



MSc. Accounting, Auditing and Control

Master thesis

**The Unintended Consequences of Exempting Small Firms from
the JOBS Act.**

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Abstract

This thesis provides evidence about the unintended consequences of exempting small firms from strict and costly regulations. From 2012, the Jumpstart Our Business Startup Act relieves or postpones Emergency Growth Companies that are going public from strict regulation and compliance requirements if certain criteria are met. This research investigates whether those firms have incentives to remain below threshold (\$1 billion revenue) that is set by the regulators, in order to use the provisions that the Act offer. I hypothesize that Emergency Growth Companies are more likely to remain small than non-Emergency Growth Companies through revenue management and find that these firms have incentives to remain below the threshold. Moreover, I document that these firms have a greater change in the deferred revenue account and have more discretion in the revenue accruals. Emergency Growth Companies have more discretionary accounts receivable accruals and deferred revenue accruals in which are used to suppress their revenue. This thesis contributes to the existing literature of the real effects of regulation. Furthermore, the results are of importance for regulators and the financial market.

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1. Introduction

In the aftermath of the financial crisis in 2008, initial public offering (IPO) volume has reached historically low levels. Entrepreneurs and small businesses that are trying to expand their businesses or are eager to turn their ideas into feasible businesses are facing hard challenges in today's financial environment (Ernst & Young, 2013). On the one hand, attracting capital through bank loans becomes more difficult because banks are demanding solid and long-term financial numbers. On the other hand, attracting external capital in the form of shareholder ship on the public market are coupled with strict requirements and high compliance costs (Dambra, Field, & Gustafson, 2015). In response to the major scandals and accounting frauds that have occurred, the government of United States has introduced regulation to protect stakeholders. Especially, the enactment of the Sarbanes-Oxley Act 2002 is seen as one of the most onerous legislation, which tightened accounting standards and mandated disclosure requirements that are relatively more burdensome for smaller firms than larger firms (Gao, Wu, & Zimmerman, 2009).

In response to these concerns, the Jumpstart Our Business Startups Act (JOBS Act) was introduced in 2012 to revalidate the IPO market. The JOBS Act mainly focusses on small firms, as they are most affected by strict regulation and high compliance costs. Firms are qualified and as an Emergency Growth Company (EGC) when their total gross revenues do not exceed the amount of \$1 billion during its most recent fiscal year (Securities and Exchange Commission, 2015). EGCs are allowed to make a confidential submission with the sec without presenting this towards the public market and are only required to disclose two years of financial statements instead of three years. Also, EGCs are exempted from attestation of internal control and disclosure of executive compensation and firm performance and from certain accounting regulations and receive longer transition to comply with new standards. The privileges above lessen the burden of disclosure, accounting and compliance costs for firms that are filing for IPO. However, granting exemptions to small enterprises from strict regulations may lead to unintended consequences, which is proven by the study of Gao et al. (2009). They examine the unintended consequences of exempting non-accelerated filers from Section 404 of the Sarbanes-Oxley Act 2002. They find that firms have incentives to remain small by undertaking activities to decrease their public float to postpone compliance with section 404 SOX. Existing literature documents more avoidance behavior as a result of burdensome regulation. Namely, public firms that were affected by the introduction of SOX

went private again if the complying costs were outweighing the benefits. Especially, small firms went private as the costs are relatively higher for smaller firms than larger firms (Engel, Hayes, & Wang, 2007).

The purpose of this thesis is to shed some light on how the Jumpstart Our Business Startups Act (JOBS Act) affects firms that file for initial public offerings (IPOs). More specifically, it investigates the unintended consequences, when small firms are exempted from certain regulations and whether these firms engage in certain activities to remain small. The thesis attempts to answer the following research question:

RQ: Do firms undertake activities to remain small to be considered as an emerging growth company under the Jumpstart Our Business Startups Act?

Firms that want to benefit from the JOBS Act could engage in activities to manipulate their revenue in order to meet the threshold of \$1 billion revenue. Problems arise regarding unintended consequences that are not anticipated by the regulator or are not one of the objectives of the regulation. Therefore, it is important to provide an answer to this research question, as it gives more insight in whether firms engage in improper activity to meet the criteria (Gupta & Israelsen, 2015). The thesis would provide more insight in whether firms intentionally suppress revenue and engage in earnings management. The results should be of relevance to investors that are interested in EGCs that file for IPO, as it could indicate the firm's financial statement quality and information uncertainty. Furthermore, the results ascertain the impact of the JOBS Act on regulatory choices made by firms, the results could also provide insights into the costs and benefits of the JOBS Act. Besides, understanding the intended and unintended consequences of the JOBS Act are of importance for the financial market and regulators (Gao, Wu, & Zimmerman, 2009). Lastly, the results of this research contribute to the existing literature on the real effects of regulations.

In this research, a sample of EGCs is compared to a sample of non-EGCs. The propensity score matching technique is used to match the firms on certain criteria to avoid characteristics differences. The research model is designed to detect revenue management engaged by the firms. Following the model of Caylor (2010), I proxy the deferred revenue, abnormal deferred revenue accruals and accounts receivable accruals as indications for revenue management. I document several actions that EGCs appear to employ to suppress their revenue. First of all, I use a logistic model to calculate the odds of EGCs to stay below the threshold

compared to non-EGCs. The findings indicate that EGCs are 2.8 times more likely to remain below the threshold than non-EGCs. The change in the deferred revenue account is also significantly higher for EGCs compared to non-EGCs, indicating that EGCs have more deferred revenue but does not indicate discretion on its own. Furthermore, the results suggest that EGCs have more abnormal deferred revenue accruals and accounts receivable accruals. Providing evidence for the research question that small firms do undertake several actions to avoid strict regulation.

The remainder of this thesis is organized as follows. Section 2 describes the institutional background of the JOBS Act and provides an overview of the related existing literature. Section 3 provides the hypothesis development. Descriptions of the methodology and data collection is presented in section 4. Section 5 provides the evidence and results undertaken by EGCs. Section 6 concludes this research and provides any suggestions for further studies.

2. Background & literature review

2.1 Jumpstart our Business Startup Act.

Title I of the JOBS Act was enacted on April 5, 2012, and is the most recent of statutes regulating the securities market of the US. The JOBS Act consists of numerous titles with each having different provisions, regulations, and purposes. This study particularly focusses on title I, as this title potentially lowers the cost of private firms that want to go public. Other titles of the JOBS Act facilitate financing for private companies and are therefore beyond the scope and purposes of the study. Furthermore, each title becomes effective in different years since the Act's passage, which makes it difficult to capture its effect altogether (Dharmapala & Khanna, 2016). The Act signed into law with the intention to encourage funding small businesses by easing regulation concerning securities and capital raising. Although there have been significant enactments in this area, like the Securities Act 1933, Securities & Exchange Act 1934 and the Sarbanes-Oxley Act 2002, these sets of major reforms mainly heightened regulation to protect stakeholders. The JOBS Act includes some provisions reflecting a variety of amendments to the securities law, enhancing the ability of firms and especially small firms in raising capital. In particular, by creating a new category of issuer, the Emerging Growth Company (EGC). In order to qualify as an EGC, firms need to have total gross annual revenue of less than \$1 billion revenue during its most recent fiscal year. Firms remain as an EGC until

one of the following events occur: five years have elapsed since the firm's IPO¹, the revenue exceeds the \$1 billion revenue threshold², the firm issues more than \$1 billion in non-convertible debt over three years³ and if the firm attains a large accelerated filer status⁴. The issuer that qualifies as an EGC can take advantage of the provisions the JOBS Act provides. However, it may choose to be not treated as an EGC and is therefore free in applying certain provisions⁵. Various provisions reduce mandatory disclosure regulations, which are broadly divided into de-risking and de-burdening provisions. Under normal businesses, IPO firms are obliged to publicly file their registration statement with the Securities and Exchange Commission (SEC). EGCs, however, can submit their registration statement confidentially with the SEC for a review⁶, which gives EGCs the opportunity to make amendments, before publicly filing their registration statement. Another potential benefit of this provision is that if the issuer is unable to make it through the review process or chooses not to continue with the IPO, there is less chance of revealing proprietary information to competitors.

Secondly, prior to the JOBS Act, firms were required to disclose three years of audited financial statements and provide a Compensation Discussion and Analysis, with three years of compensation information for the Named Executive Officers and the three highest paid executives. The JOBS Act reduces disclosure regulation regarding financial statements and executive compensation. EGCs are not required to report more than two years of audited financial statements⁷ and disclose two years of compensation information for three named executives, including the Chief Executive Officer. Next to that, EGCs do not have to provide a Compensation Discussion Analysis and are not required to disclose the relationship between the executive, employees compensation and firm performance.

Thirdly, firms are exempted from certain accounting and standard regulations and receive a longer transition period to comply with new standards⁸. EGCs are not directly required to comply with the auditor attestation of section 404(b) SOX, they are opting out of compliance with section 404(b) SOX up to five years⁹, which indicates that EGCs are not

¹ See SEC 101 (b), JOBS Act 2012

² See SEC 101 (b), JOBS Act 2012

³ See SEC 101 (b) (2) (C), JOBS Act 2012

⁴ See SEC 101 (b) (2) (D), JOBS Act 2012

⁵ See SEC 107 (a), JOBS Act 2012

⁶ See SEC 106 (a), JOBS Act 2012

⁷ See SEC 102 (b) (1), JOBS Act 2012

⁸ See SEC 104, JOBS Act 2012

⁹ See SEC 103, JOBS Act 2012

required to comply with new and revised accounting standard until this affects private firms. Furthermore, EGCs are exempted from future regulation implemented by the Public Company Accounting Oversight Board (PCAOB), unless the SEC explicitly requires them to do so¹⁰.

Lastly, EGCs are privileged in ‘testing the waters’ with large and sophisticated investors prior to their publicly disclosed registration statement¹¹. Communicating with potential investors beforehand gives the advantage to gauge investors’ interest in a proposed offering. Whereas before the JOBS Act, certain activities were prohibited by the sec and could result in penalties.

2.2 Literature review

2.2.1 Introduction

This section consists of three parts, firstly section 3.2 discusses the literature regarding the economic consequences of voluntarily regulation and disclosure, since the JOBS Act gives certain firms the opportunity in voluntarily adapting regulation. Secondly, section 3.3 describes the economic consequences of mandatory regulation and disclosure, as the JOBS Act relieves firms that meet certain requirements from strict mandatory regulation and disclosure requirements. Section 3.4 describes the literature regarding the real effects of regulations and provides insight in how firms responses to regulation and whether there are unintended consequences of regulation.

2.2.2 Economic consequences of voluntarily disclosure

The provisions of the JOBS Act are defined in the previous paragraph. Having the possibility to go public using these provisions is very beneficial, as it lowers the compliance costs and exempts them from strict regulations. Also, fewer regulations result in disclosing less proprietary information that might be harmful to the business. It is important to mention that there is a clear distinction between disclosing voluntarily or mandatory, because firms that disclose voluntarily, already have incentives in providing this information towards the market. More insight into the effects of regulation will enhance the thoughts behind the unintended consequences of the JOBS Act. The following section is divided into economic consequences

¹⁰ See SEC 104, JOBS Act 2012

¹¹ See SEC 105 (c), JOBS Act 2012

of voluntary disclosure with a sidestep to the effects of the JOBS Act.

In consensus, firms will only disclose information voluntarily if the benefits of disclosing the information outweigh its costs (Ross, 1979). The JOBS Act allows EGCs discretion in disclosing their information towards stakeholders. However, optimizing the level of disclosure has benefits for the company itself, but can be harmful to the stakeholders as it lowers the information certainty. A study conducted by Barth et al. (2016) finds evidence that the JOBS Act does eliminate unnecessary disclosure and requirements, which reduces unnecessary direct costs for issuers. On the other hand, this reduction in mandatory disclosure increases the information uncertainty with the consequence of attracting more investors that rely solely on private information. Furthermore, the results show that reducing disclosure information as a result of less regulation leads to an increased underpricing and post-IPO volatility around the time the firm goes public. Also, having the possibility to eliminate valuable information can be the result of managerial opportunism. However, Barth et al. (2016) find evidence that EGCs acknowledge this information uncertainty and encounter it by providing additional voluntary information. EGCs issue more press releases and management forecasts to minimize the information uncertainty. The results also indicate that additional voluntary disclosure is significantly larger for EGCs than non-EGCs and increases when the information uncertainty is greater. Furthermore, relieving firms from disclosing regulation will affect not only the information certainty but also the market liquidity. Namely, less informed investors always feel disadvantaged relatively to better-informed investors and are always competing with better-informed investors (Verrecchia & Leuz, 2000). This information asymmetry among investors introduces adverse selection, whereby less-informed investors more have to worry about analyzing the target. To minimize their losses, they either price-protect or exit the market, which as a result leads to more illiquidity in the market (Leuz & Wysocki, 2016). Next to illiquidity in the market, a reduction in disclosure harms the bid-ask spread, which imposes high trading costs on investors. Investors expect to get compensated for their uncertainty, and hence that will increase the cost of capital negatively (Amihud & Mendelson, 1986). However, Verrecchia & Leuz (2000) states that corporate voluntarily disclosure and reporting can mitigate the market liquidity and information uncertainty to a certain point by reducing the information asymmetry among investors. The expected asset returns are increasing in the bid-ask spread, which will be greater if the market is more liquid.

Although the JOBS Act increases the information uncertainty and illiquidity in the

market, Dambra et al. (2014) find positive market reactions to the JOBS Act. According to their results, there is a positive abnormal return for firms that file under the Act, which indicate that investors value disclosure and compliance obligations under the Act more than the associated compliance costs. Barth et al. (2016) state that EGCs that apply reduced disclosure provisions are mainly avoiding revelation of proprietary information. Firms with larger proprietary cost of disclosure would therefore more benefit from the provisions the JOBS Act offers. It finds evidence that larger underpricing and post-IPO volatility is more applicable to EGC firms with higher proprietary cost. Also, disclosure is coupled with other burdensome economic costs for smaller firm, such as litigation, competition, and other disclosure costs. For instance, the direct costs of SOX implementation are substantial for small firms that consider going public. Due to the fixed disclosure requirement and high costs, small firms are risking litigation costs, as they are less able to provide the required disclosure (Coates & Srinivasan, 2014). Lang and Lundholm (1993) find that larger firms are better in providing more and qualitative disclosures. Having the possibility of reducing the mandatory disclosure and provide voluntary disclosure following the IPO, is a huge benefit for firms that are risking the aforementioned costs. On the contrary, Dharmapala & Khanna (2016) find no reduction in the direct costs of issuance, accounting, legal or underwriting fees for ECG IPOs. Their results show that underpricing is significantly higher for ECGs firms than non-ECGs firms.

2.2.3 Economic consequences of mandatory disclosure and regulation

Disclosure regulations are obligatory for every firm that operates in the relevant market, unless the regulation clearly states it. In response to the major accounting scandals that has occurred, the United States government has introduced several regulation to protect stakeholders. As mentioned before, the SOX was one regulation that has an major impact on the mandatory disclosure regulation in the United States. The SOX created the Public Company Accounting Oversight Board to monitor and regulate auditing. Its intention is to improve stakeholder's certainty and prevent scandals and fraud from occurring by strengthening the independence and power of audit committees (Leuz & Wysocki, 2016). Due to its strict mandatory regulation and its corresponding costs, small firm are having a hard time acceding the public market. According to Alexander et al. (2013) the compliance costs are scaled by the companies' size based on the total assets, however there are significant fixed costs irrespectively the size of the company, which weighs significantly more on small firms than larger firms. Larger firms have larger SOX-related costs, but their costs per dollar of assets is

lower than small firms (Krishnan, Rama, & Zhang, 2008). Also, small firms are less engaged in SOX than bigger firms and are less experienced in documenting and testing internal controls. Therefore, complying with SOX will place a greater burden on smaller firms, as they also need to invest in more experienced employees (Ahmed, McAnally, Rasmussen, & Weaver, 2010). Mainly, section 404 places a significant burden on public firm, which consists of two subsections where management and independent auditors are responsible for the internal control reporting of the firm. Section 404(a) require managers to annually assess the effectiveness of its internal control system and furthermore issue an attestation report on its internal control. Section 404(b) comprises regulations for auditors to give their opinion on the attestation report on whether the firm is maintaining an effective internal control system (Fischer, Gral, & Lehner, 2014). One provision of the JOBS Act is the exemption of EGCs from section 404(b), which will significantly decrease the compliance costs. However, most of these compliance costs are non-recurring and related to the start-up costs of implementing the regulation. Nevertheless in steady state, the compliance costs are seven times higher for small firms than larger firms. Iliev (2010) finds evidence that on average the audit fees have increased by 86% in complying with the SOX regulation. Small firms are therefore less likely to recognize the compliance costs, as most of the costs are fixed. According to Krishnan et al. (2008) the mean of total compliance costs for section 404 are \$2.2 million in which \$1,5 million are applicable to audit fees. Tacker et al. (2006) states that SOX, in particular section 404 is the most costly reporting legislation that is ever passed by the Congress. The head of firms are spending a lot of time and money on services to comply with the reporting requirements of section 404. An increase approximately 50% in audit fees with an estimated average cost of \$3,14 million per firm and require more than 25000 hours of employee time. Foster et al. (2007) finds similar results in their review of 60 companies, which reveals an average audit fee increase of 40% from year 2003 to 2004. In estimating the change in audit fees for all the companies, the results show that companies that are first complying with SOX 404, experienced an increase of 73% from 2003 to 2004. The increase in audit fees for companies first complying in 2005 was even more substantial, where they encountered an increase of 99%. On the contrary, Scannell & Reilly (2006) find contradicting evidence. In their survey, 238 companies that are currently complying with SOX 404 experienced a decline of 13% in audit fees in the second year. However, it is unlikely to generalize these results with such a small sample. Although the percentage increase in audit fees and the average amount vary among the studies, it is safe to say that there is a significant increase in compliance costs since the implementation of SOX section 404. Furthermore, the SOX 404 implementation improves

efficiency for larger firms, while small firms perceive no impact and in some cases even negative results. Positive results will only likely come into play in the long run (Alexander et al., 2013). Therefore, possibilities to avoid SOX section 404 or at least section 404(b) will greatly be beneficial.

Studies also examined the indirect consequences of SOX. One of the indirect consequences are that due to the strict complying rules on firms, managers are less willing to risks and innovate due to the heightened litigation threat (Barger, Lehn, & Zutter, 2010). A positive consequence is that firms engage less in accrual-based earnings management to meet earnings forecast, because managers are more monitored by audit committees and external auditors. Based on an event study conducted by Cohen et al. (2008), firms are more applying accrual-based earnings management in the pre-SOX period. However, firms switched their earnings management behavior in the post-SOX period from accrual-based earnings management to real earnings management. Although real earnings management is more costly, it is likely more difficult to be detected than accrual-based earnings management.

If mandatory disclosure regulation imposes high costs on firms, the consequence arise that firms are trying to evade strict legislation by engaging in avoidance strategies. Mandatory regulation that results in more costs instead of benefits, will increase the chance of firm's trying to avoid it. An avoidance strategy is documented by Engel et al. (2007), their assumption is that firms have incentives of going private if the costs of complying with SOX outweighs its benefits. Their study shows that SOX compliance costs weigh more heavily on small firms and therefore the chance of small firms going private due to SOX is larger. Specifically, small firms and firms with larger inside ownership receive more benefits of going private in the post-SOX period compared to the pre-SOX period, which indicate that SOX induces fewer benefits for these kind of firms. An explanation is that highly concentrated ownership firms already are well-structured and have a good corporate governance. Complying with SOX only brings unnecessary costs for small and high concentrated ownership firms. Consistent with these findings, another study shows that there is a considerable number of firms that deregister their securities from the SEC following the introduction of SOX. These firms are going-dark, which means that firms cease SEC reporting, but continuously trade publicly on markets that are not committed to the SEC filing requirements. Going-dark appears to be a response to financial distress and growth opportunities deteriorating. The results show a correlation between the passage of SOX and deregistration from the SEC, which indicate that going-dark reflects the

burden of SOX and to save costs (Leuz, Triantis, & Wang, 2008).

Another mandatory disclosure regulation relieve of the JOBS Act is the Compensation Discussion and Analysis (CD&A). Manager's incentives could oppose shareholders' interest, as managers could influence the compensation committee to extract rents. In a dispersed shareholder ownership it is difficult for shareholders to negotiate and monitor compensation contracts. Managers might affect the compensation process and receive excess pay at the costs of shareholders (Laksmanna, Tietz, & Yang, 2012). Therefore, the SEC introduced the CD&A to reduce the monitoring costs on both the manager and compensation committees by mandating disclosures of management compensation levels. The purpose is to enhance shareholders' oversight and prevent managerial power in receiving excess compensation, which results in a lower pay towards the shareholders. However, there is little evidence that disclosing this information reduces the information asymmetry and objectionable practices Murphy (2013). On the contrary, the disclosure of information regarding performance and benchmarks can be negative towards the firm, as it reveals information about the quality of the employees. Other firms are able to propose higher wages to attract employees or in order to retain the employee the current firm has to increase the salary. Consistent with prior studies, Gipper (2017) finds that managers are receiving benefits from the mandatory compensation disclosures, causing attrition between the firm and its employee if it has bargaining power. Furthermore, pay increases do not only apply to managers that have a higher market value, but also the less prominent managers are receiving more salary. On the other hand, powerful managers such as the CFO, CEO and executives are not receiving any benefit in the form of a wage increase.

2.2.4 Unintended consequences of disclosure and regulation

During 2001 until 2012 there has been a significant drop in IPOs in contrast to the previous decade (Coates J. , 2007). Furthermore, regulation and compliance barriers are not the only reason for the lack of IPO activities. Another explanation is the financial crisis. Due to the lack of credibility and operating history, firms are having difficulties in raising capital through traditional ways (Fink, 2012). The introduction of the JOBS Act was a solution to these concerns. With the relaxation of the regulation, compliance and the possibility of raising capital in the future through crowdfunding, the IPO market regained itself with an increase of 48% EGC in the following years (Dambra, Field, & Gustafson, 2015). Researchers find mixed evidence whether exempting small firms (non- accelerated filers) from the SOX 404 and

revising rules, increases the number of IPOs. Gao et al. (2009) provides evidence of unintended consequences when small firms are exempted from regulation. Since 2003, the SEC has deferred the implementation of SOX 404 deadline for nonaccelerated filers, which are firms that have a public float of \$75 million or less. Post-SOX nonaccelerated filers do engage in activities to remain small. Firms that are close to the \$75 million threshold, take actions reducing the net investment in property, plant, and equipment, paying out more cash via ordinary and special dividends and decreases the number of shares held by non-affiliated. Furthermore, nonaccelerated filers exert temporary downward pressure by disclosing more bad news and reporting bad accounting earnings around the second fiscal quarter.

Regarding the consequences above of disclosure and regulation, I expect entrepreneurs and managers of small firms to incur actions to keep their revenue below the \$1 billion threshold if the costs of those actions are lower than the net costs of not filing for an IPO under the JOBS Act. Consistent with this thought various studies have examined the relation between earnings management and firms that are filing for IPO. This opportunistic behavior is induced by the desire of managers to increase their personal wealth. Earnings management is associated with the opportunistic behavior of the performer at the costs of others (Teoh, Welch, & Wong, 1998). Managers have incentives to ensure that the issuance of stocks is priced higher in the market because the price at which the firms goes public has a direct impact on the compensation and reputation of the IPO's success. Under these conditions, incentives may arise to manipulate financial information to increase the benefits (Teoh, Welch, & Wong, 1998). Firm owners try to increase their offerings proceeds by manipulating earnings through accrual management before going public (DuCharme, Malatesta, & Sefcik, 2001). Earnings management in the IPO process is negatively associated with the post-IPO earnings performance and stock returns, which indicates that there is a higher information asymmetry between the investors and the firm itself.

According to Chen et al. (2005) there is an association between auditor size and unexpected accruals, as high-quality auditors constrain earnings management and are better in providing precise financial information. Therefore, the information asymmetry between the firm and its investors can be mitigated by having a larger audit firm.

Aharony et al. (2010) examines earnings management during the IPO process and finds earnings management incentives during the pre and post-IPO period. Unlike other studies that use aggregated accruals as a measure for earnings management, Aharony et al. (2010) use

related-party transaction as a tool for earnings management. It finds evidence that managers have incentives to increase the earnings of profitable units to raise more capital from minority shareholders in the pre-IPO period and tunnel back their profits during the post-IPO period. The results show that the parent company manages earnings via an increase in related-party sales in the pre-IPO period and tunneling by not repaying back the corporate loans obtained from the IPO firms. This way of earnings management is done by introducing profitable business units of state-owned enterprises on the public market. Subsequently, the managers of state-owned enterprises exploit minority shareholders and siphoning off the economic resources from the newly listed companies.

3. Hypotheses development

3.1 Introduction

This section consists of the development of the hypotheses used to answer the main research question of this study. Section 4.2 describes the development of the main hypothesis investigating whether firms have incentives to stay below the threshold of the JOBS Act. Followed by section 4.3, which formulates the sub-hypotheses on how firms will manage this.

3.2 Incentives of regulation

The introduction of new standards, regulations, and legislation gives the opportunity for firms to abuse or stretch its intention if there are benefits of doing so. Therefore, having more insight into the economic consequences of regulation, whether it is intended or unintended is very informative for legislators. The purpose of additional legislation is to provide a governing framework. In accounting, a purpose for additional legislation is to enhance the transparency between the firm and its stakeholders by mitigating the information asymmetry by mandating financial information reporting and disclosure. The JOBS Act provides the opposite, whereby it eases regulation for EGCs that would like to go public. According to existing literature regarding the economic consequences of voluntarily and mandatory disclosure and regulation, firms will only disclose voluntarily if the benefits of disclosing this information exceed its costs. The economic consequences of voluntarily disclosure can therefore be beneficial for the both the firm itself and its stakeholders. On the other hand, mandatory disclosure regulation is beneficial for stakeholders, but imposes high compliance costs on firms.

As described earlier, the SOX is places a heavy mandatory burden on firms, especially on small firms. Heightened scrutiny and compliance costs may lead to unintended consequences, as incentives may arise in firms engaging in activities to avoid regulation at the cost of stakeholders. This thought is confirmed by to Gao et al. (2009), where unintended consequences may arise when firms are exempted from regulations. Their results show that firms will have incentives to evade costly regulations at the costs of stakeholders.

Furthermore, following the SOX implementation, firms have changed their earnings management behavior from accrual-based to real earnings management, which is even more difficult to recognize (Cohen, Dey, & Lys, 2008). Consistent with this thought, various studies examined the relationship between regulation and earnings management behavior during the IPO process. Managers have incentives to bend regulation to increase their personal wealth (Teoh et al. 1998; Ducharme et al. 2001). Following the thought of Gao et al. (2009), this study examines the real effects of regulation and the unintended consequences of granting small firms from regulations. In particular, whether small firms have incentives and engage in activities to remain below the revenue threshold of \$1 billion that is set by the JOBS Act. If the various actions taken by EGCs are efficient and the provisions of the JOBS Act are beneficial, I expect firms have a greater tendency to remain below the revenue threshold. Therefore, the following hypothesis is stated:

H1: Firms that file their IPO as an EGC firm during the JOBS Act period are more likely to stay below the \$1 billion threshold

3.3 Revenue management

The popular aggregate accrual approach that examines the discretion regarding the total earnings is already deeply described by prior research. Therefore, focusing on one component of earnings, namely the revenue component gives more insight into how companies manage their earnings. Furthermore, revenue is the largest component of earnings and subjected to complex recognition policy, which increases the information asymmetry between managers and stakeholders abnormally low deferred revenue accruals influences the revenue recognition by using analysts' revenue forecast settings. (Stubben, 2010). Revenue recognition is a timely issue principle that is undertaken by The Financial Accounting Standards Board (FASB) and the International Accounting Standard Boards (IASB). Due to this principle, accruals and deferrals related to the revenue recognition may arise depending on the firm's business. These accruals and deferrals are mainly arising from the accounts receivable and revenue, as these

parts contain estimations (Caylor, 2010). The literature shows that SEC enforcement actions are likely related to revenue recognition issues. Survey evidence related to 515 cases from auditors indicate that managers tend to manipulate revenue when opportunities occur. Earnings management involving revenue recognition are common occurrences and managers are more likely to attempt earnings management through unstructured transactions or when standards are imprecise (Nelson, Elliott, & Tarpley, 2002). Next to that, firms are managing their earnings by manipulating sales upwards or downwards in response to investor sentiments in whether to invest in the firm. Plummer & Mest (2001) examines which components of the income statements are affected by earnings management in accomplishing their goals. Their results suggest that firms increases (decreases) sales and decreases (increases) operating expenses to manage earnings. These results show that firms use deferred and accrued revenue accounts to manage their revenues. Regarding the aforementioned reasoning, I expect that firms that have a greater tendency to remain below the revenue threshold, will engage in revenue management to accomplish it. Therefore, the following hypothesis is formulated:

H2: In the post-JOBs Act period EGC firms are more likely to engage in revenue management

Sub hypotheses will answer this hypothesis. First of all, this research will look whether the change in the deferred revenue account is greater for EGC's than non-EGC's. The following hypothesis is formulated:

H2a: The change in deferred revenue is greater for EGC's than non-EGC's

Next, in the context of this study revenue management is decomposed into two aspects. Whereby an accrual and deferral is related to the recognition of revenue in the accounting period, namely the accounts receivable and deferred revenue. The abnormal component of accounts receivable and deferred revenue contain discretion as a result of managerial behavior. Managing gross accounts receivables is mainly possible through real business activities, whereby sales are accelerated but the cash is not yet collected (Caylor, 2010). The literature shows that many studies used accounts receivable as a measurement for discretion in examining revenue manipulation. Jackson and Liu (2010) studied the relationship between conservatism and earnings management by examining the allowance for uncollectible accounts and bad debt expense. They find evidence that conservatism may facilitate earnings management through

managing bad debt expense downwards and suggest that the allowance for doubtful accounts becomes increasingly conservative over time. Consistent with these results, Teoh et al. (1998) confirm that firms adopt different accounting policies pre-IPO period with respect to the allowance uncollectible accounts receivables. Therefore, I expect EGC firm to have incentives to remain below the threshold by manipulating their revenues through accounts receivable. The following hypothesis describes this specific action:

H2b: In the post-JOBs Act period EGC firms are more likely to manage revenue through the accounts receivable account

The other aspect of revenue management is the abnormal deferred revenue accruals. In many business arrangements complex contracts are used that create performance obligations over a period of time. In such arrangement, fulfilling the performance and collecting its reward may vary, whereby cash is collected in advance. Because of this, the liability deferred revenue arises on the balance sheet. Thus, deferred revenue are liabilities and will be booked in the balance sheet when the cash from the sales are collected, but the good or services are not yet delivered (Zha, 2014). However, accounting and classification guidance on cash received in advance is still scarce and there is no exact literature which liabilities are exactly qualified as deferred revenue. Mismatches between revenue and expenses could lead to inaccurate margins in the current and future periods. Discretion regarding allocation of revenue and principles can be used in favor of the firm. Few studies have examined revenue manipulation through abnormal deferred revenues. According to Caylor (2010), managing deferred revenue is more preferred than accounts receivable, as it relates to the manipulation of accounting estimates instead of manipulating real business activities. Managing deferred revenue is less costly than managing gross accounts receivable as it does not directly affect future business activities, whereas managing gross accounts receivables will. Their results show that the abnormal part of deferred revenue contains managers' discretion in avoiding earnings losses, negative changes and missing forecasts. Consistent with these results, Zha (2014) documents observations where abnormally low deferred revenue accruals decrease the revenue recognition in case that the firm misses the analysts' revenue forecasts. Also, firms that already have beaten the forecasts tend to smooth out the revenue recognition for future purposes.

Many studies in this field of research find evidence that firms manipulate revenue to avoid negative earnings surprises or have incentives to show better results for their stakeholder. In this study I expect firms to manipulate their revenues through increasing deferred revenue

to stay below the revenue threshold. The following hypothesis describes this action:

H2c: In the post-JOBs Act period EGC firms are more likely to manage revenues through the deferred revenue account

4. Research design

4.1 Model of revenue management

The sample used for the research comprises two time periods. The main treatment sample consists of EGC firms that file for IPO using the JOBS Act provisions. The JOBS Act was enacted on April 5, 2012. However, the effective date for the definition of EGCs is on the 8th of December 2011 and after (Securities and Exchange Commission, 2015). Therefore, firms remain EGCs until the earliest of certain events occur; if the firm meets the definition of a “large accelerated filer”, when five years have elapsed since the firm’s IPO, the gross annual revenue exceeds \$1 billion or if there are more than \$1 billion non-convertible debt over three years (Dharmapala & Khanna, 2016). The treatment period spans from May 1, 2012 (enactment of JOBS Act Title I) to December 31, 2016. During this period Title II and Title III equity crowdfunding was introduced. However, these effects are beyond this study and are therefore not included. The second sample group consists of firms with identical characteristics that went public prior to the introduction of JOBS Act. This sample is all the firms that went public from January 1, 2007, to December 1, 2011. To measure whether EGC firms have incentives to stay small, the most direct measure of the outcome is the threshold of \$1 billion. Following the research of Gao et al. (2009), I estimate the following logistic regression to determine the incentives of remaining below threshold:

$$prob(Less1billionREV_{t+1} = 1) = \text{Logit} \left(\beta_0 + \beta_1 EGC_t + \sum_j \beta_j Controls \right) \quad (1)$$

where $Less1billionREV_{t+1}$ is an indicator and equals one if firm’s revenue in fiscal year in the period from January 1, 2007 to December 31, 2016 is less than \$1 billion. EGC_t reflecting our main variable, which is a dummy variable that equals one if the firm is an EGC at time t . I assume firms to decrease their revenue in order to qualify as a EGC. In order to find evidence that firms engage in revenue management, proxies will be defined for revenue management.

As mentioned in the literature-review managing deferred revenue is more preferably, as this has less impact on the business activities. Therefore, the first approach to test whether firms manipulate their deferred revenue account in order to decrease their revenue is estimated with the following regression model:

$$\Delta Deferred Revenue_t = \beta_0 + \beta_1 EGC_t + \sum_j \beta_j Controls \quad (2)$$

Whereby, $\Delta Deferred Revenue_t$ is the change in deferred revenue in year t and EGC_t equals one if the firm is an EGC and zero otherwise. However, only determining the change in deferred revenue does not provide insight in whether this difference is caused by discretion. Therefore, estimating the abnormal part of revenue is the next approach as it will reveal management's discretion. In the current literature the revenue accruals can be divided into trade accounts receivable, current deferred revenue and long-term deferred revenue. In the absence of earnings management these accruals should normally map into intra- and inter-temporal revenues and cash flows. However, due to accounting standards and frameworks these accounts contain discretion, which can be referred to the abnormal part (Zha, 2014). In this study only trade accounts receivable and current/short term deferred revenue will be used as proxy for revenue management, as firms have incentives to influence the revenue on the short term in order to use the provisions of the JOBS Act. Therefore, long-term deferred revenue will not be considered in this study. To derive a model for expected short-term deferred revenue I follow the approach of Caylor (2010), whereby short-term deferred revenue is related to the sales of next period and the cash flow from operations in the current period. Which implies that deferred revenues are revenues that are deferred to the next period and the cash related to the deferred revenues are received in the current period. To estimate the abnormal change in the short-term deferred revenues I use the following regression using all available firms and requisite data:

$$\frac{\Delta Deferred Revenue_t}{A_{t-1}} = \alpha_0 + \alpha_1 * \left(\frac{1}{A_{t-1}}\right) + \beta_1 * \left(\frac{\Delta S_{t+1}}{A_{t-1}}\right) + \beta_2 * \left(\frac{\Delta CFO_t}{A_{t-1}}\right) + \varepsilon_t \quad (3)$$

Whereby, $\Delta Deferred Revenue_t$ is the change in deferred revenue in year t. ΔS_{t+1} represents the change in sales during year t+1 and ΔCFO_t is the change in cash flow from operations in year t. A_{t-1} is the total assets at the beginning of the year. All variables are scaled by lagged assets to adjust for the size of the firm and solely focus on relative performance across firms.

The second proxy, gross accounts receivable is related to the current period's sales and as well related to the next period's cash flow from operations. Implying that accounts receivables are sales accrued in the current period and that these sales will be collected in the next period. The following regression is used to estimate the abnormal part of accounts receivable:

$$\frac{\Delta Account\ Receivable_t}{A_{t-1}} = \alpha_0 + \alpha_1 * \left(\frac{1}{A_{t-1}}\right) + \beta_1 * \left(\frac{\Delta S_t}{A_{t-1}}\right) + \beta_2 * \left(\frac{\Delta CFO_{t+1}}{A_{t-1}}\right) + \varepsilon_t \quad (4)$$

Whereby, $\Delta Account\ Receivable_t$ is the change in gross accounts receivable in year t, ΔS_t is the change in sales during year t and ΔCFO_{t+1} is the change in cash flow from operations during year t+1. Similar to the estimation of deferred revenues, all the variables are scaled assets to adjust for the above mentioned reasoning. Modelling the revenue accruals separately may alleviate bias or limitations on aggregate accrual models and gives more insight in which accrual contains more discretion. By regressing the two models, the abnormal part of deferred revenue and accounts receivable will be captured in the fitted residuals. These models still have limitations, because it is not possible to distinguish every normal part from abnormal. These measurement errors will be inadvertently captured in the residuals.

Finally, implementing the above proxies lead to the following two main regressions that will test the hypothesis in this study:

$$A_DAR_t = \beta_0 + \beta_1 EGC_t + \gamma_2 Performance_t + \gamma_3 Size_t + \gamma_4 Leverage_t \quad (5)$$

$$A_DDR_t = \beta_0 + \beta_1 EGC_t + \gamma_2 Performance_t + \gamma_3 Size_t + \gamma_4 Leverage_t \quad (6)$$

A_DAR_t = Abnormal accounts receivable accruals in year t, estimated as the fitted residual of equation 4

A_DDR_t = Discretionary deferred revenue accruals in year t, estimated as the fitted residual of equation 3

Performance_t = The return on assets as of the beginning of fiscal year t, to address for performance between the firms. Defined as the operating income / total assets

Size_t = The total amount of assets as of the beginning of fiscal year t, to address for size between the firms.

Leverage_t = The leverage as of the ending of fiscal year t. Defined as (Long-term debt+ Debt in Current Liabilities)/ Total Assets

4.2 Sample selection and data

The dataset for this analysis is obtained through the available data sources of the Wharton Research Data Services to which the university has access to. To measure whether the JOBS Act influences the incentives of firms to stay small, this study uses an event study approach by estimating the effect of the event between a treatment group and control group. The total sample period is from 2006-2016, which comprises the treatment sample that periods from 2011-2015 and a control sample from 2006-2012. The official enactment of the JOBS Act is on April 5 2012, but firms that completed its initial public offering after December 8, 2011 are also able to be considered as an EGC if the requirements are met. The treatment sample, consisting of EGCs that went public using the provisions of the JOBS Act is available from the University. In order to find sufficient control firms and account for lagged variables, I have extended the control sample with more years. The control firms are retrieved from the Thomson One database, which contains all the firms that went public in North-America during the applicable period. The firms from the Thomson One database are identified through either CUSIP6 or CUSIP9 code. However, CUSIP9 codes were frequently missing and Compustat only uses CUSIP9 as company identifier. Therefore, I have derived CUSIP9 from CUSIP6 to obtain sufficient observations. After dropping firms with insufficient information, the remaining control sample contains 575 unique firms. The treatment sample that is obtained from the University, contains 681 unique firms. The terminology for each data variable is shown in the following table:

Table 1

Panel A: Base sample	Observation Dropped	No. Firm-Year Observations
Treatment sample		
Compustat treatment firms with year-end data 2009-2016		3.875
EGC sample firms obtained from the University		4.698
Merge above Compustat firm sample with EGC firm sample (keep match_3)	3.363	2.605
Control sample		
Compustat control firms with year-end 2006-2012		3.877
Less: duplicated observations	535	3.342
Append treatment sample with control sample		
Appended firm-year observations		5.947
Less: duplicated observations	36	5.911
Less: observations with no status (neither EGC or non-EGC)	461	4.989
		Total
Base sample with firm-year observations		5.450

Panel B: Sample selection for each hypothesis**Likelihood of staying small**

Base sample with firm-year observations		5.450
less: firms in 2-digit industry with less than 10 observations	1.192	4.258
Assets - Total	584	3.674
Debt in Current Liabilities	10	3.664
Long-Term Debt - Total	18	3.646
Net Income	330	3.316
Operating Activities - Net Cash Flow	4	3.312
less: sale if 0 or below 0	433	2.879
less: non propensity-score matched firms	553	2.326
Resulting firm-year observations		2.326

Change in deferred revenue

Base sample with firm-year observations		5.450
less: firms in 2-digit industry with less than 10 observations	1.192	4.258
Assets - Total	584	3.674
Debt in Current Liabilities	10	3.664
Long-Term Debt - Total	18	3.646
Net Income	330	3.316
Operating Activities - Net Cash Flow	4	3.312
less: sale if 0 or below 0	433	2.879
less: missing deferred revenue	1.047	1.832
less: non propensity-score matched firms	426	1.406
Resulting firm-year observations		1.406

Abnormal account receivable

Base sample with firm-year observations		5.450
less missing variables:		
Assets - Total	760	4.690
Change in account receivable	1.567	3.123
Change in sale	57	3.066
Change in f.cash flow from operation	964	2.102
Long term debt	7	2.095
less: firms in 2-digit industry with less than 10 observations	771	1.324
less: non propensity-score matched firms	358	966
Resulting firm-year observations		966

Abnormal deferred revenue accruals

Base sample with firm-year observations		5.450
less missing variables:		
Assets - Total	760	4.690
Change in deferred revenue	1.753	2.937
Change in f.sale	916	2.021
Change in cash flow from operation	29	1.992
Long term debt	7	1.985
less: firms in 2-digit industry with less than 10 observations	738	1.247
less: non propensity-score matched firms	307	940
Resulting firm-year observations		940

4.3 Sample characteristics

Table 1 Panel A provides a summary of the sample selection of the base sample. Each sample has its own sample selection, to mitigate the risk of deleting unnecessary observations. Regarding the treatment sample, after merging, complete data of 2.605 firm-year observations is obtained. The initial control sample contains 3.877 firm-year observations, but after dropping the duplicated observations, it is left with 3.342 firm-year observations. The base sample comprises both samples, after dropping duplicated observations and firms with no EGC status the sample contains 5.450 firm-year observations. Panel B provides a summary of the sample selection for each test. It is important to stress that each test has a different amount of firm-year observations due to missing variables.

5. Results

5.1 Introduction

This section presents the results and analysis of the tests conducted for each hypothesis. Section 6.2 first provides an analysis on the propensity score matches. Thereafter, section 6.3 displays the descriptive statistics of the retrieved data. Section 6.4 will show the main results of the hypotheses, which provides evidence for answering the main research question.

5.2 Matching

To find a matching control group, it is important to define a measure of similarities between the control and treatment group. This research uses the propensity score matching, which computes propensity scores based on covariates between the two groups. An exact distance measure is more favorable but leads to many unmatched observations. Also, exact measurement performs better if the covariates are normally distributed and if there are relatively few covariates on which the match is based on. The propensity scores for the hypotheses are estimated on the following covariates: *Revenue*, *Size (ln_at)*, *Performance (ROA)*, *Leverage* and *Industry code (SIC)*, with a caliper distance of 0.3 standard deviations, which removes 97% of the bias in the distributed covariates. The matching method is based on the radius nearest neighbor k:1 match with 3 neighbor possibilities. 1:1 nearest neighbor match provides the best matching. However, it discards many observations, thus reducing the power.

A potential drawback of having more neighbors can result in poor matches, but by setting up a caliper distance it will only select matches within the caliper (Stuart, 2010).

Table 2 shows the matching result for each hypothesis in this research. The table presents the variable name, whether this variable is matched or unmatched, the mean of the treated and control group, the %bias, and the T-test result of the difference in means. A t-test of the difference in means and the amount of %bias indicate whether the matches are matched well. According to Stuart (2010) a bias of 10% and under seems appropriate after matching. The statistics show that after matching every covariate is not significant, indicating that the mean of the variables is significantly the same between the treatment and control group.

Furthermore, the bias between the treatment and control group is reduced to below the 10% benchmark for every variable after matching. It is noticeable that *leverage* is already well matched in each hypothesis in the untreated sample. The t-test indicates that the unmatched treatment and control sample significantly has no difference between the means. Also, the average *revenue* and *size* are significantly different between the control group and the treatment group before matching. The average *revenue* is approximately four times higher for the control firms than the treatment firms, whereas the average firm in the control sample is approximately 20% larger.

Table 2: Matching results

<i>Hypothesis 1</i>						<i>Hypothesis 2a</i>						
Panel A: Likelihood of staying small						Panel B: Change in deferred revenue						
Variable	Unmatched	Mean		% Bias	T-Test	Variable	Unmatched	Mean		% Bias	T-Test	
	Matched	Treated	Control		t		Matched	Treated	Control		t	
<i>Revenue</i>	U	133.69	503.59	-43.4	-10.37	<i>Revenue</i>	U	133.4	489.06	-45.4	-8.16	
<i>sales</i>	M	135.26	140.1	-0.6	-0.38	***	M	134.67	135.32	-0.1	-0.05	***
<i>Performance (ROA)</i>	U	-0.6131	-0.15442	-11.6	-3.43	<i>Performance (ROA)</i>	U	-0.41067	-0.14815	-31.7	-6.90	
	M	-0.54285	-0.39005	-3.9	-0.90	***	M	-0.35185	-0.32018	-3.8	-0.74	***
<i>Size</i>	U	4.6702	5.701	-58.0	-15.14	<i>Size</i>	U	4.7743	5.6694	-57.1	-11.48	
	M	4.714	4.7146	-0.0	-0.01	***	M	4.8078	4.7233	5.4	1.02	***
<i>Leverage</i>	U	0.31542	0.2954	2.5	0.67	<i>Leverage</i>	U	0.25376	0.27249	-2.4	-0.50	
	M	0.30785	0.2953	1.6	0.35	M	0.25115	0.25321	-0.3	-0.04		
<i>Hypothesis 2b</i>						<i>Hypothesis 2c</i>						
Panel C: Abnormal accounts receivables accruals						Panel D: Abnormal deferred revenue accruals						
Variable	Unmatched	Mean		% Bias	T-Test	Variable	Unmatched	Mean		% Bias	T-Test	
	Matched	Treated	Control		t		Matched	Treated	Control		t	
<i>A_DAR</i>	U	0.00365	-0.00176	8.5	1.55	<i>A_DDR</i>	U	0.00336	-0.00168	6.4	1.16	
	M	0.00364	0.00111	4.0	0.57	M	0.00354	0.00236	1.5	0.21		
<i>Revenue</i>	U	85.575	451.69	-34.3	-5.10	<i>Revenue</i>	U	79.504	344.52	-27.8	-4.11	
	M	85.965	89.123	-0.3	-0.30	***	M	79.687	77.877	0.2	0.18	***
<i>Performance (ROA)</i>	U	-0.55381	-0.20572	-38.3	-7.25	<i>Performance (ROA)</i>	U	-0.56776	-0.21843	-37.9	-6.97	
	M	-0.52667	-0.46046	-7.3	-1.00	***	M	-0.55733	-0.50681	-5.5	-0.71	***
<i>Size</i>	U	4.3522	5.4393	-70.2	-11.86	<i>Size</i>	U	4.305	5.2964	-66.7	-11.12	
	M	4.3672	4.3512	1.0	0.17	***	M	4.3136	4.2717	2.8	0.44	***
<i>Leverage</i>	U	0.28571	0.26726	2.4	0.44	<i>Leverage</i>	U	0.28701	0.25721	3.8	0.68	
	M	0.28386	0.25645	3.5	0.48	M	0.28645	0.29745	-1.4	-0.18		

This table provides the PSTEST results for each hypothesis. It shows the bias of the unmatched firms and the matched firms. A T-test is conducted to test whether the difference in means in the covariates between the treatment and control group is significant.

* Significant at 10%

** Significant at 5%

*** Significant at 1%

5.3 Descriptive statistics

Table 3 shows the descriptive statistics for the whole sample. The table is divided into four panels, each representing statistics for each hypothesis because each test has a different amount of observations. The presence of outliers is shown by the standard deviations, which results from the smallest observation and highest observations. The variables are winsorized at the 1 and 99 percentile to remove existing outliers.

Panel A presents the statistics for the first hypothesis, that test whether there is a likelihood of staying small when the firm is acknowledged as an EGC. The average *size* of the full sample is 5.302. Dividing the sample into EGC and Non-EGC firms result in a mean of 4.670 for EGCs and 5.234 for non-EGCs. The data shows that EGCs perform less with an average mean *Performance* of -0.474 against a mean *Performance* of -0.217 for non-EGCs. Furthermore, the median of the *Performance variable* in both samples is significantly smaller than the mean, which indicates that the data is left skewed. This data shows that the EGC sample consists of smaller firms that perform almost twice as bad, which is consistent with this research's expectation, offering support for H1. It is noteworthy that the mean and median of *Size* and *Performance* significantly differs between the EGC and non-EGC sample, while the matching results prove otherwise. *Leverage* does not significantly differ between the EGC and non-EGC group, which are consistent with the PSTEST matching results.

Panel B presents the descriptive statistics for the second hypothesis that examines the change in deferred revenue. The data shows a greater change in deferred revenue for EGCs than non-EGC's. However, the average *size* of non-EGC is 5.192 and EGC's 4.782, implying that the firms in the non-EGC sample are on average larger. These results indicate that there is a greater change in deferred revenue for EGC's, while they are on average smaller, offering support for H2. Furthermore, the mean and median comparison shows no significant difference between *CH_DR* and *Leverage*.

Panel C and D present the statistics for the third and fourth hypothesis. The mean and median of *A_DDR* and *A_DAR* is for both samples 0.000. The abnormal part of the revenue accruals are zero over time, indicating that there is no fixed change of the revenue. Therefore, it is difficult to observe revenue management in practice. Next, to that, it is noticeable that the return on assets is approximate -50% for EGC's and -34% for non-EGC's, while the median is approximate -27% for EGC's and -7% for non-EGC's.

The results of both the Pearson's and Spearman's correlation matrix is presented in Table 4. The Pearson correlation coefficient examines the strength and direction of the linear

relationship between variables. The findings of Panel A and B indicates similar positive Pearson correlation for every variable except *Leverage* on *EGC* (panel A) and *Size* on *Leverage* (panel B). *EGC* has a significant slight positive correlation with *D_saleless1*, which indicates that the variables move in the same direction. On the other hand, there is a significant negative association between the control variables; *Performance*, *Leverage*, *Size* and *D_saleless1*, which could be explained by EGCs having less performance, leverage and firm size. The Spearman's correlation coefficients show similar outcomes, implying a monotonic relationship between the variables, thus moving the same relative direction.

The Pearson and Spearman correlation coefficients regarding Panel C and Panel D shows contradicting results. The correlation coefficient of the main independent variable *EGC* on the dependent variable *A_DAR* and *A_DDR* indicates a positive sign, but no significance. Also, the correlation between the control variables and dependent variables show no significance except for *Leverage*, implying that being an EGC does not influence the abnormal accruals of deferred revenue and accounts receivables. Overall, the correlation matrix offers support for hypotheses 1 & 2, indicating that EGC's have incentives to stay small and positively influences the change in deferred revenue. However, whether this change in deferred revenue is caused by discretion in the deferred revenue and accounts receivable accruals is not certain.

Table 3: Descriptive statistics

<i>Hypothesis 1</i>						EGC sample				Non-EGC sample			
Panel A: Likelihood of staying small (full sample)						Likelihood of staying small				Likelihood of staying small			
Variable	N	Mean	Median	Std. Dev.		N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.
<i>Continious:</i>													
<i>Size (ln_at)</i>	2,879	5.302	5.251	1.849		1,115	4.670	4.708	1.760	1,269	5.234	5.251	1.637
		-									-		
<i>Performance (ROA)</i>	2,879	0.290	-0.024	0.886		1,115	-0.474	-0.152	1.102	1,269	0.217	-0.013	0.802
<i>leverage</i>	2,879	0.284	0.136	0.448		1,115	0.289*	0.094	0.524	1,269	0.278	0.120	0.415
<i>Dummy:</i>													
<i>Less1billionREV</i>	2,879	0.930	1.000	0.255		1,115	0.992	1.000	0.090	1,269	0.974	1.000	0.160
<i>EGC</i>	2,384	0.468	0.000	0.499		1,115	1.000	1.000	0.000	1,269	0.000	0.000	0.000
<i>Hypothesis 2a</i>						EGC sample				Non-EGC sample			
Panel B: Change in deferred revenu						Change in deferred revenu				Change in deferred revenu			
Variable	N	Mean	Median	Std. Dev.		N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.
<i>Continious:</i>													
<i>CH_DR</i>	1,832	4.616	0.000	16.029		634	4.861	0.000*	15.484	786	3.362	0.000	13.737
<i>Size (ln_at)</i>	1,832	5.359	5.293	1.619		634	4.782	4.847	1.476	786	5.192	5.200	1.415
		-									-		
<i>Performance (ROA)</i>	1,832	0.232	-0.036	0.637		634	-0.385	-0.191	0.765	786	0.209	-0.028	0.607
<i>leverage</i>	1,832	0.239	0.105	0.345		634	0.225*	0.056*	0.372	786	0.204	0.055	0.323
<i>Dummy:</i>													
<i>EGC</i>	1420	0.446	0.000	0.497		634	1.000	1.000	0.000	786	0.000	0.000	0.000

<i>Hypothesis 2b</i>					EGC sample				Non-EGC sample			
Panel C: Abnormal accounts receivables accruals					Abnormal accounts receivables accruals				Abnormal accounts receivables accruals			
Variable	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.
<i>Continious:</i>												
A_DAR	1,324	0.000	-0.003	0.060	438	0.004*	-0.004*	0.075	528	-0.002	-0.002	0.052
Size (ln_at)	1,324	5.078	5.028	1.652	438	4.367	4.500	1.464	528	4.780	4.839	1.414
Performance (ROA)	1,324	-0.321	-0.071	0.839	438	-0.527	-0.260	1.054	528	-0.323	-0.064	0.741
leverage	1,324	0.273	0.096	0.720	438	0.284*	0.039	0.934	528	0.249	0.081	0.672
<i>Dummy:</i>												
EGC	966	0.453	0.000	0.498	438	1.000	1.000	0.000	528	0.000	0.000	0.000

<i>Hypothesis 2c</i>					EGC sample				Non-EGC sample			
Panel D: Abnormal deferred revenue accruals					Abnormal deferred revenue accruals				Abnormal deferred revenue accruals			
Variable	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.
<i>Continious:</i>												
A_DDR	1,247	0.000	-0.001	0.073	434	0.003*	0.000*	0.093	506	0.000	-0.001	0.070
Size (ln_at)	1,247	4.951	4.969	1.573	434	4.314	4.455	1.427	506	4.690	4.804	1.375
Performance (ROA)	1,247	-0.340	-0.088	0.860	434	-0.557	-0.275	1.119	506	-0.342	-0.081	0.762
leverage	1,247	0.268	0.080	0.740	434	0.286*	0.035*	0.944	506	0.263	0.076	0.737
<i>Dummy:</i>												
EGC	940	0.462	0.000	0.499	434	1.000	1.000	0.000	506	0.000	0.000	0.000

*Indicates no significant differences in means and medians between the EGC and Non-EGC sample based on a significance level of 10%. Mean comparisons are based on t-test, while median comparisons are based on equality of median test.

Table 4: Pearson and Spearman Correlation Matrix

<i>Hypothesis 1</i>						<i>Hypothesis 2a</i>					
Panel A: Likelihood of staying small						Panel B: Change in deferred revenue					
	<i>D_saleless1</i>	<i>EGC</i>	<i>Performance</i>	<i>Leverage</i>	<i>Size (ln_at)</i>		<i>D_DDR</i>	<i>EGC</i>	<i>Performance</i>	<i>Leverage</i>	<i>Size (ln_at)</i>
<i>D_saleless1</i>		0.070	-0.094	-0.066	-0.468	<i>D_DDR</i>		0.039	0.037	-0.156	0.219
<i>EGC</i>	0.070		-0.208	-0.028	-0.163	<i>EGC</i>	0.048		-0.227	-0.018	-0.125
<i>Performance</i>	-0.093	-0.123		-0.078	0.523	<i>Performance</i>	0.074	-0.148		-0.082	0.567
<i>Leverage</i>	-0.087	0.031		-0.507	-0.150	<i>Leverage</i>	-0.102	0.019		-0.338	-0.014
<i>Size (ln_at)</i>	-0.468	-0.163		0.523	-0.150	<i>Size (ln_at)</i>	0.219	-0.125		0.567	-0.014
<i>Hypothesis 2b</i>						<i>Hypothesis 2c</i>					
Panel C: Abnormal accounts receivables accruals						Panel D: Abnormal deferred revenue accruals					
	<i>A_DAR</i>	<i>EGC</i>	<i>Performance</i>	<i>Leverage</i>	<i>Size (ln_at)</i>		<i>A_DDR</i>	<i>EGC</i>	<i>Performance</i>	<i>Leverage</i>	<i>Size (ln_at)</i>
<i>A_DAR</i>		0.017	-0.025	-0.043	0.038	<i>A_DDR</i>		0.022	-0.091	-0.085	0.055
<i>EGC</i>	0.044		-0.205	-0.062	-0.146	<i>EGC</i>	0.020		-0.195	-0.064	-0.136
<i>Performance</i>	-0.004	-0.113		-0.190	0.603	<i>Performance</i>	0.008	-0.113		-0.198	0.580
<i>Leverage</i>	-0.005	0.022		-0.518	-0.106	<i>Leverage</i>	-0.062	0.014		-0.529	-0.161
<i>Size (ln_at)</i>	0.010	-0.142		0.552	-0.197	<i>Size (ln_at)</i>	0.032	-0.133		0.560	-0.236

*Pearson correlation coefficients are presented in the lower diagonal and Spearman rank correlation coefficients are presented in the upper diagonal. Bold coefficients indicates significant correlation at the 10% level.

5.4 Main results

5.4.1 Statistical assumptions

Most of the statistical tests rely on certain assumptions to assure the trustworthiness of the results. When certain assumptions are not met, the results can contain type I or type II errors, by means of over- or underestimating its effect or significance level. Knowledge and understanding the situation in the case of assumption violation is essential for data analysis to avoid serious biases (Stock & Watson, 2015). The results of this research are based on ordinary least squares regressions and logistic regression. It is therefore important to discuss the assumptions for both regressions, before interpreting the results. The assumptions regarding ordinary least squares regressions are the assumptions of linearity, multicollinearity, normality, and homoscedasticity. The linearity assumptions assume that an ordinary least squares regression only can estimate the relationship between the dependent variable and the independent variables if the variables are linear in nature. If the variables are not linear in nature, the results will underestimate the true relationship, which leads to unreliable and erroneous results (Stock & Watson, 2015). Multicollinearity describes the situation in which there is (near) perfect linear relation between two variables, indicating a strong correlation between two or more predictor variables. Multicollinearity can change signs as well the magnitude of regression coefficients between samples. It is therefore important to check on multicollinearity, which can be achieved by looking at the correlation matrix or the Variance Inflation Factor. Multicollinearity exists if this factor exceeds 10 and if the mean of the factors exceeds 10 (O'Brien, 2007). First of all, Table 4 Pearson's and Spearman's correlation indicate no near perfect correlation between the variables. Table 5 shows the results of the Variance Inflation Factor table. The results indicate as well no multicollinearity in each hypothesis sample, as all the variables have a VIF and mean VIF of less than 10. Furthermore, regression assumes that the variables have normal distributions of the errors. Non-normal distributed variables are indicated by looking at the kurtosis, graphs and data plots. In this research all the necessary variables are winsorized to remove outliers because outliers can influence the normality of variables. The Shapiro-Wilk W tests for normality in the residuals. The results of table 6 indicate no normal distribution in the error terms, as the null hypothesis is rejected for all the four samples. It is not required to obtain unbiased estimates of the regression coefficients, although the residuals should be identically and independently distributed. Lastly,

the assumption of homoscedasticity means that the variance of errors should be constant and not vary at different values of the variable.

Table 5: Variance Inflation Factor

Panel A: H1		Panel B: H2a	
Variable	VIF	Variable	VIF
<i>Size (ln_at)</i>	1.46	<i>Size (ln_at)</i>	1.56
<i>Performance (roa)</i>	1.93	<i>Performance (roa)</i>	1.85
<i>Leverage</i>	1.43	<i>Leverage</i>	1.23
<i>EGC</i>	1.03	<i>EGC</i>	1.03
Mean VIF	1.46	Mean VIF	1.41

Panel D: H2b		Panel C: H2c	
Variable	VIF	Variable	VIF
<i>Size (ln_at)</i>	1.52	<i>Size (ln_at)</i>	1.51
<i>Performance (roa)</i>	1.99	<i>Performance (roa)</i>	1.94
<i>Leverage</i>	1.46	<i>Leverage</i>	1.45
<i>EGC</i>	1.02	<i>EGC</i>	1.02
Mean VIF	1.50	Mean VIF	1.48

Variance Inflation factor is a measure for multicollinearity. A factor of less than 10 implies no multicollinearity between the variables.

Table 6: Shapiro- Wilk W Test

Panel A: H1						
Variable	Obs	W	V	z	Prob>z	
<i>resid</i>	2,384	0.21530	1.091.648	17.908	0.00000	

Panel B: H2a						
Variable	Obs	W	V	z	Prob>z	
<i>resid</i>	1,403	0.61920	326.997	14.533	0.00000	

Panel C: H2b						
Variable	Obs	W	V	z	Prob>z	
<i>resid</i>	940	0.84617	91.701	11.161	0.00000	

Panel D: H2c						
Variable	Obs	W	V	z	Prob>z	
<i>resid</i>	966	0.87764	74.781	10.670	0.00000	

The Shapiro-Wilk W test indicates whether the residuals of the regressions are normally distributed. The null hypothesis implies normal distribution between the error term

5.4.2 Likelihood of firms staying small

It is evident that the provisions of the JOBS Act relieve small firms from heavy mandatory regulation and high compliance costs. As described in previous studies, the real effects of regulation can differ then what the legislators are expecting. Namely, Gao et al. (2009) find evidence on the unintended consequences of exempting small firms from costly regulations. Their results show that small firms have incentives to remain below the bright threshold by undertaking several activities. Therefore, the most direct measure to conclude whether small firms have incentives to go public as an EGC or want to retain its EGC-status is its future revenue. The first hypothesis is stated below:

H1: Firms that file their IPO as an EGC firm during the JOBS Act period are more likely to stay below the \$1 billion threshold

Table 7: Multivariate logistic regression (H1)

Panel A	Model 1		Model 2		Model 3		Model 4	
Dependent Variable:	<i>Less1billion</i>							
	Coefficient		Coefficient		Coefficient		Coefficient	
<i>Intercept</i>	12.570		25.976		21.563		36.221	
	(0.892)		(1.208)		(2.493)		(2.526)	
<i>EGC</i>	1.030	**	1.023	**	1.552	**	1.249	*
	(0.432)		(0.428)		(0.609)		(0.648)	
<i>Size (ln_at)</i>	-1.378	***	-1.414	***	-2.567	***	-2.646	***
	(0.131)		(0.142)		(0.314)		(0.318)	
<i>Performance (ROA)</i>	-0.923		-0.923		-2.097		-2.020	
	(1.750)		(1.647)		(1.901)		(1.948)	
<i>Leverage</i>	0.688		0.783		1.768		2.167	**
	(0.826)		(0.883)		(1.105)		(0.990)	
<i>N</i>	2,384		2,384		2,160		2,160	
<i>Pseudo R2</i>	0.382		0.394		0.541		0.552	
	Times fixed effects		Included				Included	
	Industry fixed effects				Included		Included	

* Indicates statistical significance at the 10% level

** Indicates statistical significance at the 5% level

*** Indicates statistical significance at the 1% level

Table 7 Panel A presents the regression results for the first regression model. The

findings of Model 1 suggest that the coefficient of the variable *EGC* is positive (1.030) as expected and is statistically significant at the 5% level. The logistic regression coefficient indicates the change in the log odds for one unit increase in the dependent variable. *EGC* is a dummy variable and takes a value of 1 if the firm is denoted as an EGC, indicating that the odds of being an EGC increases the likelihood to remain below the threshold by a 1.030 unit change in the log of the odds. The odds ratio is computed by raising the e to the power of the coefficient. $e^{1.030}$ gives the odds of approximately 2.8, which implies that EGCs are more likely to stay below the \$1 billion threshold for 2.8 times than non-EGCs. Considering the sample period of 2006-2016 and the panel dataset, the results could be influenced by confounding events, aggregate trends and industry characteristics. Model 2 presents the logistic regression results including times fixed effects. The industry fixed effects are presented in Model 3 and both fixed effects are incorporated in Model 4. By adding fixed effects the control variables *Leverage* and *Size* becomes significant. The evidence supports H1 and is consistent with my prediction that EGC's are more likely to stay below the \$1 billion threshold during the JOBS Act period. This provides more insight in the real effects of regulation and how firms react to regulation, which is consistent with the results of Gao et al. (2009).

5.4.3 Actions undertaken by small by EGC to remain small

To find evidence that small firms undertake actions to remain below the threshold is to examine whether firms engage in revenue management. The second hypothesis is stated below:

H2a: In the post-JOBS Act period EGC firms are more likely to engage in revenue management

According to previous studies managing deferred revenue is a preferable way to engage in revenue management. Therefore, it is interesting to examine the deferred revenue account and especially its change during the JOBS Act period. Panel B of Table 8 presents the regression results for hypothesis 2a. The results of Model 1 show that the coefficient of the variable *EGC* is positive (1.988) and is statistically significant at the 5% level. The dependent variable is defined as the change of the deferred revenue account in year t , implying that if the firm is an EGC, on average has a greater change in the deferred revenue account of approximately 1.988.

Table 8: Multivariate regression (H2a)

Panel B	Model 1		Model 2		Model 3		Model 4	
Dependent Variable:	<i>Change in deferred revenue</i>							
	Coefficient		Coefficient		Coefficient		Coefficient	
<i>Intercept</i>	-13.182		-11.426		-22.406		-20.899	
	(2.440)		(2.723)		(3.514)		(3.671)	
<i>EGC</i>	1.988	**	2.248		2.367	**	2.413	*
	(0.782)		(1.433)		(0.783)		(1.372)	
<i>Size (ln_at)</i>	-3.279	***	3.331	***	3.502	***	3.539	***
	(0.498)		(0.492)		(0.523)		(0.516)	
<i>Performance (ROA)</i>	-3.921	***	-4.054	***	-4.983	***	-5.061	***
	(0.744)		(0.727)		0.756		(0.746)	
<i>Leverage</i>	-4.785	***	-4.757	***	-2.593	**	-2.573	**
	(1.063)		(1.074)		(1.073)		(1.092)	
<i>N</i>	1,403		1,403		1403		1403	
<i>R-squared</i>	0.084		0.087		0.172		0.174	
	Times fixed effects		x				x	
	Industry fixed effects				x		x	

* Indicates statistical significance at the 10% level

** Indicates statistical significance at the 5% level

*** Indicates statistical significance at the 1% level

These results merely indicate that the EGCs during the JOBS Act period have on average a larger deferred revenue account than the non-EGCs during the control period. It does not provide concrete insight whether this difference in deferred revenue is due to manager's discretion and thus a result of revenue management. However, the sign is positive and provides a base for the following regressions that approaches the abnormal accrual parts. The control variables *Size*, *Performance* and *Leverage* are significant at the 10% level. *Size* is the proxy for firm size and has a significant coefficient of -3.279, which suggests that larger firms have a smaller change in deferred revenue. The second control variable is the return on assets and is a proxy for performance with a coefficient of -3.921, indicating that firms with a high change in deferred revenue are performing worse. This is reasonable, as deferring revenue to the future will lower the current net income. Furthermore, adding times fixed effects results in an insignificant coefficient of *EGC*, however adding industry and both times fixed and industry fixed effects leads to significant results. It is noteworthy that adding industry fixed effects increases the r-squared, indicating a better fit.

5.4.4 Revenue management through accounts receivable accruals

The third hypothesis investigates whether EGCs remain small through revenue management by manipulating the accounts receivable accruals. The effect is measured by regressing the abnormal part of the accounts receivable accruals on EGCs. Following this motivation the third hypothesis is as follows:

H2b: In the post-JOBs Act period EGC firms are more likely to manage revenue through the accounts receivable account

Table 9: Multivariate regression (H2b)

Panel C	Model 1	Model 2	Model 3	Model 4
Dependent Variable:	<i>Abnormal accounts receivable accruals</i>			
	Coefficient	Coefficient	Coefficient	Coefficient
<i>Intercept</i>	-0.009 (0.010)	-0.005 (0.013)	-0.016 (0.013)	-0.015 (0.015)
<i>EGC</i>	0.006 (0.004)	0.017 ** (0.007)	0.006 (0.005)	0.018 ** (0.008)
<i>Size (ln_at)</i>	0.001 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
<i>Performance (ROA)</i>	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
<i>Leverage</i>	-0.001 (0.002)	-0.000 (0.002)	-0.000 (0.002)	-0.000 (0.002)
<i>N</i>	966	966	966	966
<i>R-squared</i>	0.003	0.008	0.006	0.011
	Times fixed effects	x		x
	Industry fixed effects		x	x

* Indicates statistical significance at the 10% level

** Indicates statistical significance at the 5% level

*** Indicates statistical significance at the 1% level

Panel C of Table 9 presents the regression results of the third hypothesis. The findings of Model 1 indicate that the coefficient of *EGC* is positive (0.004) as my expectations. However, this coefficient is not statistically significant, which implies no statistical association between being an EGC and the amount of abnormal accounts receivable accruals. A cause that leads to insignificant results could be the lack observations and omitted variables bias. Furthermore, the data in this research exists of panel data in which it is common to have not independent observations. Therefore it is important to control for the industry characteristics and confounding events by adding fixed effects to the regression to address these concerns. The fixed effects coefficients soaks up all the across-group action and controls for the average differences in time and industry in the observable and un-observable predictors (Allison, 2009). Model 2 presents the regression results including times fixed effects. The findings show that *EGC* is positive (0.007) at the 5% significance level. Model 3 presents the regression including industry fixed effects and model 4 incorporates both the times and industry fixed effects. The findings show that while adding times fixed effects the coefficient of *EGC* becomes significant, but this is not the case with industry fixed effects. These results indicate that Model 1 contains omitted variables bias due to unobservable time-invariant factors, but not industry factors. Furthermore, the r-squared of model 2 and model 3 shows a value of 0.008 and 0.006, indicating a better fit of the data with model 2. Therefore, based on the statistical results there is enough evidence to support the hypothesis. Regarding the control variables, *Size*, *Performance*, *Leverage* there is no significant effect on the abnormal accounts receivable accruals. This provides more evidence that the abnormal part is due to manager discretion and not firm characteristics.

5.4.5 Revenue management through deferred revenue accruals

The last hypothesis examines whether revenue is managed through deferred revenue accruals. According to prior research managing deferred revenue accruals is also a more preferable way, as it less affects the business activities. The fourth hypothesis is stated as follow:

H2b: In the post-JOBs Act period EGC firms are more likely to manage revenues through the deferred revenue account

Table 10: Multivariate regression (H2c)

Panel D	Model 1	Model 2	Model 3	Model 4
Dependent Variable:	<i>Abnormal deferred revenue accruals</i>			
	Coefficient	Coefficient	Coefficient	Coefficient
<i>Intercept</i>	-0.020 (0.010)	-0.016 (0.015)	-0.025 (0.014)	-0.024 (0.017)
<i>EGC</i>	0.004 (0.006)	0.016 * (0.009)	0.004 (0.006)	0.016 * (0.009)
<i>Size (ln_at)</i>	0.004 ** (0.002)	0.004 ** (0.002)	0.005 ** (0.002)	0.005 ** (0.002)
<i>Performance (ROA)</i>	-0.006 ** (0.003)	-0.006 ** (0.003)	-0.006 ** (0.003)	-0.006 ** (0.003)
<i>Leverage</i>	-0.008 *** (0.002)	-0.007 * (0.002)	-0.008 *** (0.002)	-0.007 *** (0.002)
<i>N</i>	940	940	940	940
<i>R-squared</i>	0.009	0.013	0.009	0.013
Times fixed effects		x		x
Industry fixed effects			x	x

Panel D, Model 1 reports the effects of *Abnormal deferred revenue accruals* on *EGC*. The coefficient of *EGC* yields a positive sign but shows no statistical significance. However, the control variables do reveal significance. The coefficient of *Size* is positive (0.004) significant at the 5% level, indicating that larger firms leading to more discretion in the deferred revenue account. *Performance* shows a negative (-0.006) significant coefficient at the 5% level and *Leverage* displays a negative coefficient (-0.008) at the 1% level. Consistent with the previous regression on the abnormal accounts receivable accruals, times fixed effects seems to solve the omitted variable bias. Model 4 incorporates both times fixed effects and industry fixed effects resulting in a significant positive coefficient of *EGC* (0.016). EGC firms have on average 0.016 more abnormal deferred revenues than non-EGC. It is noteworthy that the bias regarding the characteristics of industry might already be eliminated, because the sample is matched based on industry. Overall, these results indicate that EGCs manage their revenues through the abnormal part of the deferred revenue account.

6. Conclusion

The previous section presented the regression results of the hypotheses that will eventually provide an answer to the main research question. This section briefly summarizes the results of each hypothesis, followed by a limitation section and suggestions for future research.

6.1 Hypotheses and research question

Entrepreneurs and small businesses are facing hard challenges as a result of the financial crisis. Especially, small firms that would like to expand their businesses through external capital are affected by the harsh economic environment. Strict regulation and an increased disclosure requirement as a result of the many fraud and scandal cases that have occurred. These increased regulation especially affects small firms and withholds them to go public. In response to the disappointing volume of initial public offering, a new legislation; the Jumpstart Our Business is introduced to support firms that would like to go public. However, firms are only eligible for the provisions when certain requirements are met, which is the threshold of \$1 billion revenue in the most fiscal year. Existing literature towards the real effects of regulation notice remarkable behavior of firms in response to newly introduced legal provisions. Firms are trying to exploit and squeeze regulations to benefit from it, which can be seen as the unintended consequences of regulation. A study conducted by Gao et al. (2009) examines the unintended consequences of granting small firms from the Sarbanes-Oxley Act and find evidence that some firms have incentives to remain below the threshold. Following their research I expect similar behavior of firms that would like to public while using the provisions of the JOBS Act. Consequently, the findings of this research provide insight in firm's behavior to avoid strict and burdening regulation. This research attempts to find sufficient evidence to answer the following research question:

Do firms undertake activities to remain small to be considered as an emerging growth company under the Jumpstart Our Business Startups Act?

The research question is answered by finding indications on whether firms are likely to stay below the threshold and undertake specific actions to decrease the amount of revenue in certain years. The first hypothesis assumes a logistic regression to calculate the odds of EGCs to stay below the threshold. The findings indicate that EGCs are 2.8 times more likely to remain below

the benchmark than non-EGC's, providing evidence on the behavior of firms that are near the benchmark. The second hypothesis examines whether firms decrease their revenues through revenue management. This hypothesis is answered by three sub-hypotheses that each represents a proxy for revenue management. The first sub-hypothesis investigates the change in deferred revenue and find evidence that the average change in the deferred revenue account is greater for EGC's than non-EGC's. However, these findings do not prove discretion but indicates significant positive differences in deferred revenue between the treatment and control group. The second sub-hypothesis uses the abnormal accounts receivable accruals as proxy for revenue management, as prior literature indicate the accounts receivable account as a measurement for discretion in examining revenue manipulation. The results show that there is a significant association between EGC's and abnormal accounts receivable, indicating that EGCs use more discretion in the accounts receivable account to manipulate their revenue. The third hypothesis examines revenue manipulation by looking at the discretion in the deferred revenue accruals. According to prior literature, managing deferred revenue is more preferable, as it more difficult to detect and less influences the business activities. The results show that EGC's have more discretionary deferred revenue accruals, indicating that EGC's use this account to decrease their revenue. Based on these results it evident that EGC's have incentives and undertake activities to suppress their revenue to remain small.

6.2 Limitations and further research

The research might have some limitations in the research design. The model to estimate the accruals can be subjected to several limitations, such as model misspecification, omitted variables, bias and low power. Furthermore, the model of Caylor (2010) models the discretionary part based on contemporaneous changes in cash flow from operations and year-ahead changes in revenue. To have a cleaner empirical estimation further research could follow the cash flow from sales measure instead of cash flow from operations, which is presented by Zha (2010). Also, the abnormal accounts receivable accruals are calculated by using the general account receivable data, which may contain non-sale transactions. However, due to the lack of observations this research makes no distinction.

Another limitation is the lack of proxies for revenue management and the amount of control variables. Further research could more examine specific accounts, such as inventory and the flow of cash to determine discretion. A treatment sample is created by matching the sample on the control variables and industry code. However, it would be a more precise sample

if the matching was based on more aspects. Though, due to the lack of data, matching more strictly will harm the current sample size. Other suggestion would be to specifically investigate the firm's behavior that have revenues close to the threshold. Namely, this research makes no distinction between firms with revenues far and close to the benchmark. One would not expect every EGC to undertake actions to remain small, only those who expect the benefits to outweigh the costs.

7. References

- Aharony, J., Wang, J., & Yuan, H. (2010). Tunneling as an incentive for earnings management during the IPO process in China. *Journal of Accounting and Public Policy*, 29, 1-26.
- Ahmed, A. S., McAnally, M. L., Rasmussen, S., & Weaver, C. D. (2010). How costly is the Sarbanes Oxley Act? Evidence on the effects of the Act on corporate profitability. *Journal of Corporate Finance*, 16(3), 352-369.
- Alexander, C., Bauguess, S., Bernile, G., Yoon-Ho, A., & Marietta, J. W. (2013). Economic Effects of SOX Section 404 Compliance: A Corporate Insider Perspective. *Journal of Accounting and Economics*, 56, 267-290.
- Allison, P. D. (2009). *Fixed Effects Regression Models (Quantitative Applications in the Social Sciences)*.
- Amihud, Y., & Mendelson, H. (1986). Asset Pricing and the Bid-ask Spread. *Journal of Financial Economics*, 17, 223-249.
- Bargeron, L., Lehn, K., & Zutter, C. (2010). Sarbanes-Oxley and Corporate Risk-Taking. *Journal of Accounting and Economics* 49, 49, 34-52.
- Barth, M. E., Landsman, W. R., & Taylor, D. J. (2016). *The JOBS Act and Information Uncertainty in IPO Firms*. The Wharton School, University of Pennsylvania.
- Caylor, M. L. (2010). Strategic revenue recognition to achieve earnings benchmarks. *Journal of Accounting and Public Policy*, 29, 82-95.
- Chen, K. Y., Lin, K.-L., & Zhou, J. (2005). Audit quality and earnings management for Taiwan IPO firms. *Managerial Auditing Journal*, 20(1), 86-104.
- Coates, J. (2007). The Goals and Promise of the Sarbanes-Oxley Act. *Journal of Economic Perspectives*, 21, 91-116.

- Coates, J., & Srinivasan, S. (2014). SOX after ten years: A multidisciplinary review. *Accounting Horizons*, 28, 627-671.
- Cohen, D., Dey, A., & Lys, T. (2008). Real and Accrual-Based Earnings Management in the Pre-and Post-Sarbanes-Oxley Periods. *The Accounting Review*, 83, 757-787.
- Dambra, M., Field, L. C., & Gustafson, M. T. (2015). The JOBS Act and IPO volume: Evidence that disclosure costs affect the IPO decision. *Journal of Financial Economics*, 116, 121-143.
- Dharmapala, D., & Khanna, V. (2016). The Costs and Benefits of Mandatory Securities Regulation: Evidence from Market Reactions to the JOBS Act of 2012. *Journal of Law, Finance, and Accounting*, 1(1), 139-186.
- DuCharme, L. L., Malatesta, P. H., & Sefcik, S. E. (2001). Earnings Management: IPO Valuation and Subsequent Performance. *Journal of Accounting, Auditing & Finance*, 16(4), 369-396.
- Engel, E., Hayes, R. M., & Wang, X. (2007). The Sarbanes-Oxley Act and firms' going-private decisions. *Journal of Accounting and Economics*, 44(1-2), 116-145.
- Ernst & Young. (2013). *The JOBS Act: One-year anniversary*. Ernst & Young LLP.
- Fink, A. (2012). *Protecting the crowd and raising capital through the JOBS Act*. University of Connecticut- School of Law, Hartford.
- Fischer, B., Gral, B., & Lehner, O. (2014). Evaluating SOX section 404: Costs, Benefits and Earnings Management. *Journal of Finance and Risk Perspectives*, 3(1), 43-55.
- Foster, B. P., Ornstein, W., & Shastri, T. (2007). Audit costs, material weaknesses under SOX Section 404. *Managerial Auditing Journal*, 22(7), 661-673.

- Gao, F., Wu, J. S., & Zimmerman, J. (2009). Unintended Consequences of Granting Small Firms Exemptions from Securities Regulation: Evidence from the Sarbanes-Oxley Act. *Journal of Accounting Research*, 47(2), 459-506.
- Gupta, S., & Israelsen, R. D. (2015, April 12). *Robert H. Smith School of Business*. Opgehaald van Rhsmith:
http://www.rhsmith.umd.edu/files/Documents/Centers/CFP/pastconfpapers/ipo_jobs_act_041215.pdf
- Iliev, P. (2010). The Effect of SOX Section 404: Costs, Earnings Quality, and Stock Prices. *The Journal of Finance*, 65(3), 1163-1196.
- Jackson, S. B., & Liu, X. (2010). The Allowance for Uncollectible Accounts, Conservatism, and Earnings Management. *Journal of Accounting Research*, 48(3), 565-601.
- Krishnan, J., Rama, D., & Zhang, Y. (2008). Costs to Comply with SOX Section 404. *A journal of Practice & Theory*, 27(1), 169-186.
- Laksmana, I., Tietz, W., & Yang, Y.-W. (2012). Compensation discussion and analysis (CD&A): Readability and management obfuscation. *Journal of Accounting and Public Policy*, 31(2), 185-203.
- Leuz, C., & Wysocki, P. D. (2016). The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research. *Journal of Accounting Research*, 54(2), 525-622.
- Leuz, C., Triantis, A., & Wang, T. Y. (2008). Why do firms go dark? Causes and economic consequences of voluntary SEC deregistrations. *Journal of Accounting and Economics*, 45(2), 181-208.
- Nelson, M. W., Elliott, J. A., & Tarpley, R. L. (2002). Evidence from Auditors about Managers' and Auditors' Earnings Management Decisions. *The Accounting Review*, 77, 175-202.

- O'Brien, R. (2007). A Caution Regarding Rules of Thumb for Variance Inflation Factors. *Quality & Quantity: International Journal of Methodology*, 41(5), 673-690.
- Plummer, E., & Mest, D. P. (2001). Evidence on the Management of Earnings Components. *Journal of Accounting, Auditing & Finance*, 301-323.
- Ross, S. (1979). Disclosure Regulation in Financial Markets: Implications of Modern Finance Theory and Signaling Theory. *Issues in Financial Regulation*, 5, 177-202.
- Scannell, K., & Reilly, D. (2006). Sarbanes exemptions less likely. *Wall street journal*, C1-C4.
- SEC. (2016). *U.S. Securities and Exchange Commission*. Opgehaald van SEC: <https://www.sec.gov/info/smallbus/secg/rccomplianceguide-051316.htm>
- Securities and Exchange Commission. (2015). *Amendments for Small and Additional Issues Exemptions under the Securities Act (Regulation A)*.
- Stock, J. H., & Watson, M. (2015). *Introduction to Econometrics*. Pearson Education Limited
- Stuart, E. A. (2010). Matching Methods for Causal Inference:. *Statistical Science*, 25(1), 1-21.
- Stubben, S. (2010). Discretionary Revenues as a Measure of Earnings Management. *The Accounting Review*, 85(2), 695-717.
- Tackett, J. A., Wolf, F., & Claypool, G. A. (2006). Internal control under Sarbanes-Oxley: a critical examination. *Managerial Auditing Journal*, 21(3), 317-323.
- Teoh, S. H., Wong, T., & Rao, G. R. (1998). Are Accruals during Initial Public Offerings Opportunistic? *Review of Accounting Studies*, 3, 175-208.
- Teoh, S., Welch, J., & Wong, T. (1998). Earnings management and the long-run market performance of initial public offerings. *Journal of Finance*, 53.

Verrecchia, R., & Leuz, C. (2000). The Economic Consequences of Increased Disclosure.
Journal of Accounting Research, 91-124.

Zha, J. (2014). *The Roles of Receivables and Deferred Revenues in Revenue Management*.
University of California, Berkeley, California.

8. Appendix

Variable definitions

Panel A: Dependent variables

Less1billionREV_t An indicator variable that equals to one if revenue in year t+1 is below \$1 billion and zero otherwise

Δ *Deferred revenue* The change in deferred revenue in year t
A_DAR_t Abnormal accounts receivable accruals in year t, estimated as the fitted residual of equation 4

A_DDR_t Abnormal deferred revenue accruals in year t, estimated as the fitted residual of equation 3

Panel B: Main test variables

EGC_t An indicator variable that equals to one if the firm is recognized as an EGC and zero otherwise. Firms are classified as an EGC if the revenue requirement of \$1 billion is met during the JOBS Act period

Panel C: Control variables

Performanc_t The return on assets as of the ending of fiscal year t, to address for performance between the firms. Defined as the Operating Income / Total Assets

Size_t The lagged total amount of assets as of the ending of fiscal year t, to address for size between the firms

Leverag_t The leverage as of the ending of fiscal year t. Defined as (Long-term debt + Debt in Current Liabilities) / Total Assets