earnings quality. This research has used a sample of 705 firms with at least one material weakness reported from 2002 to 2005. Earnings quality is measured using accruals quality and the results show that accruals quality is lower for those firms that have reported material internal control weaknesses. Significant results are found for disclosures under SOX 302 and not for those under SOX 404. Ashbaugh-Skaife et al. (2008) extends this study and documents the same results. Internal control weaknesses are shown to affect firm risk and cost of equity as well (Ashbaugh-Skaife et al., 2009).

Chan et al. (2008) is another study which has examined effects of Section 404 of SOX. With a sample of 1057 firms for the period 2003-2004, results confirm the hypothesis that the level of earnings management tend to be higher for those firms that report material internal control weaknesses.

Most of the research is done for the internal control weaknesses but few for those firms that have clean internal control reports, without material weaknesses reported. Chen et al. 2012 examine a sample of 1545 accelerated filers with clean internal controls over financial reporting reports. They use a difference in difference approach which compares the test sample with a control one of non-accelerated filers. An associated study is chosen to be able to examine the benefits of the SOX 404 internal control provisions. Association study examines the relation of earnings with returns over longer, typically annual, window. Results show that earnings informativeness is higher for those firms that has clean reports after the adoption of SOX 404 compared to previous years and no change for non-accelerated filers. Therefore, it can be inferred that the adoption of SOX 404 has a positive impact on earnings quality.

2.2.3 Studies on the JOBS Act

There is a growing literature on consequences of Sections 302 and 404 of SOX but very little for JOBS Act. There is ongoing debate on the effects of the JOBS Act among standard setters, regulators, firms, practitioners, and market participants. Some argue that this act creates uncertainty for an issuer to go public or not, since they have to consider requirements and obligations faced by the firms after the five-year status of being an EGC. Problems can arise when firms have not grown at the level to absorb the associated costs of reporting as a non EGC firm (Wentzell, 2014). Information asymmetry will increase as long as EGC issuers will disclose less information and investors' protection will be harmed which affects cost of capital as well (Guttentag, 2013).

Firms that are going to hold the status of an EGC are those IPOs that satisfy the requirements explained in section 2.1. A stream of literature studying IPOs exists. Investors' perception for the value of the IPO will affect its risk premium, cost of capital, and cost of equity. If investor uncertainty is present, the required risk premium is going to increase and this will be translated in IPO underpricing (Beatty and Ritter, 1986; Rock, 1986). In order to reduce underpricing and help investors estimate market values, firms should disclose more information voluntarily (Schrand and Verrecchia, 2005; Leone, Rock, and Willenborg, 2007).

Since firms have the right to choose voluntarily to comply or not with JOBS Acts exemptions, it is important to know the consequences coming with this decision. As previous researchers have found, higher disclosure quality implies lower costs of capital (Botosan, 1997), poorer earnings quality implies higher costs of capital (Ecker, Francis, Kim, Olsson, Schipper, 2006), and efficient internal controls implies lower cost of capital (Ashabugh-Skalife et al., 2009). Cost of capital is important for IPOs since it is one of the most important reasons why these firms go public.

Barth, Landsman, and Taylor (2014) examine the effect of JOBS Act on information uncertainty. They hypothesize that reduced disclosure requirements for IPO firms with EGC status will have greater information uncertainty that those without the status. The consequence of easing disclosure requirements is a reduction in publicly available information which will lead to IPO underpricing and volatility. Their sample consists of 207 US IPOs between January 2004 and December 2013. Their results show that JOBS Act increased information uncertainty with a significant effect on

underpricing by increasing the risk premium investors require. These effects are greater for EGC firms than for those that do not hold this status.

Dambra et al. (2015) show that there is an increase in IPO volume after the implementation of the Act with 21 additional IPOs annually and a 25% increase over pre-Jobs levels. The higher number of IPOs is concentrated in firms with high proprietary costs, including three industries: pharmaceutical, business software, business services. With the aim of capturing best Acts' effects, authors have controlled for market conditions, firm characteristics, and governance and pay characteristics. Findings are consistent with the objectives of JOBS Act, namely easing capital raising and affecting the IPO decision.

In contrast, Chaplinsky, Hanley, and Moon (2015) find opposing results. There is no evidence for increased IPO volume and little evidence for effectiveness of Acts' objectives. They use a sample of 213 EGC IPOs between April 2012 and April 2014. Three different methodologies are used: OLS regressions, propensity score matched differences, and difference in differences regressions. Their results provide evidence that JOBS Act did lead to reduction of direct costs of issuance, accounting, legal, and underwriting fees. Furthermore, underpricing levels are higher in the post period. The costs associated with higher underpricing will mainly be faced on capital costs since investors are going to require higher rates of risk premium as a compensation for information uncertainty.

Since the JOBS Act allows EGCs to disclose less information than would be otherwise without this act, I expect the information uncertainty faced with EGC status will be reflected in earnings response coefficient. More information asymmetry resulted by less disclosure indicates higher costs to raise capital and thus making it harder for firms to go public (Botosan, 1997; Sengupta, 1998). Therefore, firms are going to choose some level of disclosure to provide in order to lessen the underpricing effect. This is the motivation of this thesis, to examine market effects resulting from disclosure levels after JOBS Act, specifically the effect of not having internal control attestation on earnings response coefficient. Additionally, it will provide insights into the debate of cost and benefits of JOBS Act. It is important that the argument for this debate to be supported by empirical evidence.

3 Hypothesis Development

This section develops the testable hypothesis on earnings quality after JOBS Act.

This study aims at providing evidence on the market reaction towards JOBS Act and the effect of its provisions on investors' welfare. Even though the primary purpose of this Act is to improve access to public markets and ease procedures for small firms, undesired consequences can arise. I will examine the relation between the exemption of internal control auditor attestation and investor reaction to earnings quality. Investors are important participants in capital markets and do affect its effectiveness. High quality reported financial numbers have a negative effect on information uncertainty and asymmetry which influence investors' decisions.

Auditor attestation enhance the credibility of financial reports. It is important for investors since they cannot observe internal processes of the firms and they can get an assurance from external and independent parties. Effective internal controls are crucial in avoiding intentional and unintentional errors, misstatements, and fraud. Krishnan and Yu (2011) have shown that auditor attestation for internal control system is important and valuable for small firms because technical controls to maintain effective control systems can be costly and these firms may lack the necessary resources needed. Even though the JOBS Act has reduced implementation costs of SOX (Dambra et al., 2015), auditor attestation on internal control effectiveness can be perceived to add value for the quality of the financial statements beyond the certifications provided by the management.

Independent auditors serve as safeguards for reported figures conform to GAAP (Teoh and Wong, 1993). Auditor attestation allows for less discretion for managing earnings. Firms with high informative earnings will be more attractive to investors (Scott, 2011) and thus their response will be positive. On the other hand, firms themselves have established internal control systems as e mechanism for providing high quality financial reporting. Thus, regulations for auditor attestation of internal controls is an extra assurance for reported financial numbers. Empirical results of different studies have confirmed the positive association between SOX 302 and SOX 404, both related to internal control issues, and earnings quality (Doyle et al., 2007b; Ashabaugh-Skaife et al., 2008)). Therefore, its absence may adversely affect the perception of investors, thus earnings quality. Improvement of decision usefulness from investors is questioned.

Since the effect of internal control attestation is ambiguous, I hypothesize the following:

H: The exemption for internal control attestation over financial reporting has no significant relation with earnings quality for EGC firms after JOBS Act.

My hypothesis is stated in null form. It has some tension because of the uncertainty of the results. It can be accepted or rejected and there are reasons to justify both results. On one hand, the hypothesis may not hold because existing literature supports a significant positive association between internal control association and earnings quality. On the other hand, there are reasons for the hypothesis to hold. One reason for this result is that the cross-sectional variation is not enough to give unbiased result, the time period and the sample are both small. The other reason is that since firms have the right to choose voluntarily, they can justify their decision that internal control attestation from auditors is not necessary and does not add value. Moreover, they can explain that this decision is not going to convey important information that will affect future cash flow expectations for investors. As a result, significant results between internal control association and earnings quality are also possible.

4 Research Design and Data

This section will develop the research design that will test my research question and hypothesis. Variables chosen are discussed and then are presented in Libby Boxes in sub-section 4.3. The last sub-section will discuss the sample and data collected for this thesis.

4.1 Research Design

My measure of earnings quality is earnings informativeness. Dechow, Ge, and Schrand (2010) have arranged all earnings quality proxies used in existing literature in three broad categories: properties of earnings, investor responsiveness to earnings, and external indicators of earnings misstatements. Following prior studies (Barth et al., 1999; Francis et al., 2005; Ahmed et al., 2006), I will use earnings response coefficient, ERC, as a proxy, which is part of the second category in the commentary of Dechow, Ge, and Schrand (2010). As the main focus of JOBS Act is to ease the introduction of firms to capital markets, I choose this proxy of earnings quality which is related to market response. Investors are those stakeholders that are going to use financial reported numbers and this is the reason why the effect of internal control attestation is going to be tested over this market based proxy. Their reaction is important because they affect the cost of capital for each public firm.

The definition of ERC is the slope coefficient in a regression of the abnormal stock returns on a measure of earnings surprises, making it a measure that capitalizes in stock prices the part of earnings information that is considered as new (Teoh and Wong, 1993).

ERC is used as a market based earnings quality measure. It is used to investigate the variation in market's valuation of earnings surprise due to internal control auditor attestation. ERC is chosen to be used over accruals, the other common proxy used (Doyle et al., 2007; Ashabugh-Skaife et al., 2008), because there exists analytical research that develops and proves the association between reported earnings quality and abnormal stock returns (Holthausen and Verrecchia, 1988; Imhoff and Lobo, 1992; Teoh and Wong, 1993). The advantage to use ERC as a measure for quality of earnings is that there is no need to calculate the unobservable earnings quality but it refers to the stock market's valuation of earnings (Gang, Ke, Yu, 2009). Here, I assume the market efficiency hypothesis.

As indicated by hypothesis development in section 3, I expect a negative association between ERC and firms that choose to not provide auditor attestation for internal control. The presence of auditor attestation is translated to perception of high quality earnings (Dechow, Ge, and Schrand, 2010).

Thus, I estimate the following model, according to the model used by Chen et al. (20012):

$$CAR_{jt} = \alpha_0 + \beta_1 EARN_{jt} + \beta_2 \Delta EARN_{jt} + \beta_3 ATTEST + \beta_4 EARN_{jt} * ATTEST + \beta_5 \Delta EARN$$
$$* ATTEST + \beta_6 BIG4_{jt} + \beta_7 LEV_{jt} + \beta_8 MB_{jt} + \beta_9 SIZE_{jt} + \beta_{10} IND_{jt}$$
$$+ \beta_{11} ACOM_{jt} + \beta_{12} EARN * BIG4_{jt} + \beta_{13} \Delta EARN * BIG4_{jt}$$
$$+ \beta_{13} EARN * LEV_{jt} + \beta_{14} \Delta EARN * LEV_{jt} + \beta_{15} EARN * MB_{jt}$$
$$+ \beta_{16} \Delta EARN * MB_{jt} + \beta_{17} EARN * SIZE_{jt} + \beta_{18} \Delta EARN * SIZE_{jt}$$
$$+ \beta_{19} EARN * IND_{jt} + \beta_{20} \Delta EARN * IND_{jt} + \beta_{21} EARN * ACOM_{jy}$$
$$+ \beta_{22} \Delta EARN * ACOM_{jt} + \varepsilon_{jt}$$

This model tests whether earnings informativeness after the implementation of JOBS Act differs between firms that do and do not have internal control attestation by auditors. The dependent variable is cumulative abnormal market adjusted returns, CAR. This variable is defined as firm raw returns cumulated from day six after the 10-K filing of year t until five days before the next 10-K filing of year t+1, an annual window. The independent variable is earnings, EARN, and change of earnings, ΔEARN. Earnings is calculated as earnings before extraordinary items deflated by market value of equity at the end of the year. Deflation is done in order to minimize the possibilities that large firms drive the results. This is known as "scale effects". Differenced earnings is earnings of this year minus earnings of previous year. This variable is chosen to represent permanent earnings component while earnings capture transitory components (Chen et al., 2012). ATTEST is a dummy variable with value zero if the firm has chosen to provide auditor attestation on internal controls and one otherwise. This variable will provide the evidence for the effect of JOBS Act since after this Act, firms have the right to choose if they want to disclose auditors' attestation for internal controls or not. The coefficient of interest are $\beta_4 + \beta_5$. A negative and significant coefficient will imply that earnings informativeness i.e. earnings quality, is lower for EGC firms that do not have auditor attestation of their internal controls over financial reporting. All data are taken annually.

I have included several control variables which has been used in associated studies. These are:

Big4 is a dummy variable for Big4 auditors. It is a proxy for auditors' quality. It indicates one if the firm is audited by one of these firms: Deloitte & Touche, Ernst & Young, KPMG, or Pricewaterhouse Coopers, and zero otherwise. Teoh and Wong (1993) has tested abnormal stock returns on earnings surprise for Big8 and Non-big8 audit firms, showing that larger auditors generate more precise earnings. Moreover, the credibility of financial reported numbers is positively associated with auditor quality (Dechow, Ge, Schrand, 2010). Therefore, I assume that firms that are audited by Big4 companies will have higher earnings quality and thus ERC will be higher.

Size (**SIZE**) is calculated as the natural logarithm of the firms' market value of equity at the end of each fiscal year. Smaller firms face higher costs of implementation of internal controls and of auditor attestation (Piotroski and Srinivasan, 2008), thus they are more likely to choose not to comply with auditor attestation. As a result, this decision will be perceived as a deficiency of quality in their reported earnings numbers.
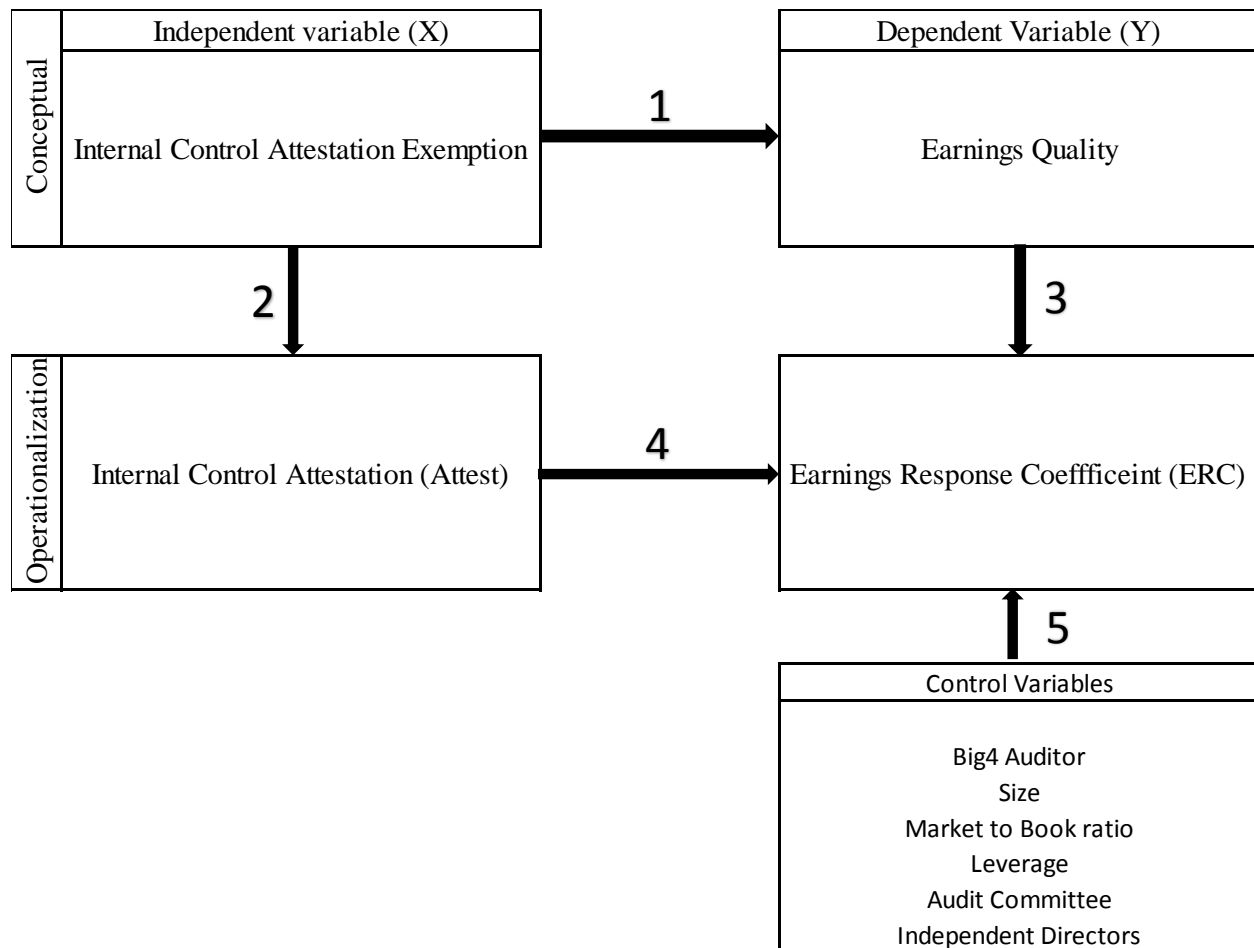
Market to book value (**MB**) is a proxy for growth opportunities. It is measured as market value of equity divided by book value of assets. Earnings are more informative for high growth firms (Dechow, Ge, Schrand, 2010) and the market reaction for those firms is higher.

Leverage (**LEV**) is a proxy for capital structure of the firm. It is measured as the firm's long term debt divided by its total assets. Core and Schrand (1999) find that leverage is associated with ERC. A firm debt structure affects the relation of earnings and returns. Plummer and Tse (1999) find a negative association between ERC and leverage.

Governance characteristics are also related with the credibility of financial statements. Therefore, I use two control variables as proxies, the fraction of independent directors (**IND**) and the presence of audit committee (**ACOM**). Managerial ownership affects the informativeness of earnings. Warfield, Wild and Wild (1995) have documented that the separation of ownership from economic decision control is positively associated with earnings explanatory power. The fraction of independent directors to total directors will capture the effect of managerial ownership. As for the other variable, Anderson et al. 2013 has shown that the presence of audit committee leads to more informative earnings. The function of audit committee is to oversight financial reporting and disclosure. Therefore, it is directly related to the quality of reported earnings numbers. The existence of this committee will affect positively earnings quality.

4.2 Libby Boxes

The predictive validity framework ("Libby Boxes") visualizes the relation of conceptual variables and how they are operationalized in the research design. Upper boxes present conceptual variables as stated in the null hypothesis. Link 1 captures the hypothesized causal relation between these two variables. The explanatory variable (independent variable, X) is the exemption from internal control attestation and the explained variable (dependent variable, Y) is earnings quality. Lower boxes present how these variables are operationalized, captured by link 2 and link 3. The internal control attestation exemption is measured by the dummy variable ATTEST which is equal to one if the firm has chosen to be part of the exemption or zero otherwise. Earnings quality is measured by earnings response coefficient (ERC). Link 4 is the causal association that this thesis will empirically test. Link 5 lists some control variables which capture the effects of other factors related to X and Y but are not of direct interest to this thesis.

Conceptual	Independent variable (X)	1	Dependent Variable (Y)
	Internal Control Attestation Exemption	→	Earnings Quality

2 ↓   3 ↓

Operationalization	Internal Control Attestation (Attest)	4	Earnings Response Coeffficeint (ERC)

5 ↑

Control Variables

Big4 Auditor
Size
Market to Book ratio
Leverage
Audit Committee
Independent Directors

The sample and the time frame of this thesis is small and this will affect its external validity. With

external validity, it means the ability to generalize conclusions to the whole population. Empirical results of this study can be generalized to those firms that have the same characteristics, fulfill requirements of an EGC, throughout the world, not only in US market. Even the internal validity is low because this is an observational study. Observational studies have difficulties to draw causal inferences due to endogeneity concerns. In this thesis, endogeneity concerns are related to omitted correlated variables. Non-earnings informativeness is a potential omitted variable. This can bias regression coefficient.

As for the construct validity, the degree to which an operationalization of the construct captures the underlying theoretical result, it can be said that it is high. ERC is the operationalization of earnings quality and previous literature supports this decision (Holthausen and Verrecchia, 1988; Imhoff and Lobo, 1992; Teoh and Wong, 1993).

4.3 Sample and Data

This sub-section describes the sample that is used in this thesis. All firms that have submitted S-1 registration statement to SEC after JOBS Act are taken in the EDGAR database. From this sample, all non-EGC firms are deleted. The EDGAR database has S-1 and 10-K filings for each firm which are retrieved and analyzed manually. Therefore, the information regarding internal control attestation exemption is a hand collected database. Moreover, the number of independent directors and the existence of audit committee have also been collected manually. For this thesis, 10-K filings starting from the year that a particular firm went as an IPO until the latest one available are taken for analysis.

Besides the EDGAR database, I have taken data from three other databases available through Wharton Research Data Services. COMPUSTAT is used to obtain financial data: earnings, assets, debt, equity, market value of equity. Audit Analytics is used to obtain data regarding the auditor for each firm. And lastly, EVENTUS is used for the cumulative abnormal market-adjusted returns. EVENTUS is a database that allows to obtain data for event studies with different window sizes for earnings announcement. Market reaction around earnings announcement, 10-K filings which were retrieved from EDGAR database, for an annual window (+6;-5) is collected from this database.

Considering the number of different databases, the statistical program STATA is used to merge all data in one unique database. After merging these two-datasets, I retain firm-year observations that are available for IPOs. My sample period covers years 2011 through 2015 during which JOBS Act has been implemented (2012 to 2015 while year 2011 is needed for lagged and differenced variables).

Table 1

Sample Selection	
Initial 10-K filings for EGC firms after JOBS Act	1704
Less: firms with no observations from Audit Analytics (auditor)	-354
Less: firms with no observations from Compustat (earnings before extraordinary items)	-373
Less: firms with no observations from EVENTUS (cumulative abnormal market adjusted returns)	-427
Less: outliers	-23
Less: firms that lose the status of EGC	-45
Final Sample	482
Firm-year observations with corporate governance variables	482
Firm-year observations with corporate governance variables	112

As it is explained in Table 1, the initial sample with firm-year observations from 10-K filings is 1704. This sample is reduced to the final one with 482 observations because of missing observations from the other databases used in this thesis and outliers. From Audit Analytics I miss 354 observations. From COMPUSTAT, I miss 373 observations and lastly from EVENTUS I miss 427 observations. Outliers are those extreme values that can harm regression coefficients because they influence mean of the variable where they are observed. As a result, it is necessary to exclude these variables from the sample and this group consists of 23 observations for cumulative abnormal market adjusted returns, earnings and differenced earnings. At a certain moment, these firms can lose their status of EGC if they do not meet any longer requirements discussed in section 2.1. Anyhow, firms that have lost the status later on are part of the initial sample. These firms had this status at the beginning of the time period of this thesis but they will be excluded from the estimation since for non-EGC firms, different rules apply for internal control attestation. Non-EGC firms have other disclosure requirements to fulfill which can affect their earnings quality. Thus, they are not part of the sample. Firm-year observations that correspond to non-EGC firms are 45.

Corporate governance variables, independent directors and audit committee, are hand collected data and are not available for all the firms. Therefore, my regression will be tested with and without these variables. Firm-year observations for the sample without (with) corporate governance characteristics are 482 (112) which corresponds to 345 (76) firms.

5 Empirical Results and Analysis

This section introduces empirical results and analysis of this thesis. First, descriptive statistics are presented for the sample. Then, panel data analysis is discussed, choosing between different options for the model and then making the necessary assumptions. The last section presents and discusses empirical results.

5.1 Descriptive Statistics

Table 2 presents descriptive statistics of the variables discussed in section 4.1. Statistics presented are: number of observations, mean value, standard deviation, minimum and maximum value. There are three dummy variables: BIG4, ATTEST, and ACOM. Minimum and maximum values of these variables are 0 and 1 respectively. IND is a variable presented as a fraction and this is the reason why its minimum and maximum value is as well 0 and 1. The other remaining variables are continuous and their descriptive statistics are as presented below. This table presents statistics for the whole population, and for EGC and non-EGC firms separately.

As it can be seen in Table 1, abnormal returns (CAR) are high for EGC firms. Information uncertainty is higher for these firms and this may be one reason why earnings announcements convey important information for EGC firms. Earnings (EARN and ΔEARN) are not so stable because their standard deviation is high. Most of the firms have negative transitory and persistent earnings since mean and median values for these two variables are both negative. Internal control attestation dummy (ATTEST) has 0.83 mean which means that most of the firms choose to comply with JOBS Act internal control attestation exemption. The variable that shows if the firm is audited by one of the Big4 financial companies (BIG4) shows that there is a significant variation for firms that choose Big4 auditors and those that do not (mean=0.793 and st.dev.=0.406). This variation may be due to higher audit fees charged by Big4 companies. Market to book ratio (MB), and size (SIZE) have low means, respectively 4.587 and 6.026. This indicates that EGC firms are small in size and with low growth opportunities. As for the government characteristics variables, audit committee (ACOM) and fraction of independent directors (IND) shows that not all EGC firms have audit committee (minimum value for this dummy is 0) and at least one independent director (minimum value for the fraction is 0 as well). The lack of audit committee and independent directors can be perceived as detrimental factors for financial reporting quality.

Table 2 - Descriptive Statistics

	sample	obs	mean	median	st.dev.	min	max
CAR	EGC firms	482	0.015	0.006	0.067	-0.152	0.303
EARN	EGC firms	482	-0.067	-0.032	0.145	-1.127	0.176
ΔEARN	EGC firms	482	-0.029	-0.018	0.085	-0.596	0.314
ATTEST	EGC firms	482	0.830	1	0.376	0	1
BIG4	EGC firms	482	0.793	1	0.406	0	1
MB	EGC firms	482	4.587	3.643	8.833	-49.937	49.397
LEV	EGC firms	479	0.124	0.016	0.190	0	0.742
SIZE	EGC firms	482	6.026	6.116	1.232	2.344	9.487
IND	EGC firms	112	0.731	0.764	0.172	0	1
ACOM	EGC firms	123	0.951	1	0.216	0	1

For explanatory and explained variables, I present histograms in order to have a better picture of their spread around the mean. Table 3 presents descriptive statistics of each variable grouped by variable ATTEST, firms that choose to comply with internal control attestation and firms that do not.
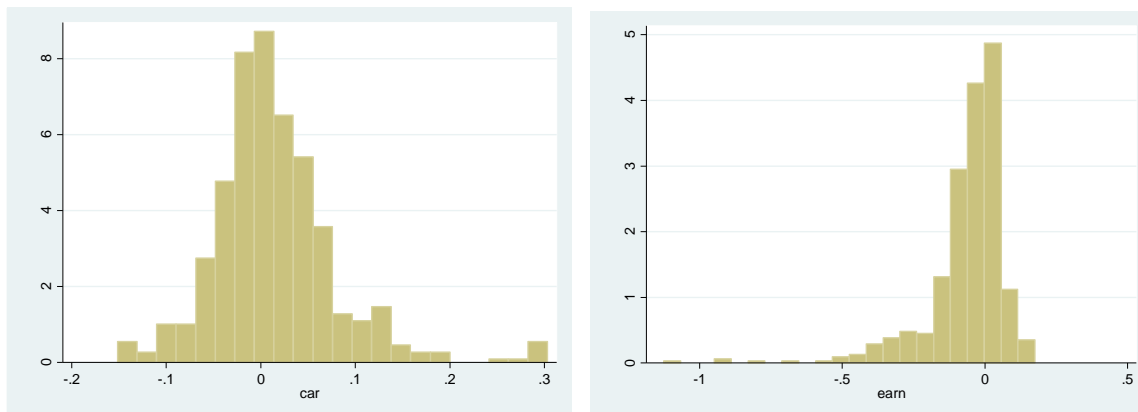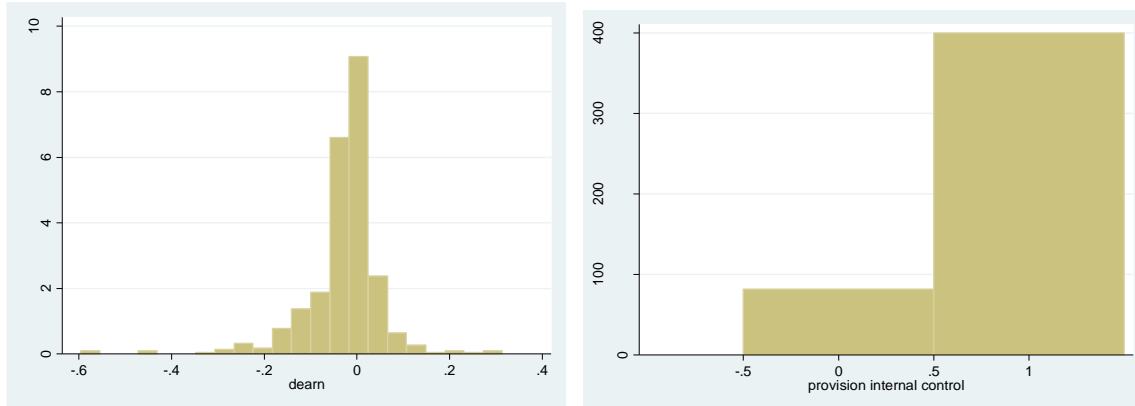
There are 400 observations that refers to firms that have chosen to comply with internal control attestation exemption. For these firms, cumulative abnormal market adjusted returns and earnings are lower (mean) which means that investors react more positively for firms with internal control attestation. Anyhow, this difference is not significant. Big4 auditors are chosen more by firms that do attest for internal control. These firms are also bigger in size, with a higher leverage, and with audit committee. Differences in size and market to book ratio between firms that do attest and thot that do not for internal control are significant. Thus, it can be concluded that firms that do not choose to opt for SOX 404(b) JOBS exemption are those that are bigger in size and with higher growth opportunities. This can be seen as a decision to inform better stakeholders and lower information uncertainty. Firms that have a higher leverage do also choose to attest for internal control attestation but this difference is not significant. This kind of firms do have an audit committee since their minimum and maximum values is 1. Audit committee is seen as an added value to the quality of financial reporting.

5.2 Panel Data and Assumptions

This sub-section discusses the panel data method that fits best the data and draws the necessary assumptions for the regressions. These assumptions are related to outliers, homoscedasticity, and autocorrelation.

Table 3 - Descriptive Statistics Grouped by Variable "ATTEST"

		CAR	EARN	ΔEARN	BIG4	SIZE	MB	LEV	IND	ACOM
	obs	82	82	82	82	82	82	81	14	15
	mean	0.016	-0.050	-0.027	0.829	6.652	5.765	0.192	0.657	1
ATTEST = 0	st.dev.	0.058	0.154	0.079	0.379	1.338	13.802	0.250	0.208	0
	max	0.303	0.176	0.239	1	9.487	49.397	0.742	1	1
	median	0.009	-0.017	-0.012	1	6.864	3.976	0.059	0.708	1
	min	-0.112	-0.930	-0.463	0	3.385	-49.937	0	0.375	1
	obs	400	400	400	400	400	400	398	98	108
	mean	0.015	-0.070	-0.030	0.785	5.898	4.345	0.110	0.741	0.944
ATTEST = 1	st.dev.	0.069	0.143	0.087	0.411	1.171	7.419	0.172	0.165	0.230
	max	0.303	0.176	0.314	1	9.487	49.397	0.742	1	1
	median	0.006	-0.036	-0.018	1	5.961	3.583	0.012	0.778	1
	min	-0.152	-1.127	-0.596	0	2.344	-49.937	0	0	0
difference t-statistic test		-0.091	-0.229	-0.120	-0.603	-2.532	-17.088	-0.386	-0.182	-0.286
						***	***			

*ATTEST is a dummy variable equal to 1 for those firms that choose to comply with JOBS Act exemption

*   indicates statistical significance at 10% level

**   indicates statistical significance at 5% level

*** indicates statistical significance at 1% level

Panel data are cross-sectional time-series data which means that the data set has data observed over time for each firm. There are different methods used in panel data like Ordinary Least Square (OLS), Fixed Effects (FE), and Random Effects (RE). The decision among these methods is done by running different tests in Stata. The first test is Hausman test which chooses between FE and RE methods. The null hypothesis of this test favors RE and the alternative one favors FE. Results of this test gives a p-value = 0.2099. This result suggests that H0 holds which means that RE is favored over FE. The next test, Breusch and Pagan, gives results for OLS and RE. The null hypothesis of this test states that OLS is favored over RE. Results are shown at Table 4. P-value of this test is 0.0194 which means that the null hypothesis does not hold and RE is favored over OLS.

Table 4 - Breusch and Pagan Test

	Var	sd = sqrt (Var)
CAR	0.0045	0.0676
e	0.0022	0.0472
u	0.0022	0.0469

Test: Var(u) = 0

chibar2(01) = 4027

Prob > chibar2 = 0.0194

Random Effects method is used for the panel data of this thesis. This decision gives additional help to deal with endogeneity concerns, respectively omitted variables. Additionally, there are some assumptions that are necessary to be made in order to have correct results. The first assumption is related to outliers. Outliers are excluded from the sample as discussed in section 4.3. Outliers are those extreme values that can harm regression coefficients because they influence mean of the variable where they are observed. The method used is data trimming where observations in the 1st and 100th percentile are excluded from the sample.

Homoscedasticity and serial correlation are two other assumptions. Homoscedasticity is related to the homogeneity of residuals' variance. Homogenous variance means that the model is well-fitted. To test for this assumption, I use Breusch-Pagan/ Cook-Weisberg test with the null hypothesis of homogenous residuals' variance. This test gives a p-value equal to 0 which means that H0 does not hold and data suffers from heteroscedasticity. In order to correct it, I am going to use the option "robust" in Stata. The other assumption is serial correlation (autocorrelation) which means that variables may experience correlation across the observed year but since the time-frame of this thesis is small, most probably there will be no serial correlation. To test for this, I use Wooldridge test with null hypothesis of no first-order autocorrelation. This test confirms the non-presence of autocorrelation because p-value is equal to 0.8628 which means that H0 holds.

5.3 Empirical Results

As explained in the previous sub-section, I use a Random Effects model to test my hypothesis. Results are presented in Table 5.

The overall model is significant with p-value of Wald chi2 equal to 0. The overall R^2=20.22% which means that 20.22% of the variation of abnormal market adjusted returns is explained by this

Table 5 - Panel Data Regression

	coefficients	robust standard error	p-value
intercept	-0.034	0.079	0.666
EARN	0.547	0.594	0.357
ΔEARN	-1.536	1.058	0.147
ATTEST	0.012	0.016	0.440
EARN*ATTEST	0.017	0.404	0.968
ΔEARN*ATTEST	-0.127	0.483	0.793
BIG4	0.009	0.016	0.584
SIZE	0.006	0.009	0.571
LEV	-0.016	0.036	0.648
MB	0.001	0.001	0.295
IND	-0.022	0.042	0.601
ACOM	0.011	0.019	0.549
EARN*BIG4	0.280 **	0.129	0.030
ΔEARN*BIG4	0.076	0.104	0.466
EARN*SIZE	-0.060	0.052	0.247
ΔEARN*SIZE	0.017	0.104	0.867
EARN*LEV	0.059	0.269	0.827
ΔEARN*LEV	1.050 *	0.556	0.059
EARN*MB	-0.013	0.009	0.138
ΔEARN*MB	0.016	0.010	0.140
EARN*IND	-0.797 ***	0.252	0.002
ΔEARN*IND	1.982 **	0.799	0.013
EARN*ACOM	0.086	0.094	0.362
ΔEARN*ACOM	-0.147	0.296	0.619

overall R^2 = 20.22%

prob > chi2 = 0.0000

Number of observations: 112

Number of groups: 87

Cumulative abnormal market adjusted returns is the dependent variable and is regressed
over transitory and permanent earnings.

Control variables are: Big4 auditor, firm size, market to book ratio, leverage, independent
directors, audit committee.

*   indicates statistical significance at 10% level

**   indicates statistical significance at 5% level

*** indicates statistical significance at 1% level

model. Coefficients of transitory and permanent earnings are both insignificant. These results are
not consistent with previous research (Ghosh and Moon, 2005; Chen et al., 20120). The sample

may be the reason of this inconsistency. Since the sample includes only IPOs, earnings for these kind of firms do not drive investors' perceptions. IPOs may argue that accounting methods may not give the right picture of their profitability like in the case of Twitter which always report non-GAAP earnings as a better indicator of their financial position. The coefficient of persistent earnings is negative which means that it is negatively related to market response but it is insignificant. The reason behind this non-intuitive result may be the sample as previously stated. The mean of this variable is negative and this may direct investors' perceptions to other than earnings measures. The dummy variable ATTEST results with a positive association with cumulative abnormal market adjusted returns but it is insignificant as well. This means that market react positively to those firms that do not attest for internal control attestation. The explanation behind this result may be related to the fact that this decision is made voluntarily and is not taken from investors as detrimental to the quality of reported earnings numbers. Firms may also explain and support with arguments their decision, as long as they are required to comply with SOX 302 and SOX 404(a).

The only variables that are significant are interaction terms with earnings and big4 auditor, differenced earnings and leverage, earnings and independent directors, and differenced earnings and independent directors. The positive coefficient of the interaction of earnings and big4 is intuitive and means that earnings are more informative for those firms that have big4 auditors. Differenced earnings and leverage interaction term has a positive coefficient which is not intuitive but this result can be explained by other factors. Highly leveraged firms may choose to disclose more information and make their earnings more informative. Interaction terms with earnings and differenced earnings and independent directors have different signs but their sum, as discussed later on, is positive. This means that the presence of independent directors is positively associated with earnings quality. Anyhow, the coefficients of interests are those of jointly significance of interaction terms with earnings and differenced earnings. These are presented in Table 6.

The coefficient of my interest for the hypothesis is the sum of the coefficients of the interactions EARN*ATTEST and ΔEARN*ATTEST which is $(\beta_4 + \beta_5)$=-0.14294 with p-value = 0.82 which means that this sum is not significant. As a consequence, null hypothesis (H) holds which means that there is no significant association between exemption from internal control attestation and earnings quality.

Reasons behind these results are also discussed in section 3. The cross-sectional variation is not enough to give unbiased results where the time frame and the sample is small. The other reason is that since firms have the right to choose voluntarily, they can justify their decision that internal control attestation from auditors is not necessary and does not add value. Moreover, they can explain that this decision is not going to convey important information that will affect future cash flow expectations for investors. Additionally, they can provide other earnings numbers, like non-GAAP earnings, to influence investors' perceptions. Internal control attestation is not seen as a guarantee for reported earnings. As a result, non-earnings information, information environment, different accounting methods financial numbers, and non-sufficient cross-sectional variation can drive these results.

Table 6 - Sum of Interaction Terms

	sum of coefficients	robust standard error	z	p-value
EARN*ATTEST + ΔEARN*ATTEST	-0.1429	0.6299	-0.227	0.820
EARN*BIG4 + ΔEARN*BIG4	0.3563	0.1658	2.149	0.032 **
EARN*LEV + ΔEARN*LEV	1.1089	0.6174	1.796	0.073 *
EARN*SIZE + ΔEARN*SIZE	-0.0432	0.1165	-0.370	0.711
EARN*MB + ΔEARN*MB	0.0026	0.0140	0.183	0.855
EARN*IND + ΔEARN*IND	1.1848	0.8379	1.414	0.157
EARN*ACOM + ΔEARN*ACOM	-0.0619	0.3107	-0.199	0.842

overall R^2 = 20.22%

prob > chi2 = 0.0000

*   indicates statistical significance at 10% level

**   indicates statistical significance at 5% level

*** indicates statistical significance at 1% level

$$std.\,err.(X + Y) = \sqrt{Var\,(X) + Var\,(Y) + 2 * Cov(X,Y)}$$ assuming Cov(X,Y) =0

The sum of coefficients for interaction terms with transitory and persistent earnings, size of the firm, market to book ratio, fraction of independent directors, and existence of audit committee are not significant as well. These results give the conclusion that these variables do not affect earnings response coefficient thus earnings quality.

The only sum of coefficients that are jointly significant are for firms that are audited by Big4 financial companies and those that are highly leveraged which means that these two variables have a significant positive association with earnings quality. The coefficient for Big4 is 0.35628 with a p-value of 0.032, significant at 5% and consistent with prior studies (Teoh and Wong, 1993). Investors values earnings that are audited by Big4 companies as of high quality and their reaction is higher for these firms. The coefficient for leverage is 1.18 with a p-value of 0.073, significant at 10%. This result is not consistent with prior literature because the association of ERC and leverage is found to be negative (Core and Schrand, 1999). One explanation for this inconsistency may be that high leveraged firms may disclose extra information to explain their high levels of debt and future impacts and this can be perceived as a higher informativeness which influence positively market reaction.

5.4 Excluding Corporate Governance Variables

Observations for independent directors and audit committee are very small in number in contrast with the other variables. Therefore, I choose to rerun the regression without these two variables. Results are shown in Table 6. The overall R^2 now drops to 6.74% which means that these two dropped variables explain significantly the variation of cumulative abnormal market adjusted returns and the other variables. Now, differenced earnings and leverage are significant. Both coefficients of these variables are negative which means a negative association between them and cumulative abnormal market adjusted returns. Investors react negatively to highly leveraged firms and to those with persistent earnings. The sign of leverage is intuitive but the one of differenced earnings is not. This may be due to the sample because the mean and median of differenced earnings, discussed in section 5.1, is negative which says that most of the firms of my sample have negative persistent earnings. Moreover, there are two significant interaction terms, earnings with big4 auditor and differenced earnings with size. Both coefficient of these interaction terms are intuitive and positive which means that earnings are more informative for those firms that are audited by big4 financial companies and those that are considered as bigger in size.

Table 7 - Panel Data Regression - without corporate governance control variables

	coefficients	robust standard error	p-value
intercept	-0.015	0.023	0.499
EARN	0.052	0.157	0.739
ΔEARN	-0.521 *	0.295	0.077
ATTEST	0.007	0.007	0.365
EARN*ATTEST	-0.039	0.102	0.696
ΔEARN*ATTEST	0.275	0.189	0.147
BIG4	-0.003	0.008	0.748
SIZE	0.005	0.003	0.140
LEV	-0.031 **	0.013	0.021
MB	0.000	0.000	0.506
EARN*BIG4	0.208 **	0.084	0.013
ΔEARN*BIG4	-0.152	0.104	0.143
EARN*SIZE	-0.039	0.019	0.387
ΔEARN*SIZE	0.069 *	0.037	0.057
EARN*LEV	0.094	0.109	0.387
ΔEARN*LEV	0.088	0.124	0.476
EARN*MB	-0.005	0.003	0.166
ΔEARN*MB	0.005	0.004	0.176

overall R^2 = 6.74%

prob > chi2 = 0.001

Number of observations: 479

Number of groups: 332

Cumulative abnormal market adjusted returns is the dependent variable and is regressed

over transitory and permanent earnings.

Control variables are: Big4 auditor, firm size, market to book ratio, leverage.

*   indicates statistical significance at 10% level

**   indicates statistical significance at 5% level

*** indicates statistical significance at 1% level

All the sum of coefficients for interaction terms are now jointly insignificant. This shows no association between these variables and earnings quality for the sample used in this thesis. Other variables, like governance ones, may be helpful to explain the variation of cumulative abnormal market adjusted returns and give better results how these variables are associated.

Table 8 - Sum of Interaction Terms

	sum of coefficients	robust standard error	z	p-value
EARN*ATTEST + ΔEARN*ATTEST	0.2354	0.2154	1.093	0.274
EARN*BIG4 + ΔEARN*BIG4	0.0569	0.1338	0.425	0.670
EARN*LEV + ΔEARN*LEV	0.1832	0.1658	1.105	0.269
EARN*SIZE + ΔEARN*SIZE	0.0310	0.0417	0.744	0.457
EARN*MB + ΔEARN*MB	0.0007	0.0053	0.132	0.895

overall R^2 = 6.74%

prob > chi2 = 0.001

* indicates statistical significance at 10% level

** indicates statistical significance at 5% level

*** indicates statistical significance at 1% level

$$std.err.(X + Y) = \sqrt{Var(X) + Var(Y) + 2*Cov(X,Y)} \qquad \text{assuming Cov(X,Y) =0}$$

6 Conclusions

The purpose of this thesis is to investigate earnings quality of Emerging Growth Companies (EGC) after JOBS Act in 2012 if they choose to accept the exemption from internal control attestation. The primary reason of JOBS Act was to ease requirements of firms to go public and lower cost of capital. Therefore, investors' perceptions and reactions to information regarding these firms is important to be studied. Moreover, effects of JOBS Act are of high importance to be analyzed since this is a new act and its consequences are highly debatable.

Earnings quality i.e. earnings informativeness is measured by Earnings Response Coefficient (ERC). The model used is the same as that of Chen et al. (2012). The statistical method used is Random Effects. Empirical results support the null hypothesis that there is no significant association between earnings quality and internal control attestation for EGC firms. Since firms have the right to choose voluntarily, they can justify their decision that internal control attestation from auditors is not necessary and does not add value. Moreover, they can disclose other information related to credibility of earnings and future cash flow expectations which are not captured by variables of my model. Sample is another factor that can affect these results, since it consists only of IPOs and the number of observations is small. Variables that do affect earnings quality are Big4 and leverage. Firms that are audited by Big4 companies are perceived to have higher quality earnings and this is consistent with previous research (Teoh and Wong, 1993). Findings for leverage are inconsistent with prior literature (Core and Schrand, 1999). High leveraged firms may choose to disclose more information than other firms regarding their capital structure and amount of debt. This extra information can help investors to understand better firms' future performance and thus reacting positively in market. Coefficients of transitory and permanent earnings are both insignificant when regressed on cumulative abnormal market adjusted returns. Investors' perception can be affected from other than earnings factors for these kind of firms.

The empirical model is rerun without corporate governance control variables since these variables have a lot of missing values. Results do not change significantly. The overall R² drops to 6.74% from 20.22%. Differenced earnings and leverage are significantly negative associated with cumulative abnormal market adjusted returns. The non-intuitive result for differenced earnings may be due to the sample because the mean and median of this variable is negative which means that at least half of the firms have negative persistent earnings. The sign on leverage is intuitive

because the market reacts negatively to those firms that have higher rates of debt. Big4 and size are significantly positively associated with earnings quality. These results are intuitive. As for the other interaction terms and their sum, they are insignificant with respect to earnings response coefficient thus earnings quality.

Results of this thesis are important for the debate of the effects of JOBS Act. There is empirical evidence that internal control attestation does not affect earnings informativeness for IPOs. Therefore, this exemption has not hurt earnings quality and thus firms can choose to comply with it and lower their audit costs. Proponents of JOBS Act have some empirical evidence to argue with opponents of this act. Arguments are added and there is contribute to the debate between regulators/ policymakers and practitioners / market participants over the merits of JOBS Act provisions. Market participants, investors, should not revise negatively their perceptions for those firms that do not have internal control attestation. As for regulators, this exemption can be embraced by other countries in order to lower high audit fees faced by small companies. And lastly, firms themselves have to choose Big4 auditors since their attestation is perceived to provide more reliability to market participants. Moreover, those firms that are highly leveraged have to disclose extra information which explain their capital structure and firms' future performance and cash flow.

There are some limitations for this thesis. First, the time period is limited and the number of firms is very small. As a result, conclusions cannot be generalized to the whole population of IPOs. 10-K filings were not all available to be analyzed. This leaves possibilities for further research. Moreover, number of independent directors and existence of audit committee can be further tested with a higher number of observations. Endogeneity concerns is another limitation of my thesis. Omitted variables can bias my results. Non-earnings information, information environment, different accounting methods financial numbers can be part of omitted variables. Dealing with these concerns leads to further area of research.

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