Audit exemption managing

A research paper on the management of employee amounts, assets and revenues to avoid statutory audits

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Abstract:

Professional encounters with audit clients have given me the impression that small entities find audits burdensome. These encounters are supported by some research papers that argue audits to be a burden to small companies. This point of view is however, in contrast with the majority of the literature on small company audits. This discrepancy in the literature, has driven me to finding empirical evidence on whether small companies find these audits to be a burden. Following research on earnings management, I have analysed the distribution of companies around the thresholds of assets, revenues and employee amounts. The results in these analyses lead to believe that companies manage the revenues and the assets to avoid statutory audits. The data on which the research is based however, is limited due to the possibility for small companies to refrain from providing information on their revenues. Taking the possible impact of these companies into consideration however, this paper provides a basis for further research to assess whether companies indeed use management of the firm's characteristics in order to avoid statutory audits.

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1 Introduction

Being an auditor in training, visiting clients is an important part of the work. Very often, these clients do not seem to be enjoying the audits. Such thoughts have been supported by fellow auditors, stating that small companies often think of auditors a nuisance. These encounters have lead me to believe that small companies find audits a burden instead of viewing them as a service. Some of these companies even find that audits do not have any value, and state that if they had a choice, they would opt not to have their financial statements audited.

Literature on audits however, sheds a very different light on the effects of audits on small companies. Most research papers that look at the effects of audits on small companies, state that audits pose benefits that exceed the costs of these audits (Tabone & Baldacchino, 2003) (Tauringana & Clarke, 2000). The research papers that have been written however, exist mainly of exploratory research. The research that has been conducted mostly, consists of tests based on the outcomes of surveys. Since these surveys portray the ideas of managers, rather than their actual decisions, I believe this research to be insufficient to provide actual evidence.

This point of view opposes the point of view that regulatory systems such as the European Commission and the European Parliament have. These governmental bodies state that audits '*excessively burden*' the smaller companies (European Paliament, 2008), and enforce this point of view by exempting small companies from statutory audits. Since these points of view do not align, I conducted this research to provide empirical evidence on whether the benefits of statutory audits exceed the costs of these audits for small companies.

Recently, the Dutch government has applied the guidelines set out by the European Commission to raise the thresholds that define whether a company has to be statutorily audited. These thresholds are fixed amounts. If the thresholds are exceeded by a company, that company is defined as being medium sized, which results in the obligation for that company to have its financial statements statutorily audited. Since these thresholds concern characteristics (total assets, revenues, average amount of employees) that may be prone to management, this research investigates whether companies use these characteristics to actively try to avoid audits. Collis (2012) states that the opinions that managers give in surveys do not adequately portray their actual beliefs. By focussing on the actions of companies and their managers, it is possible to proxy the real opinions on audits, rather than the opinions that managers state in survey research. The division in theories on the matter induces the following research question;

'Do companies manage their assets, revenues and employee count to avoid statutory audits?'

By assessing the management on each of the different characteristics separately, this research has concluded that a significant amount of companies have reported revenues and assets just below the threshold, indicating that these characteristics have been managed to stay below their respective thresholds. With respect to the employee characteristic however, no such conclusion could have been drawn.

A limitation to this research and the results however, is the fact that many small companies do not have to report all information on their profit and loss accounts. This results in a lot of missing data for companies that might have successfully managed their characteristics below the thresholds. This ‘lack’ of data may be the reason that some of the analysis did not generate significant results.

Due to the legislation, it cannot be stated with full certainty that companies that manage their characteristics below the thresholds do this to avoid audits, or to avoid other administrative costs that are effects of a classification as a medium sized company. The actual reason cannot be traced, but since statutory audits are both costly and time-consuming, they are argued to have the most influence on the decision. Whereas the intention of this research was to provide decisive evidence on the matter, due to these limitations this intention has not been achieved. This research paper provides the ideas to research the matter further instead.

2 Theoretical background

2.1 Audits and theories

Ever since the introduction of the statutory audits, many debates have been held on the relationship between the auditors and their clients. A lot of prior research has been conducted on the effect of audits on businesses, and the choices made by the management of entities. This research however, will focus on a small part of those research papers, as it concentrates on the effect of audits on smaller enterprises. Literature on smaller entities exists in much smaller amounts. Most of those research papers have been written several years ago, when earlier discussions on statutory audit exemption were being held. The lack of recent research on the topic is supported by Collis (2012). Due to this lack of recent research, the theoretical background of this research will consist mostly of research that may be outdated. In the case of important differences between the timing and background of a cited paper, these differences will be addressed. The greatest difference however, can be seen as the decrease of confidence in auditors. Hodge (2003) concluded that the view on the subjectivity of auditors has decreased over time. Since a number of accounting scandals have become public since the research paper by Hodge, it can only be seen as logical that these doubts on audit quality have increased ever since. Due to this decrease of trust in the capabilities of auditors, views on the usefulness of audits may have decreased since the early 2000's.

As will become clear in the next part of this paper, the theories regarding audits and small companies can be mainly divided into two opposite points of view. The first point of view is the theoretical research that has been conducted on the topic. Although most of the research that has been done on the topic consists of exploratory research, and thus is not very conclusive, this point of view tends towards the idea that audits are generally beneficial for companies. Watts and Zimmerman (1983) have stated in an early paper that audits have decreased the agency costs between executives and stakeholders for a period of many centuries. This research has been a reaction on the paper by Jensen and Meckling (1976), which states that differences in incentives between managers and stakeholders induce costs (so-called agency costs) for these stakeholders. From the moment the research by Jensen and Meckling (1976) developed the so-called '*agency theory*', audits have been deemed valuable to stakeholders. They have stated that, since directors initially work in favour of their own needs, the stakeholders face inefficiency costs due to improper information disclosure. With their research, they introduced the term '*agency costs*'.

Jensen and Meckling (1976) state that one of the solutions to lower these costs is by auditing the firm and its financial statements. This theory has been confirmed by Watts and Zimmerman (1983). Their conclusion that external audits can be and have been used to reduce agency costs, has been complemented by Adams (1994) who states that not only external, but also internal audits may reduce the agency costs. The need and benefit of audits have never been a discussion with regard to listed companies with a large amount of stakeholders. As long as the audit is of high quality, it adds value to the reliability of the financial statements (Hodge, 2003). The same relation can be made with regard to audit quality and charitable foundations (Kitching, 2009). In her research, Kitching (2009) states that high quality audits influence the actions of donors, in a similar manner as do investors. Since high quality audits are positively related to investing (or in the research of Kitching (2009) donating), it can be stated that audits pose positive effects on firms that seek credit, if given that these audits are of certain quality. The general conclusion of prior research is that audits pose mostly advantages to the business and its stakeholders.

The abovementioned research papers however, all focus on large companies with many stakeholders. This research does not focus on these large entities with many stakeholders. The question therefore is whether these theories also hold for smaller entities, of which the stakeholders are of a much smaller number. In contrast to the research on large entities, not much research has been done on the audit of small entities. In a recent paper, Collis (2012) states that there is a '*paucity of up-to-date research*'. The majority of research on this topic originates from the previous debates on the audit exemption threshold. Most of these research papers consist of exploratory research, in which the need for audits for these small entities is observed. These research papers have mostly been conducted in the United Kingdom. Since both the companies in the United Kingdom and in the Netherlands fall under the directives of the European Commission, and the economic environments of these companies are similar, those research papers can very well be used to form a theoretical background for the research in this paper, as long as the differences with the Dutch regulations and economic environment are kept in mind.

One of the research papers that did focus on small entities, has been conducted by Tabone and Baldacchino (2003), who have stated that owner-directors of small companies in Malta consider audits to have two different positive effects on the business. First of all, they state that audits are relevant to third party stakeholders. Secondly, they state that audits pose a positive effect on the director and his staff, which are mostly disciplinary. Tauringana and Clarke (2000) have complemented this research, by assessing reasons for small entities to opt for voluntary audits. They have found that specific characteristics are significantly correlated with the choice for

voluntary audits. These results on voluntary audits implicitly pose evidence in favour of overwhelming positive effects of audits, compared to the negative effects of audits. The authors of these papers argue that companies would not engage in voluntary audits if these audits indeed posed costs that exceeded the benefits.

These research papers however, exist mostly of theoretical research and surveys. The problem with this type of research is that it mainly portrays ideas and theories, rather than actual implications of the respective audits. The fact that these questionnaire research papers do not provide a sufficiently conclusive answer to the topic, is supported by Collis (2012), who states that '*their findings suffer from the limitation that they are based on the directors' predicted decisions*', rather than actual decisions. Similarly, Hodge (2003) states that '*the survey approach has drawbacks*' as they '*measure beliefs and not necessarily actions*'. Furthermore, surveys '*may be subject to various response biases*' (Hodge, 2003).

Contrary to this first point of view, is the point of view that emphasizes on the burdens of the audits, rather than the benefits. This point of view is supported by governmental bodies. Their support of this point of view is expressed by the introduction of the audit exemption, and the recent raises of the thresholds. Furthermore, the European Parliament (2008) stated that audits '*excessively burden*' smaller entities. Although this point of view is not supported by many research papers however, some papers show results that support the point of view. Seow (2001) concluded that statutory audits impose burdens on these smaller companies. This paper is supported by Kamarudin et al. (2012), stating that audits are burdensome for small companies. Besides these research papers however, most papers focus on the benefits, and come to the conclusion that audits are beneficial for small companies (Tabone & Baldacchino, 2003; Tauringana and Clarke, 2000). In a research conducted by MORI for the Association of Chartered Certified Accountants a more neutral position is taken in the debate. With the use of interviews, both the advantages and disadvantages of audit exemptions for small companies are being explained. Although this research portrays manager opinions that tend towards the first point of view, almost half (47%) of the larger businesses answered that, if given the opportunity, they would opt to be exempted of statutory audits (MORI, 1998). Of these managers, the majority stated that the costs of the audits (both financially, and time consuming) are the largest downsides of audits. One of the critiques that are already stated within the research conducted by MORI, is the fact that the covered companies lacked a 'dedicated internal accountancy function', which meant that the companies relied on the external auditors to have their financial statements properly formed. This reliance may have affected their opinions. Another note to the research, is

the fact that companies tend to focus on the other services that auditors may be able to provide, such as giving advice on business or tax questions. Such other services are forbidden in most countries nowadays, and are thus not to be seen as possible advantages of statutory audits.

Contrary to the abovementioned research papers, Seow (2001) concluded that statutory audits may impose burdens on smaller businesses. His research has been conducted following the introduction of the audit exemption in the United Kingdom in 1994. Although the audit exemption threshold will be explained in detail in a further section of this paper, a short introduction of the exemption and its implications on the small companies in the United Kingdom will be given. This will help understand the reason Seow conducted his research, and the economic environment in which his research has been conducted.

Before August 1994, all companies within the United Kingdom were obligated to have their financial statements audited. From the moment the audit exemption was initiated in the United Kingdom, private companies with a turnover of less than £90.000 were exempted from filing a full audit report. During the period in which Seow (2001) conducted his research, there was an ongoing debate on whether or not to raise this threshold.

The Timing of the research conducted by Seow (2001) differs from the timing of this research. Whereas Seow (2001) conducted the research before the raise of the UK thresholds, this research has been conducted after the raise of the Dutch thresholds in 2016. Irrespective of this difference, as well as the difference between the applicable thresholds in the UK and the Netherlands, the debate on whether or not to raise the threshold remains the same. Seow (2001) identified two opposing points of view, namely those who were in favour of raising the threshold, and those opposed of raising the audit threshold. His research concluded that audits pose burdens on small entities, that do not outweigh the benefits. Seow (2001) states that the financial and opportunity costs are leading when it comes to burdens on small companies.

Whether directors experience burdens from audits, has been verified by the research conducted by Tabone and Baldacchino (2003). In their research, which consisted of an empirical research based on surveys and interviews, owner-directors stated that they find audits to be a ‘financial burden, a workload and a time consuming exercise for them and their staff’ (Tabone & Baldacchino, 2003). This statement has been answered significantly more positive than the answers given by auditors. Since this research has been based on a survey, it cannot be stated that these opinions would directly lead to actions to avoid audits. However, these results show that audits do not only pose benefits to smaller companies.

In the same research, Tabone and Baldacchino (2003) argue that for companies that only have shareholders who are also employed as directors, there is no need to provide information to the

shareholders, since they already have this information as directors. They state that, in the case that the owners are also managing the company, '*shareholders, having an intimate knowledge of the business' affairs and having access to all information on a daily basis, would be in a position to know the true financial state of affairs*' (Tabone & Baldacchino, 2003). The stakeholders of these firms mostly consist of external providers of capital, such as banks and creditors. These stakeholders depend on auditors to ascertain them of the reliability of the financial statements (Tabone & Baldacchino, 2003). Since the decision to have the financial statements audited, if these companies are not statutorily audited, has to be made by the directors, these third party stakeholders rely on the choices of management regarding the reliability of the financial statements. By incorporating covenants in their contracts, banks and lenders create incentives for directors to opt for voluntary audits. Therefore, giving companies the opportunity to choose whether or not to have their financial statements audited 'does not preclude the interests' of other stakeholders (Seow, 2001).

Kamarudin et al. (2012) found evidence that the costs of audits are positively correlated with the propensity to opt for audit exemption. In their research, based in Malaysia, Kamarudin et al. (2012) asked managers what their opinions were on audits, audit exemption and the audit exemption thresholds. The results showed a positive correlation between the propensity to accept audit exemption and respectively audit burden and audit costs. The majority of the questioned managers stated that they would opt for audit exemption, if given the opportunity.

These findings have to be put in perspective however. First of all, since the research existed of a questionnaire. It examined opinions of directors, but did not take into consideration whether these directors would act according to these opinions, or whether they would act differently from their answers. Secondly, the small sample size on which the research has been conducted, leaves questions on the representativeness of the empirical research. The research conducted by Seow (2001) and Kamarudin et al. therefore do not provide persuasive evidence on whether or not audits pose burdens on small companies, that outweigh the advantages of these audits.

On the other hand, Collis et al. (2004) and Tabone and Baldacchino (2003) found that audits may very well be beneficial to these smaller entities. The combination of these two research papers (both conducted in different European countries) would lead to believe that, if given the opportunity to choose whether or not to have the financial statements audited, small companies would opt for voluntary audits. Collis et al. (2004) conducted a survey research amongst directors of small entities, whether they would opt for voluntary audits if they were exempt from statutory audits. Their research showed that the majority of the directors would choose to make use of

voluntary audits. Much like the research of Seow (2001), the survey that was conducted does not show the actual decisions made by the directors. When exempted from statutory audit, the directors may act differently than they have stated in the survey, making the research method questionable when examining the effect audits have on the management decisions within small companies. The majority (86%) of the surveyed directors claim that the audit poses a check on internal control Collis et al. (2004). That research paper states that this benefit would be the main reason for companies to opt for voluntary disclosure and audits, instead of being exempt from audits if given the choice.

Tabone and Baldacchino (2003) conducted a survey research as well, in which they concluded that, if given the opportunity, managers would opt to have their companies audited. Their research consisted of a survey that had been filled out by both owner-directors and by auditors. Although both groups indicated that they considered companies should be audited, irrespective of the absence of agency costs as stated by Jensen and Meckling (1976), there was a significant difference visible between the visions of owner-directors and auditors. Auditors were significantly less open to the possibility of audit exemption, than were owner-directors. Tabone and Baldacchino (2003) stated that owner-directors would opt for voluntary audits, because audits are said to have a positive effect on both the owner-director and its staff.

In short it can be stated that the division in opinion on the effects of audits on smaller entities is due to the fact that it poses two opposing effects on these entities, whilst the primary reason for audits does not apply for most of these small entities. The absence of many stakeholders makes the audit lose its primary necessity in reducing the agency costs and in increasing the reliability of the provided information for shareholders. The fact that audits often provide an assessment of the internal controls, and result in an opinion on the control environment, feed the theory that audits have a positive effect, whereas the financial and administrative costs of an audit and the intensive disruption of the audit process on the company are seen as a negative effect.

Although the theories in the existing literature do not provide a decisive answer, this literature does tend towards the idea that audits are beneficial for small entities. Despite this tendency, legislators have opted to exempt smaller entities from mandatory audits. Their motivation is that they believe these companies are ‘excessively burdened’ by the mandatory audits (European Paliament, 2008). What the existing research and the legislators have not yet examined however, is what choices the directors of these companies make with regard to the audits. These choices

can better portray whether directors perceive these audits as a burden, or whether they find these audits to add value.

Since the practical point of view points towards the idea that the costs of audits are not by definition outweighed by the advantages, this research will go one step further. The fact that the amount of companies that have opted for audit exemption had increased significantly from the moment that audits were no longer statutory for small companies, leads to believe that the costs indeed outweighed the benefits for these companies.

2.2 Audit exemption threshold

As will become clear in the chapter on the research design of this paper, a proper understanding of the directives of the European Parliament and the Dutch regulations regarding statutory audits is needed. As stated in Directive 2013/3/EU set by the European Parliament, the directive is meant to lower the administrative burden on small entities, since they play a '*central role*' in the Union Economy (European Parliament, 2013). The directive is meant to lower the administrative burdens on these entities in a number of fields, one of them being the audit of financial statements. As the European Parliament (2013) states, an audit can be a '*significant administrative burden*' for smaller companies. This directive does not on itself mean a legal regulation however. The directive is meant to be incorporated in the legal regulatory system of all individual member states of the European Union. Regarding the Netherlands, the corporate laws and regulations are included in the '*Burgerlijk Wetboek: Boek 2*'. These corporate laws include the directives as they are set out by the European Parliament. The laws and regulations that are of interest for this paper, are the articles 2:393 BW until and including article 2:398 BW[1].

Possibly the most important aspect when assessing the impact of regulatory changes on the financial statements, is the timing of the research. Since Directive 2013/3/EU has been implemented in the Dutch regulatory system as of January 29th 2016, and becomes effective from fiscal year 2016 (with a retrospective effect on 2015), these new regulations have not yet been applied to the available financial statements of which the data will be assessed. The data originates from the years 2004 until 2015. For this research paper it is therefore important to consider the prior regulations, rather than the new directive.

[1] Article 2:393 BW introduces the audit, and the accompanying auditor's report. Articles 2:394 BW and 2:395 BW state that the financial statements of all companies should be audited to ensure the reliability of the financial statements. Article 2:396BW states the conditions for exemption. Article 2:398 BW states that the regulations are applied retrospectively

The regulations which have to be taken into consideration in this research, start by stating that all companies are obligated to have their financial statements audited (Article 2:393 BW). This regulation is restricted by article 2:396 BW, which names three thresholds that decide whether a company is exempted from this so called statutory audit, or whether it is not exempted. If at least two of these three thresholds have not been exceeded for two consecutive years, the company is defined as a small entity, and it is exempted to have its financial statements audited. On the other hand, a company that has been categorized as a 'small' company in the previous years will only be seen as a medium sized or large entity if it exceeds two of the thresholds for two consecutive years. If a company has exceeded two or three of the thresholds for two consecutive years, the company will fall under the obligation to have the financial statements audited. As will become clear on a later point in this paper, these regulations play a significant role in the research design. The implications of these regulations mean that not all companies may be able to benefit from managing either of their characteristics below the accompanying threshold. These implications will be explained further in the section on the research design.

The first threshold to define whether or not a company is obligated to have its financial statements audited, refers to the total amount of assets the company has in two consecutive years[2]. The total amount of assets represents the balance total that a company publishes. It represents a value at one specific point in time (yearend date), and can therefore vary from one day to another. The second threshold concerns the total revenues the company generates in the two consecutive years[3]. These consist mostly of the generated cash inflows by the sales during the year, together with the difference in accruals based on revenues. Items that are presented as 'Other income' are not included in the revenues. The revenues present the accumulated amount of total revenues during the year, and therefore only increase as the year progresses. The third threshold concerns the average amount of employees[4]. This characteristic presents an average number, and can be calculated differently by companies.

The classification of a company as 'medium sized' does not only result in audits. It also means that the company has to publish extra information on the company. Although such administrative costs also weigh in with the decision whether or not to manage the characteristics, they are deemed to be of much less influence than the audit itself, due to the financial and time-consuming costs these audits pose on companies. Avoidance of audits will therefore be seen as the main incentive to stay below these thresholds.

[2] This threshold had been set at €4,400,000

[3] This threshold had been set at €8,800,000

[4] This threshold had been set at 49 employees

2.3 Ways of characteristic management

Prior research has not paid much attention to the management of characteristics in such a way that they are supposed to be below or above a threshold. Although literature does pay attention to revenue management, of which Talluri & Ryzin, (2005) is an example, the literature on this topic focuses on managing revenues to maximize the generated revenues, rather than to achieve a goal other than maximization. With respect to the management of the number of employees, and the reported amount of total assets, I have found no available research papers. Actions within these topics are not considered to be widely used, without taking into consideration the possible actions that are researched in this paper, and the subject of this research paper has not received much attention. In order to create a theoretical background, I will therefore depend on a subject that has been researched to a far greater extent.

For many years, researchers have paid attention to the management of earnings in order to achieve specific goals. After the paper by Ball and Brown (1968), which stated that unexpected earnings are correlated with stock prices, researchers like Payne and Robb (2000) and Cohen and Zarowin (2010) have examined whether directors manage their earnings to achieve earnings that are greater than expected. They considered the analysts' forecasts to be 'given', and assessed whether managers perform actions in order to meet or beat these forecasts. In their research, Payne and Robb (2000) found that these forecasts affected the management in such a way, that managers used certain accounting policies in order to meet or beat these forecasts. They have focused on the use of accruals to either increase the earnings when it seemed that these earnings would be below the forecast, and to decrease the earnings when these earnings seemed to already meet or beat these forecasts. Their research has provided evidence that accruals were being used to 'store' earnings when they were not needed. Subsequently, these 'stored' earnings were addressed when earnings seemed to be below the expectations. These statements have been supported by Dechow and Skinner (2000). By making use of examples, Dechow and Skinner (2000) provide evidence on the feasibility of using accrual management in order to manage the earnings of a company.

Another way in which earnings are argued to be managed is explained by Cohen and Zarowin (2010). In their research, Cohen and Zarowin argued that besides the use of accounting policies, managers use real activities to manipulate their earnings to meet or beat their goals. They argue that these real activities are '*more severely*' used than accrual management (Cohen & Zarowin, 2010). Real earnings management is defined as '*actions managers take that deviate from normal business practices*' (Cohen & Zarowin, 2010). This implies that earnings

management consists of deliberate actions in order to achieve management's goals (meeting or beating expectations). Contrary to accrual-based earnings management, real earnings management has an effect on the cash flows of the managing companies (Cohen & Zarowin, 2010). In their research, Cohen and Zarowin (2010) state three different ways in which companies generally manage their earnings. The first of these actions consists of the 'boosting of sales through accelerating their timing', which can be accomplished by price discounts or lenient credit terms (Cohen & Zarowin, 2010). Another way is to decrease costs of goods sold, accomplished by overproduction. The third way that is stated, is the reduction of discretionary expenses. These ways of earnings management have been introduced by Roychowdhury (2006), who differentiated accrual management from real earnings management. Since the earnings are the result of both managing the revenues, as well as the costs, not all of these actions are of use in this research. Since the thresholds that are examined in my research do not incorporate costs, I will focus on the first example stated above.

Bartov et al. (2002) complemented the research on earnings management by finding evidence that meeting or beating the earnings expectations generated higher returns than companies that failed to meet (or beat) these expectations. Their research provided evidence that meeting or beating the expectations generated advantages for the managers. These advantages were considered to be the incentives for managers to manage their earnings to either meet or beat the expectations. These findings were supported by Dechow and Skinner (2000), stating that managers have become '*increasingly sensitive to the level of their firms' stock prices and their relation to key accounting numbers*'. They state that the correlations between these accounting numbers and the stock prices have become incentives for managers to keep the stock valuation levelled, or to increase them.

Although earnings management is not the same as the management of any of the characteristics that are of importance in this research, the literature on earnings management probably comes closest to provide insights in the possibilities for managers to manage the assets, revenues or the number of employees below their respective thresholds. The most important similarity between earnings management and characteristic management is the need of incentives for managers to manipulate the numbers. As stated by Bartov et al. (2002) the financial effects of meeting or beating the earnings expectations are incentives for the managers to make sure their numbers meet these expectations.

With respect to the management of any of the characteristics, such incentives would be the exceedance of costs of audits over the benefits of statutory audits. If audits pose costs that exceed the benefits of these audits, it would be considered that this exceedance pose incentives for

managers to make sure they avoid these statutory audits. As can be derived from the literature on the effects of audits, there is no consensus on whether audits pose costs that exceed their benefits, or vice versa. This research assesses whether there is indeed an incentive to manage the characteristics below their respective thresholds.

From the literature on earnings management, a division in management activities can be made. Although this division is not of any importance in the empirical research, it can be used to assess which ways of characteristic management exist. The possibilities within the different types of management, accrual management and real management, will be explained separately for each of the characteristics.

The revenue characteristic has partly been addressed in the literature on real earnings management. One of the ways to manage the revenues, as stated by Roychowdhury (2006) and (Cohen & Zarowin, 2010), is a boost of sales due to discounts or lenient credit agreements. Although these actions may seem counterintuitive when researching the actions to generate revenues below its thresholds, the opposite of these actions may very well be used to manage the revenues downward, if they seem to exceed the threshold. By giving customers prospects of discounts or lenient credit facilities early in year t +1, a company can postpone the revenues to the next year, in order to stay below the threshold in year t. It is not possible to constantly postpone revenues to the next year, due to a snowball effect. Since the postponed revenues in year t increase the revenues in year $t + 1$, which might cause the manager to postpone revenues in year $t + 1$ to year t +2 etc., this would cause increasing problems in future years if the company would want to continuously stay below the threshold. In this case, the regulations on the thresholds that requires the exceedance of the thresholds for two consecutive years becomes an outcome for companies that face such problems. A company that is classified as a small company may exceed two of the three thresholds for one year, if it stays below two of the three thresholds the year after that. This creates the theoretical possibility for a company to stay below the revenue thresholds at year t, year $t + 2$ and year $t + 4$, exceed the threshold in year $t + 1$ and t +3, and still remain classified as small, if it exceeds only one of the other thresholds for these years.

Besides these real revenue management actions, managers may use accrual accounting to stay below the revenue threshold. By either accelerating or postponing the recognition of revenues, managers may achieve the same results as the ones explained in the previous section.

With respect to the asset characteristic, real earnings management actions include paying off debts or credits just before the end of the year, paying dividends or engaging in operational lease contracts, rather than financial lease contracts. Contrary to revenues, assets display a figure at a specific moment, rather than a figure that has been built up during the year. Managing the

assets can therefore be done by paying off debts or credits, which decreases both the assets as well as the liabilities of the companies. This results in a decrease of total assets. The same result can be achieved by paying dividends. These actions can be performed at specific moments during the year, making it possible to decrease the total amount of assets for a number of consecutive years. Another way to decrease the total amount of assets, has been to engage in operational lease contracts, rather than financial lease contracts. According to accounting regulations, financial leases had to be presented as an asset, in combination with a liability. Since both the asset and the liability had to be presented on the balance sheet, this increased the total assets. Operational leases however, did not have to be presented on the balance sheet. With respect to operational lease, the costs that incurred were simply presented in the profit and loss account. By engaging in operational lease, instead of financial lease, a company had the opportunity to present a lower amount of assets.

Besides these real earnings management activities, the managers of a company have the opportunity to engage in accounting activities to manage the total amount of assets. By increasing the write-offs on assets, a company can decrease its total amount of assets, without any change in the company being apparent. Such write-offs, similar to the choice of operational lease over financial lease, are actions that generally result in lower amounts for assets for a longer period of time, rather than that they are executed to lower the amounts for just one year.

The number of employees might be considered to be the easiest characteristic to managed. The number of employees expresses the average amount of employees that have been employed during the year. Since the number of employees generally increases if the managers agree to hire an additional employee, companies can theoretically control the average amount of employees during a year, in order to make sure this number stays below its threshold. By hiring temporary workers from an employment agency, companies can accommodate to periods in which the activities are at a peak, without influencing the number of employees that are on the payroll.

Another way to manage the characteristics, is only possible if a company operates in a consolidated group of companies. The regulations state that if a company that consolidates several companies exceeds the criteria on a consolidated level, that company is statutorily audited. However, the companies that are consolidated may also be subject to statutory audits. Suppose company A consolidates company B and company C. If company B exceeds the revenue threshold, company C exceeds both the asset threshold and the employee threshold and company A exceeds none of the thresholds without consolidation (given that these exceedances are presented for two consecutive years), this would result in a statutory audit of company C due to the exceedance of two thresholds and a statutory audit of the consolidated financial statements of

company A. If the manager would decide for company A to buy company C's assets, this would mean that company A exceeds one threshold, company B exceeds one threshold and company C exceeds one threshold. On a consolidated level, this still results in a statutory audit. On company level however, company C would no longer be statutorily audited. Following the example above, managers of a group of companies may be able to minimize the number of statutory audits by effectively allocating the companies' resources.

3 Hypotheses and expectations

As stated in the theoretical background, there is a division in the theories regarding the benefits and the costs of audits. Since the European Parliament believes that the benefits of an audit for small entities do not outweigh the costs of those audits, it states that these small entities, called micro-entities, are '*excessively burdened by existing accounting rules*' (European Paliament, 2008). Taking this resolution into consideration, the European Commission has exempted these entities from statutory audits. In addition to the exemption of micro-entities, the European Commission has also stated that small entities may be exempted from statutory audits. The difference between these types of entities depends on certain characteristics of the entities (namely the revenues, the total amount of assets and the number of employees). If two of the three characteristics of a company exceed the micro-entity thresholds set by the European Commission, the entity will fall in the category of the small entities. The same counts for the 'small entity threshold', meaning that a company that exceeds two of the three 'small entity thresholds' is classified as a medium sized entity. The exemption of statutory audits for small entities is not mandatory for all countries, contrary to the exemption of statutory audits for micro-entities. Countries may choose whether or not to exempt small entities from mandatory audits but are obligated to exempt micro-entities. The Dutch regulatory systems have opted to exempt 'small entities' as well as 'micro-entities'. From January 29th 2016, this division between 'micro-entities' and 'small entities' has been incorporated in the Dutch laws and regulations. Before January 29th, this division had not been made. Since the used data originates from 2006 – 2015, I will not take this division into consideration.

Recently, the European Commission has set a directive which raises the maximum thresholds mentioned before. Where entities were considered small entities when their revenues did not exceed 8.8 million euros, and their assets did not exceed 4.4 million euros, these thresholds have been raised to respectively twelve and six million euros. The threshold with regard to the amount of employees has remained unchanged (which is a headcount of fifty employees). With this new directive, the European Commission implicitly states that these entities had also been 'excessively burdened', as the European Parliament would state. This change in threshold, has left many companies who have had their financial statements mandatorily audited, to being exempt from this mandatory audit.

Where existing literature and the legislators have mainly focussed on theories and opinions of directors, not much research has been done with regards to actual decisions made by the entities

and their directors. If the mandatory audit would indeed have been a burden to those entities, it would seem that, if given the opportunity, directors would opt to stay below these thresholds. Therefore, it would seem logical that for companies that are near the exemption thresholds, the managers would engage in actions to try to keep the reported figures of the characteristics below the thresholds, in order to avoid statutory audits.

If the theory would hold that costs (both financial and administrative) of audits outweigh the benefits of said audits, this would mean that it would be beneficial for directors to manage the characteristics of their companies to keep them below the audit exemption thresholds. Since prior research does not find a conclusive answer regarding this theory, empirical research may conclude between the two points of view. If the costs of audits do not outweigh the benefits of audits, this would mean my research will amount to insignificant results. If, however, the costs of audits do outweigh the benefits of audits, this will mean my research will amount to significant results.

Fields that have not been given a lot of attention in prior research, are fields of revenue management, asset management and employee management in such a way that they stay below a certain threshold. A field that has received much attention however, is the field of earnings management. Payne and Robb (2000) assessed the effects of earnings forecasts on the management of earnings by directors. In that research paper, the earnings forecasts are seen as thresholds that directors want to either ‘meet’ or ‘beat’. Payne and Robb (2000) found that managers are willing to manage their earnings in order to meet these expectation thresholds, because meeting or beating (referred to as ‘MBE’) these expectations pose rewards for the directors (Payne & Robb, 2000).The management of the company’s characteristics to stay below the audit exemption threshold can be viewed in the same way. When assuming the costs of audits to be greater than the benefits, this means that avoiding audits poses a ‘reward’ for the director, in such a way that its financial and administrative costs are lower. This ‘meeting’ and ‘beating’ of the threshold has to be seen inversely from the meeting and beating of earnings in Bartov et al. (2002) and Payne and Robb (2000). Beating the threshold in this research would mean to stay just below the audit exemption threshold, instead of just above the threshold.

Following the research by Cohen and Zarowin (2010), it is likely that a lot of this management is due to ‘real’ management, rather than accrual based management. Assuming it is profitable for directors to manage their characteristics below the thresholds if possible, I would expect companies that are at risk of falling under the statutory audit regulations to engage more in characteristic management than companies that are not at risk of falling under the statutory audit regulations.

The first characteristic to be assessed, is the employee characteristic. Based on the theoretical background, I would expect that companies that have exceeded both the revenue threshold and the asset threshold benefit less from management of the employees below the threshold than other companies. I therefore expect these companies to engage in less management of the number of employees than the other companies. Furthermore, I expect companies that have exceeded either the asset threshold or the revenue threshold to engage in management of the number of employees below its threshold, since I believe these companies benefit from the management of the number of employees. Due to the timespan of two consecutive years, I expect companies to engage in more management if they have exceeded two or more thresholds in year $t - 1$. The hypothesis that encompasses these expectations, is as follows.

> $H1_A$: *Companies that have more incentives to manage their employee count below the respective threshold engage in more management than companies that have less incentives to manage their employees below the respective thresholds.*

Secondly, I will look at the asset characteristic. Similar to the employee characteristic, I expect companies that have exceeded both of the other thresholds to engage significantly less in management of the total assets than the group of companies that has not exceeded both of the thresholds. Furthermore, companies that have exceeded either the revenue threshold or the employee threshold are expected to significantly engage in the management of assets below the threshold. Again, due to the two year time span, I expect management to depend on the amount of thresholds that have been exceeded in year $t - 1$. I expect companies to significantly manage their assets below the asset threshold if the company has exceeded two or more thresholds in year $t - 1$, rather than companies that have exceeded less than two thresholds in year $t - 1$. These expectations are stated in the following hypothesis.

> $H2_A$: *Companies that have more incentives to manage their assets below the respective threshold engage in more management than companies that have less incentives to manage their assets below the respective thresholds.*

The expectations of the management of revenues are similar to the expectations with respect to the other characteristics. Companies that have exceeded both the employee threshold and the asset threshold are expected to engage in less management than other companies. I also rather expect managers to engage in revenue management if the company has exceeded either the asset threshold and the employee threshold, and has exceeded two or three of the thresholds in year $t - 1$. The hypothesis in which these expectations are brought forward is:

> $H3_A$: *Companies that have more incentives to manage their revenues below the respective threshold engage in more management than companies that have less incentives to manage their revenues below the respective thresholds.*

4 Research design

As stated before, researching the management of revenues, staff members and total assets has some commonalities with the research of earnings management. The research design will therefore be based on that literature. Prior research on the management of income has already acknowledged the problem that it is not possible to exactly know whether managers have manipulated the accounts (Healy & Wahlen, 1999). Instead of focusing on the actions to manipulate the accounts, researchers have opted to research the effects of these manipulations. Researchers that have conducted research on the effects of manipulations, have developed different ways to assess these effects. One of these ways is by assessing the effects of management of specific accounts of the financial statements, such as revenues on accrual accounts of the financial statements, like debtors (Healy & Wahlen, 1999). However, this research method is not applicable in my research paper, since many companies do not have to issue all financial information in their financial statements. My research method will therefore be based on another research method, which has been applied by Burgstahler and Dichev (1997), Burgstahler and Eames (2006) and Payne and Robb (2000). Healy and Wahlen (1999) have supported this research method by emphasizing its easy assessment of earnings management, since there is no need to estimate abnormal accruals (Healy & Wahlen, 1999).

Burgstahler and Dichev (1997), Burgstahler and Eames (2006) and Payne and Robb (2000) have researched whether companies manage their earnings by assessing the distribution of companies around the respective benchmarks which were expected to be either met or beaten. They argue that companies manage their revenues and costs to avoid earnings below the expectations of the company's analysts. Since managers will be (financially) punished if they do not meet the expectations, they have incentives to (continuously) report earnings that either meet or exceed these expectations. Since it has previously been argued that managers with incentives to report specific earnings try to manage these earnings (Bartov et al. 2002), managers are expected to manage their earnings to either meet or beat the expected earnings of their company. Burgstahler and Eames (2006) argue that if there has been management of earnings to meet or exceed the analysts' forecasts, it can be expected that very few companies will just miss these expectations. They therefore stated that by assessing the distribution of companies around their respective expectations, it can be approximated whether companies in fact use earnings management to achieve these positive earnings surprises. The assumption of this research is that without

management, the companies will be normally distributed around the expected earnings, whereas the presence of earnings management will be reflected by a breach in this normal distribution.

Much like the abovementioned research, this paper will focus on the distribution of companies around the thresholds. If management indeed takes action to stay below these thresholds, it would be expected that relatively few companies would show figures that slightly exceed these thresholds. Since it can be argued that companies indeed profit from staying below the thresholds, it would seem logical that companies that slightly exceed the thresholds would engage in more characteristic management to fall below the thresholds, I would expect the distribution of the companies to show a gap just above the thresholds, and a peak just below, or on the respective thresholds.

When projecting the research design of Burgstahler and Eames on this research, a footnote has to be made. First of all, not all companies benefit from managing their characteristics. As stated before, the audit exemption only comes into effect when the company stays below two of the three thresholds. This means that it is more difficult for companies to manage the characteristics below the thresholds, since they have to take into consideration whether they have already exceeded one, or possibly two of the thresholds. When deciding whether or not to take actions to stay below, for instance, the revenue threshold, a company has to consider whether either the asset threshold or the employee threshold has already been exceeded. These regulations mean that it is possible for companies to engage in the management of two characteristics simultaneously (for instance the amount of employees and the total assets) to make sure the entity stays below two of the thresholds.

With regard to this research, these regulations mean that it has to be taken into consideration whether a company has already exceeded two, one or none of the threshold when assessing if that company has engaged in the management of one of the characteristics. Also, the fact that the exemption comes into effect if the company stays below the thresholds for two consecutive years means an implication for the research.

In order to simplify the research, the first step will be to not take these implications into consideration. The distribution of companies will be assessed for each characteristic separately. I will divide the total sample into two different groups. One group will contain companies that theoretically do not benefit from managing the assessed characteristic. The other group will contain all other companies from the sample, and will be called ‘Rest’ group. The first group that will be assessed, is the ‘Rest’ group. For the revenues, total assets as well as number of

employees, I will assess whether there is a dip visible just above the threshold, and a peak below or on the threshold.

The next step will be to compare these results with a similar assessment of companies that theoretically would not benefit from the management of the respective characteristics. When assessing the revenue threshold, I will focus on the companies that cumulatively have already exceeded the two other thresholds, and have exceeded at least two of the three thresholds in year *t* – 1. By comparing the results of these two samples, I can assess whether companies that would theoretically not benefit from the management of revenues, engage in significantly less revenue management than the rest of the total sample. If this is the case, this would be evidence that managers who have incentives to manage their revenues below the threshold, indeed engage in management of their revenues to stay below the threshold.

Similarly, I will assess two samples of companies for the assessment of the other thresholds, and compare the results of the respective samples. The choice of this division is made to avoid bias and other implications in the researched samples. These implications may originate from a number of reasons. The first reason has already been named. The fact that there are three different thresholds that define whether a company is exempted from statutory audits, gives way to management on multiple characteristics. It might seem logical that a company that has exceeded one of the thresholds has the most incentive to manage one of the other characteristics below its respective threshold. For a company that has exceeded none of the thresholds, it may seem unnecessary to manage any of the characteristics. That company may however, be below all thresholds because of the simultaneous management of the respective characteristics. It may therefore seem that this company has no incentive to manage, for instance, its total assets below the threshold, because the other thresholds have not yet been exceeded. In fact it may be managing its total assets, together with one of the other characteristics. This bias is mitigated by piling up all companies that possibly have incentives to manage their characteristics, and comparing the distribution of those entities with the distribution of entities that do not have any incentives to manage their characteristics.

Another way in which biases or implications may occur, is the fact that not all companies have to deposit the same information with the Dutch Chamber of Commerce. Companies that are exempted from statutory audits may deposit a shorter version of their financial accounts, which does not incorporate the same amount of information as the financial statements of companies that are statutorily audited. When assessing the companies that may benefit from the management

of their characteristics, it would be necessary to incorporate the financials of the years prior to the firm-year observation, since the regulations state that there has to be a consecutive two year span in which the thresholds are not exceeded. If the companies stay below the thresholds in year $t - 1$, this would mean that these financials may not be available. By researching the entities that do not benefit from managing their characteristics since two (or all) of the thresholds have already been exceeded, I will test companies that have all the necessary information available.

A third reason for choosing to research the companies with characteristics that exceed the thresholds, is the fact that these entities will have their financial statements statutorily audited, which means all these entities are treated equally. Companies that fall below the thresholds may opt to have their financial statements voluntarily audited due to outside parties that require these audits. The voluntary audits mean that for these entities there is no benefit from managing the assessed characteristics. The audit will be conducted regardless of whether the respective thresholds are exceeded.

The abovementioned reasons result in the decision to use the most reliable information to assess both the sample for which it is expected that management of the characteristics is not profitable, and the rest of the total sample. By assessing the difference in distribution between these samples, I can approximate whether there is management of the characteristics for the population that may benefit from this management.

Finally, with the available information on entities that theoretically have incentives to manage their characteristics, I will assess whether the distribution of these entities indicate significant manipulation of their characteristics.

The management of characteristics will be researched by assessing the different characteristic criteria separately. This means that for each characteristic, I will assess whether a company has incentives to manage the specific characteristic. Whether a company has incentives to manage the respective characteristic, depends on the figures the company has in the other characteristics. This means that when researching the ‘asset’ criterion, company A will be grouped in the ‘no incentive’ group if that company will be audited regardless of the amount of assets that the company has in year *t*. If company A has exceeded both the revenue criterion and the employee criterion in year *t*, and has exceeded two of the three criteria in year $t - 1$, that company will be statutorily audited. It does not matter which of the criteria have been exceeded in year $t - 1$, as long as at least two criteria have been exceeded. In this case, it does not matter if that company exceeds the ‘asset threshold’, or if it stays below said threshold, since in both situations the

company will be statutorily audited. I therefore assume that, in this case, company A has no incentives to manage its assets below the threshold. The group that does not benefit from management, will not be impacted by the fact that many small companies did not have to publish their profit and loss accounts. Since the companies that make up this group are by definition not defined as small companies, they have had no opportunity to choose whether or not to publish their financial information.

The grouping as stated above will be sufficient for the first part of my research, as this part will be to compare the distribution of the companies of which I expect they will have no incentive to manage the respective characteristic, against the rest of the total sample. If there is no management, I expect the two distributions to be similar. Significant differences between these distributions around the thresholds on the other hand, might imply management to stay below the thresholds. Since one sample consists of companies that do not theoretically benefit from management, and the other sample includes that may benefit from such management, the differences in distributions will be considered to be due to companies that might benefit from management.

In order to make both distributions comparable, I scale the distributions by dividing the amounts of companies in the intervals by the average of companies in the total interval observed. These scaled observations make it possible to assess whether there are significant differences between the observations around the thresholds between the sample that has no incentive to manage their characteristics, and the rest of the sample. This type of research has not been conducted prior to my research paper. The method has therefore not been used before. I will not use this analysis to create a conclusive answer. This part is used to assess whether there is a possibility of management within the sample, and provides a basis for further analysis. The group of companies that will be audited regardless of the amount of the characteristic that is assessed, will be named ‘Audited’. The other group will be named ‘Rest’ group.

The statistical significance will be calculated by using the T-statistic. For each interval, the difference in the scaled observations between the Rest group and the Audited group will be calculated. These differences will be divided by the standard deviation of all differences of the entire group. This provides a T-statistic for each interval. The T-statistics of the intervals around the respective thresholds are the ones that are of most importance, since they provide information on whether management of the characteristics has taken place. Since companies cannot unlimitedly manage their characteristics, I expect intervals that are far away from the threshold

are not subdued to possible management to stay below the thresholds. It would therefore be unnecessary to assess all significant results within the sample. For every characteristic I research, I will assess the significant results within a bandwidth of the threshold. These bandwidths are subjective, since there is no definite telling of to what extent managers are able to manage their figures.

With regard to the revenues, I will assess the intervals that are less than one million euros away from the threshold. This means that significant results in all intervals between € 7.800.001 and €9.800.000 will be assessed. I have purposely chosen the bandwidth this broad, because I do not want to neglect too many observations. Since one million euros is more than 10% of the total revenues of these companies, I expect that most of the intervals in which it would have been possible to manage the revenues below the threshold, have been incorporated. Although the width of one million euros is subjective, I do not expect companies to be able to manage their revenues for more than 10% of the year's total. All intervals in which it can be expected that companies may manage their revenues have therefore been incorporated in this assessment.

With regard to the assets, I will use the same bandwidth as I do with the revenues. Since it may be quite easy to manage the assets around the date of the financial statements (by paying off debts or paying dividends), it would seem logical that companies may engage in more and larger management. In order to make sure I do not neglect too many observations, I will use a threshold of about 20%. Since I expect that a significant amount of companies are not able to manage their assets for more than 20%, I deem this bandwidth to be sufficient.

With regard to the employee criterion, I will use a bandwidth of 20%, just as with regard to the assets. Since I deem it easy to manage the amount of employees, I believe a broad bandwidth is necessary to make sure not too many observations are excluded from the interpretation.

Although the bandwidths are subjective, and not supported by statistical evidence, the amounts of intervals that are included in the interpretations are deemed sufficient in order to include all possible intervals with management of the characteristics.

The design for the second part of the empirical research will be similar to the first part. For each of the characteristics I will separately assess whether there is management of the respective characteristic. In part one I used the data of companies that were audited irrespective of the amount of the assessed characteristic. In part two however, I will use the data of other companies, which are the companies of which I expect that they may benefit from managing the characteristics. When assessing the possible management of characteristic revenues in year *t*, I

will use the companies that exceeded either the employee or the asset threshold at year *t*. In this part of the research, I will test the hypothesis of characteristic management around the threshold against the hypothesis of no characteristic management. Similar to the first part, this part will use a simple T-statistic. In contrast to the first part however, I will compare the assessed distribution of the respective characteristic against a distribution that shows a smooth slope. This design has been previously executed by Burgstahler and Dichev (1997) and Burgstahler and Eames (2006). The T-statistic will consist of the difference between the observed amount of companies in a specific interval and the expected amount of companies in that interval, divided by the standard deviation of the differences of the tested sample. The expected observation of an interval will be calculated by taking the average of the two adjacent intervals. These expected observations display the assumption of a smooth distribution against which the observations are tested.

Besides the discussion of the results, the significance levels have been shown in the histograms of Part I. The results are considered to be significant if they have a value of $P < 0.05$. I will use four levels of significance, which will be denoted by asterisks[5]. The levels of significance will indicate the power of the generated results. The same significance levels will be used throughout the entire paper, including the Appendices, and will always denoted similar to the way expressed below.

5 * Significance level of $P < 0.05$
** Significance level of $P < 0.01$
*** Significance level of $P < 0.005$
**** Significance level of $P < 0.001$

5 Data manipulation

The data was obtained from database Bureau van Dijk (which can be accessed via the Wharton Databases), and consists of all medium and small sized companies located in the Netherlands. The timespan that is used, is 2006 until 2015. This yielded 114.792 entities, and 771.819 firm-year observations. Since the research requires the companies to have filed information on the assets, amounts of employees and on the revenues, all firm-year observations that did not include information on all of these items have been dropped. This requirement leaves 5.619 entities, and 14.243 firm-year observations. This elimination of items confirms the expectation that most of the entities did not provide all information, since most of the eliminations are due to the absence of information on the revenues of the companies. After the elimination of firm-years without all necessary information, I have eliminated very large and very small entities in the dataset, since these entities do not influence the results of my research. The firm-years in which, cumulatively, the assets are below two and a half million, the revenues are below four million, and the employees amount to less than twenty five have been eliminated, because these entities are of no interest. These entities have stayed far below all thresholds, and thus have neither had any incentive to manage their characteristics, nor have they had any opportunity to manage either of their characteristics to just below the respective thresholds. The same counts for firm-years in which the entities' assets exceed ten million, the revenues exceed twenty five million and the employees amount to more than seventy five. This elimination counts only for firm-years in which the requirements on the three characteristics have cumulatively been met. With respect to these eliminations, the companies have had neither any incentive to manage their characteristics, nor have they had any opportunity to manage their characteristics below the respective thresholds since all characteristics have been amply exceeded. The chosen requirements are subjective. However, since the requirements have to be cumulatively met, the eliminated entities are either far below the respective thresholds, or far above the respective thresholds, and therefore are not of any interest in this research. The elimination of these firm-year observations leaves 4.576 entities, and 11.175 firm-year observations.

The final elimination of firm-year observations is due to the lack of information for year $t - 1$. I will need the data of companies of which I have at least two consecutive firm-year observations, due to the Dutch regulations. I have therefore eliminated all firm-year observations that lack this information. After this elimination, 2.220 entities and 5.839 firm-year observations remain. Table 1, at the end of the chapter, shows the statistics for these firm-year observations, and Appendix A shows a tabulated representation of the eliminations.

The significant amount of eliminations due to a lack of information is a clear limitation on the researched data. These eliminations may impose a selection bias, of which the possible effects will be assessed further in this paper. However, since the available data has been deposited at the Dutch Chamber of Commerce, the available data can be expected to be correct. Further assessment of the possible limitations due to the eliminations will be made later in this paper.

After careful elimination of unusable data, the firm-year observations have been grouped in order to make the assessment of the data easier. Since my aim is to research the distribution of the companies, I have chosen to group the values for total assets and revenues. With regard to the characteristic 'total assets' and 'total revenues', this procedure results in the addition of a variable. In this variable, the amount of assets have been rounded up to values of two hundred thousand euros. Because of this procedure, the new variable shows values that fall in the range of 1-200.000 as the value 200.000, values within the range 200.001-400.000 as 400.000 and so forth. These variables have been used to compute the intervals with which the assets and the revenues have been analysed. Since the amounts of employees are presented in single units, and these units are sufficient for analysis, these amounts have not been grouped to create intervals. The presented number of employees have been used as intervals instead.

When the firm-year observations for each characteristic have been grouped, I have incorporated the rules and regulations in the dataset. For each characteristic, I have created a dummy variable that indicates if the respective threshold has been exceeded for that characteristic. This means that, for instance, if a company has had more than fifty employees in a specific year, the variable will have the value of '1' for that respective year, and if the company has had fifty or less employees, the variable will equal the value of '0' for that year. The variables that correspond to the other characteristics have been created similarly to the variable for the employee characteristic.

The following step has been to create a variable that can be used to assess whether a company has been statutorily audited in year *t*. This can be done by creating a dummy variable that equals '1' when at least two of the thresholds have been exceeded, and equals '0' when there has been either no exemption, or the exemption of one threshold. This variable will be called 'Auditdummy'. It does not, however, show whether the company has been audited for that specific year. Since the rules and regulations state that the exemption will come into effect if the thresholds have been exceeded for two consecutive years, a dummy variable will also be created that will equal the value of the variable 'Auditdummy' at year $t - 1$. This dummy variable has been named 'PYAuditdummy'. The abovementioned means that a company has been audited for the year *t* in when both the variables Auditdummy and PYAuditdummy equal '1' at year *t*.

Finally, I have created variables for each characteristic that show whether zero, one or two of the other characteristics have exceeded their respective thresholds. This means that when assessing the threshold of the employees for a specific company, the variable will show how many of the other two thresholds have been exceeded for the respective firm-year observation. It will not, however, show which of the other thresholds have been exceeded, if any has been exceeded at all. These variables are crucial when assessing the possible incentives a company may have to manage either of the characteristics.

Table 1 – Statistics of total sample

Panel A – Descriptive statistics per characteristic			
	Mean	*Median*	*Std. Dev.*
Employees	45	34	55
Assets (€ x 1,000)	10,064	6,300	32,354
Revenues (€ x 1,000)	13,380	7,300	110,008

Panel B – Observations per year				
	Total	*Audited firms*	*Non-audited firms*	*Other*
2007	609	291	251	67
2008	629	281	261	87
2009	675	317	271	87
2010	802	394	312	96
2011	829	392	349	88
2012	908	374	443	91
2013	758	267	395	96
2014	596	139	370	87
2015	33	4	27	2
Total	**5,839**	**2,459**	**2,679**	**701**

The number of audited firms is computed by taking all firm-year observations in which companies have exceeded two or three of the thresholds, and cumulatively have exceeded two or three of the characteristics in year *t* – 1. Non-audited firms are firm-year observations in which companies have exceeded less than two of the three thresholds, and cumulatively have exceeded less than two of the three thresholds in year *t* – 1.The other firm-year observations consist of firms for which information on year t – 2 is necessary to determine if these companies have been audited. In this table, the 'Other' group is not the same as the 'Rest' group that is used in the analyses, since this 'Rest' group will be computed for every characteristic separately.

6 Empirical research

6.1 Part I

As stated before, the first part of the empirical research is a comparison of two different distributions. The sample of companies that are argued to have no incentive to manage their characteristics will be compared to the sample of the rest of the companies. By comparing the distribution of companies that do not benefit from management of the characteristics against the distribution of the other companies, I may assess whether management of the characteristics has occurred. If companies have not managed their characteristics below the respective thresholds, the two compared distributions are expected to be similar around the respective thresholds. If companies did manage their characteristics below the respective thresholds however, I would expect significant differences in the distributions around the thresholds. If such management has taken place, I expect a peak in the intervals just below the threshold, and a low amount of observations in the intervals just above the threshold in the group with the 'Rest' sample. This expectation is due to the fact that some companies within this sample may benefit from management. Companies just above the respective threshold would manage their characteristics, to make sure they are just below these thresholds. In the group with the companies that have no incentive to manage their characteristics however, I would expect a constant amount of observations in the intervals around the thresholds.

To avoid the effects of outliers on the analyses, I will exclude these outliers from the analyses. Since the scaled observations are calculated by the average amount of observations, outliers will influence the values of these scaled observations, whilst these observations are not of any interest for the research itself. In order to make sure not too many observations are excluded, I will keep at least a rounded 99% of the observations for each sample. In robustness tests I will test whether the results differ if more of the outliers are eliminated. The differences in results between the initial tests and the robustness tests, if any, will be mentioned briefly. The results of these robustness tests will not be tabulated, nor will they be visually presented. The analysed distributions will be made visual by presenting them in histograms. The lines that have been drawn within the histograms show where the threshold is positioned in the distribution. The histograms that are included in the paper may differ in number of included intervals. These differences are due to the fact that in many cases, some of the intervals to the right of the distribution contain no firm-year observations. A large number of intervals may therefore be excluded from the histograms, although they will be included in the numerical analysis. The

possible effect of excluding these intervals will be assessed in a later part of the research, in which the robustness of the analyses will be tested.

EMPLOYEES

The first characteristic that will be researched, is the 'Employee' characteristic. As stated before, the total sample consists of 5,839 firm-year observations. With regard to the employees, 99.1% (5,785) of these firm-year observations are observed in the intervals 1 - 200. I will therefore assess these observations, to avoid effects of the outliers. Since these outliers consist of firm-year observations with over 200 employees, these observations are not interesting for my research, but they might impact the significance levels of the interesting observations when they are taken into account. With regard to the group of firm-year observations of companies that have no incentive to manage their employees (from now on called the 'Audited' group since they will be audited regardless of the amount of employees) the total amount of firm-year observations is 1,759. Of these observations, 98.6% (1,735) are contained within the intervals 1-200. The rest of the firm-year observations (4.050) compile the 'Rest' sample. Table 2 shows the descriptive statistics of these samples.

Figure 1 shows the distribution of firm-year observations of the Rest sample. The X-axis represents the intervals, and the Y-axis shows the scaled amounts of firm-year observations per interval that are present in the selected group. The Rest group shows a distribution in which the number of firm-year observations decreases as the number of employees per firm-year observation increases. In contrast to the expectations, there is no significant peak visible just below or on the threshold (49 employees). The interval of 49 employees shows a low amount of observations, contrary to the high number of observations which has been expected. Another observation that is contrary to the expectations, is the peak just above the threshold (50 employees). In this interval a gap was expected, due to the expected management of employee amounts below the threshold. These observations would give a first indication that there is no management of the employees to stay below the threshold.

Figure 1 – Histogram of distribution Rest sample

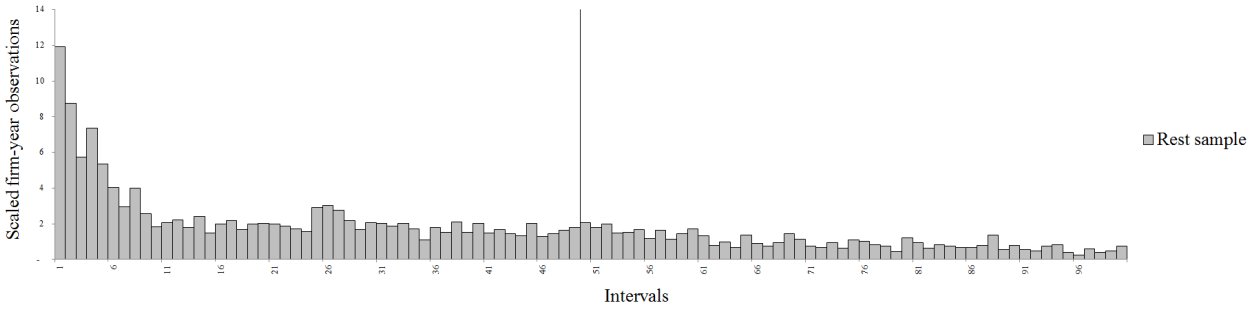


Figure 2 shows the distribution of the Audited group. The Audited group shows a very different distribution compared to the distribution of the Rest group. There is no visible trend, as the distribution consists mainly of different peaks. The high number of firm-year observations at the intervals just above the threshold in the Audited group agrees with the expectations. However, since the total group shows a peak at the same intervals, there is no visually significant difference in the samples around the threshold.

Figure 2 – Histogram of distribution Audited sample

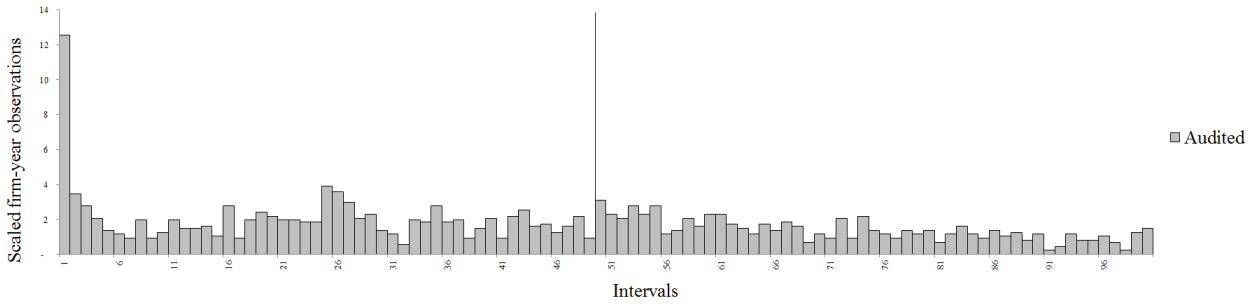
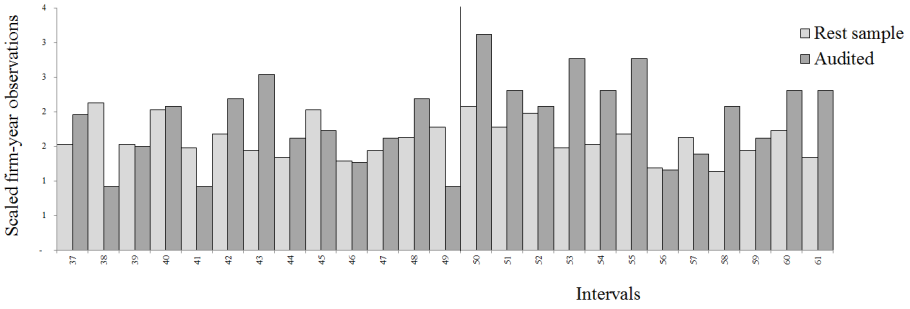


Figure 3 shows the scaled observations of both groups per interval, with a focus on the intervals around the threshold. Both groups show a large amount of observations above the threshold of 49 employees, and only few observations below or on the threshold. With a critical value at P = 0.05 of 1.984[6], the T-statistic of all intervals around the threshold proves not to be significant (Appendix B-1). This supports the visual representation of the distributions, and shows that the distributions are not significantly different on or around the threshold.

[6] The degrees of freedom for every analysis are set at one hundred, since there are more than one hundred, but less than one thousand intervals

Figure 3 – Histograms of distributions Rest sample vs. Audited sample



This conclusion is inconsistent with my expectations, since I deemed the management of employees to be the easiest of the characteristics to be managed below the threshold. The inconsistency between my expectations and the results may be caused by the fact that there is simply no management, or the fact that many companies did not have to publish information on their profit and loss account. These companies should have been in the Rest sample, which means that this sample may be lacking in firm-year observations in the intervals just below the threshold.

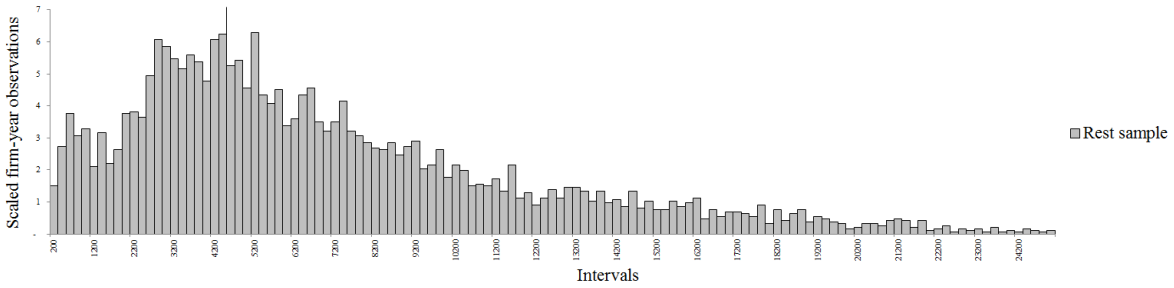
ASSETS

The second characteristic to be considered is the asset characteristic. Of the total number of observations (5,839), 98.7% of the observations are observed in the intervals 0-50,000. In order to avoid effects of outliers on the sample, observations outside of these intervals have been excluded from the analyses. In this analysis, the 'Audited' group again refers to the group of which companies will be audited, regardless of the total amount of assets they present. The total amount of firm-year observations within this group is 1,106. Of these observations 99.2% (1,097) can be observed within the specified intervals. The rest of the firm-year observations (4.669) compile the Rest sample. Table 2 shows the descriptive statistics of these samples.

The distribution of the Rest sample of firm-year observations shows a positive skew. Figure 4 shows the distribution of the scaled observations of the Rest group, with the intervals on the X-axis, and the scaled amount of firm-year observations within the interval on the Y-axis. The figures on the X-axis show the upper boundary of the interval (which is included in that interval), meaning that the number 4,400 shows the interval 4,200,001 until and including 4,400,000 (in € x 1.000). The intervals will be named by their upper boundary from this point on. Since the threshold of the assets is set at 4,400, the abovementioned interval refers to the interval just below the threshold. In the Rest sample, this interval shows a peak, together with the interval 4,200. The intervals just above the threshold show a lower amount of firm-year observations than the

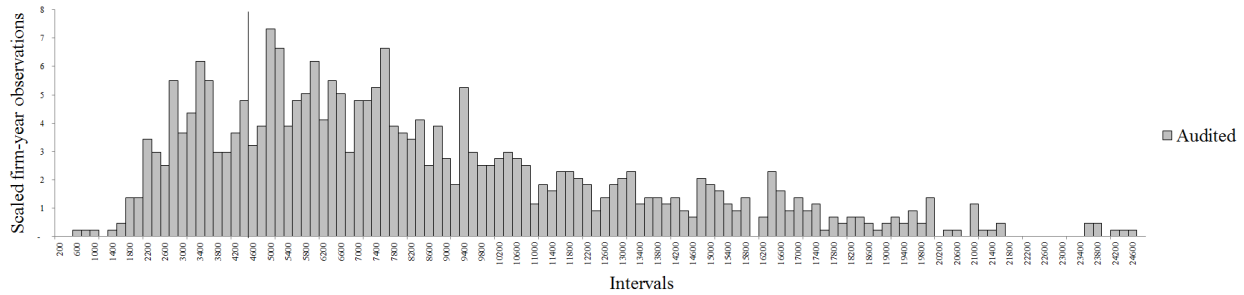
intervals just below the threshold. Figure 4 therefore shows that the results in the intervals just below and just above the threshold are consistent with the expectations.

Figure 4 – Histogram of distribution Rest sample



The Audited group shows a distribution that is somewhat similar to the Rest group. The difference however, is the fact that this distribution consists of more peaks than the distribution of the Rest group. This distribution can be seen in figure 5. The x-axis and the y-axis represent the same as they do in figure 5. In the Audited group, the intervals around the threshold are considerably lower than they are in the total group. Although the interval 4,400 shows a small peak, this peak is lower than it is in the Rest group. The low amount of observations just above the threshold are inconsistent with the expectations, since it was expected that for the Audited group, the observations just above the threshold would be higher than they are in the total group. This expectation was based on the idea that the companies in this group do not feel any incentive to manage their assets below the threshold.

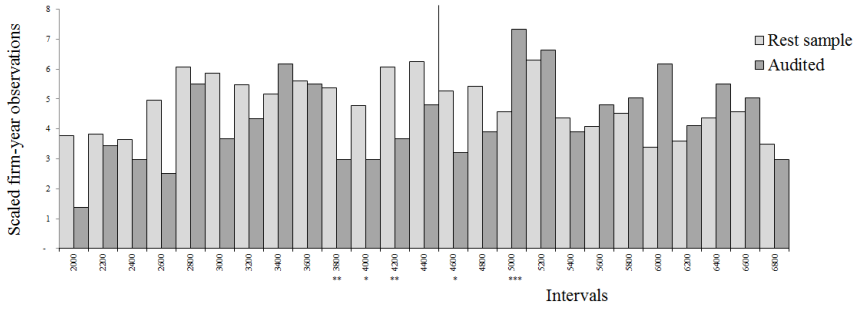
Figure 5 – Histogram of distribution Audited sample



Focussing on the intervals that are close to the threshold, this difference in distribution becomes clearer. Figure 6 shows the scaled distributions of the total group and the audited group per interval. For all intervals around the threshold, the observations of the audited group are lower than they are for the Rest sample. For the intervals below the threshold, this observation is

consistent with the expectations. For the intervals above the threshold however, this observation is inconsistent with the expectations. The T-statistics can be seen in Appendix B-2.

Figure 6 – Histograms of distributions Rest sample vs. Audited sample



The abovementioned observations are supported by the statistical T-values of the intervals around the threshold. With the exception of the interval 4,400, the intervals just below the threshold are significantly lower in the Audited group, compared to the Rest group, with significance levels of $P < 0,01$ (interval 3,800), $P < 0,05$ (interval 4,000) and $P < 0,01$ (interval 4,200). Interval 4,600 is significantly lower ($P < 0,05$) for the audited group, compared to the total group and the interval 5,000 is significantly higher ($P < 0,005$) for the audited group compared to the total group. These results do not align with the expectations. The Audited group is expected to not be affected by the threshold, and show higher amounts just above the threshold. These low amounts of firm-year observations, together with the peak at interval 4,400 may however, indicate that companies manage their assets below the threshold, regardless of the other characteristics.

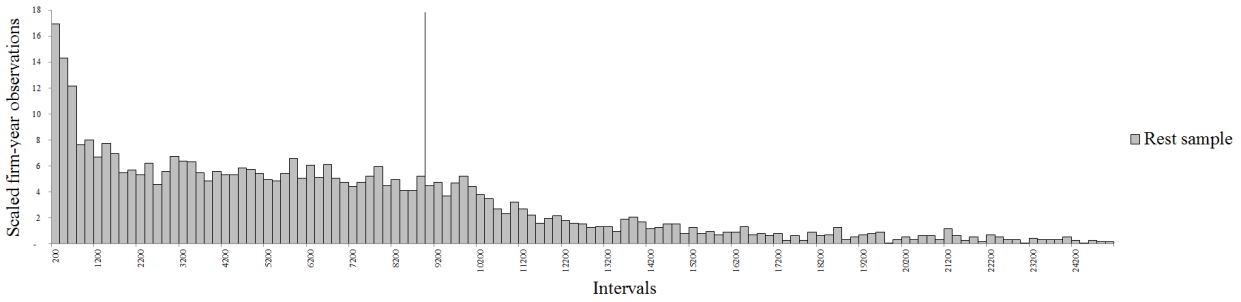
REVENUES

The final analysis of the first part of the empirical research consists of the revenue characteristic. Of the total number of firm-year observations (5,839), 98,8% falls within the range of intervals 0-80.000 (5,771 firm-year observations). Similar to the analyses of the other characteristics, observations outside of this range will be excluded to avoid effects of these outliers on the research. With regard to the 'Audited' group, the total number of firm-year observations is 1,346. Of these observations, more than 99% of the observations (1,327) fall within the specified range. This leaves 4,444 firm-year observations in the Rest sample. Table 2 shows the descriptive statistics of these samples.

Figure 7 shows the observations of the Rest sample, with the X-axis and the Y-axis similar to the previous analyses. The intervals are portrayed similarly to the intervals in the assessment of the asset threshold, whereas the interval 8,800 states the interval from 8,600,001 - 8,800,000 (in €

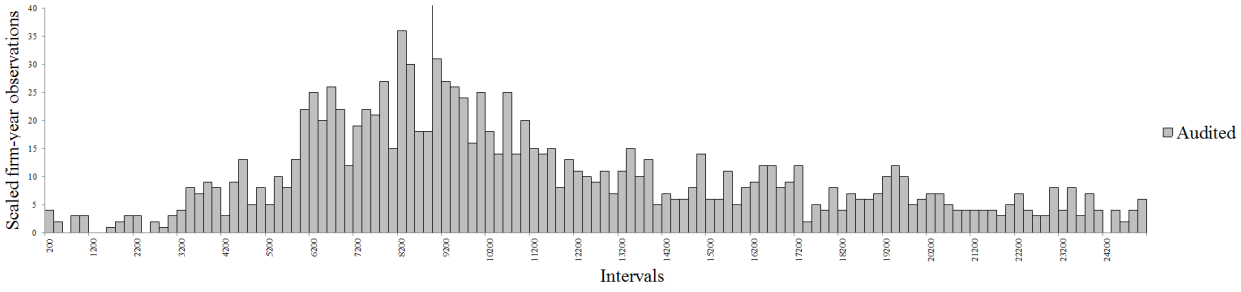
x 1.000). Aligning with the expectations, the Rest sample shows a higher number of observations just below the threshold, compared to the observations just above the threshold. The difference is not very visually significant however.

Figure 7 – Histogram of distribution of Rest sample



The Audited group shows a distribution that is positively skewed (Figure 8). Similar to the other characteristics, the audited group shows more peaks than the Rest group. The intervals around the thresholds show a distribution that is consistent with the expectations. The intervals just below the threshold show a significantly low amount of firm-year observations, compared to the intervals just above the thresholds. These intervals show a relatively high number of firm-year observations.

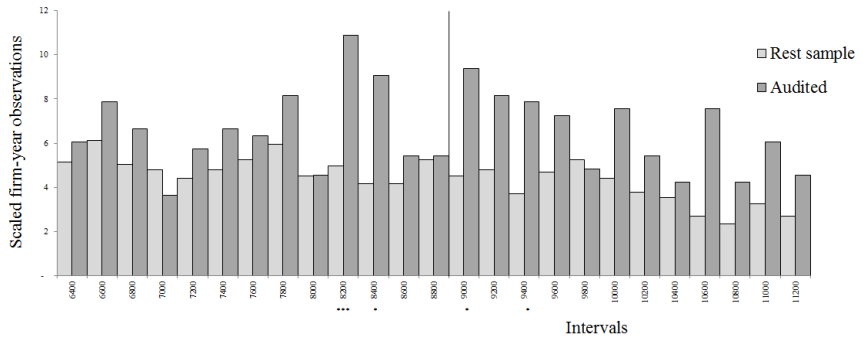
Figure 8 – Histogram of distribution Audited sample



When focussing on the intervals around the threshold (see Figure 9), the conclusions stated above become more evident. Although a peak would have been expected in the Rest group in the intervals just below the thresholds, the observations in these intervals do not significantly vary from those in the Audited group. However, the intervals just above the threshold show a much higher number of observations in the Audited group, compared to the Rest group. The ‘gap’ in the Audited group just below the threshold, may imply there has been management of the

characteristics in a different way than has been anticipated. However, the peak in the intervals 8,200 and 8,400 opposes this idea.

Figure 9 – Histograms of distributions Rest sample vs. Audited sample



Whereas my expectation was that the threshold of the revenues has an influence on the amount of revenues that have been presented, the threshold of the revenues may also influence the other characteristics. The Rest group shows relatively equal amounts of observations around the threshold. The Audited group however, shows significantly higher amounts of observations for the intervals 8,200 ($P < 0,005$), 8,400 ($P < 0,05$), 9,000 ($P < 0,05$) and 9,400 ($P < 0,05$). There is a significant gap in the two intervals just below the threshold. These results can be seen in Appendix B-3. Since the Audited group shows firm-year observations for which both the assets and the employees of the companies have exceeded their respective thresholds, the gap in this figure may show management of those characteristics, rather than the management of the revenues. The two intervals just below the threshold show companies of which the revenues at year *t* have not exceeded the threshold. This means that for these intervals, the companies may evade the statutory audit by managing either the assets or the employees below their respective thresholds. The statistically significant gap in these two intervals in the Audited group indicates that companies that have revenues between 8.4 million and 8.8 million indeed managed either of the other characteristics below its threshold. However, the same conditions are present for the companies in the intervals 8,200 and 8,400. The peaks within these intervals in the Audited sample propose counterarguments for this explanation. These results may be due to the fact that a lot of companies did not have to provide information on their profit and loss accounts, creating a distortion in the sample, compared to the actual population of the companies. The significant difference between the interval just above the threshold and the intervals just below the threshold however, does indicate that the revenue threshold may influence the management of the other characteristics below their respective thresholds.

OVERALL CONCLUSION PART I

The first part of the empirical research mainly provides conclusions that are opposite to my expectations. Whereas I expected a 'gap' of observations in the Rest group just above the thresholds, these gaps have only been observed in the analysis of the assets. The other analyses show opposite results.

With regard to the Audited groups, the expectations were a more consistent number of observations in the intervals around the respective thresholds. These expectations have not been met in any of the analyses. In the analysis of the assets, a gap just above the threshold is visible, which would have been expected in the Rest group, rather than the Audited group. In the analyses of the revenues and the employees, a gap just below the threshold has been observed. Whereas this gap is not statistically significant in the analysis of the employees, this gap just below the threshold in the Audited group is significant in the case of the revenues. Since this gap is absent in the group with the Rest of the observations, it may imply that the threshold of the revenues has an effect on the figures that are presented at the other characteristics. Based on these results, a further analysis on the companies that may have benefitted from management may be useful.

Table 2 – Statistics of samples (after elimination of outliers)

Panel A - Descriptive statistics 'Audited sample'				
	No. of observations	*Mean*	*Median*	*Std. Dev.*
Employees	1,735	54	48	40
Assets (€ x 1,000)	1,097	9,160	7,400	6,658
Revenues (€ x 1,000)	1,327	13,326	10,500	9,116

Panel B - Descriptive statistics 'Rest' sample				
	No. of observations	*Mean*	*Median*	*Std. Dev.*
Employees	4,050	37	27	36
Assets (€ x 1,000)	4,669	7,679	5,800	6,594
Revenues (€ x 1,000)	4,444	8,283	5,900	9,645

6.2 Part II

For the second part of the empirical research, I will analyse the data of companies that may benefit from management, rather than the data of only the companies that are statutorily audited. For each of the characteristics, the research will consist of three components. Initially, I will assess whether companies that may benefit from management of the characteristics, actually manage these characteristics below their respective thresholds. When assessing one characteristic, I will select all companies that have exceeded one of the other thresholds in year *t*. According to the theories, these companies may benefit from management of the specific characteristic. The distribution of these companies will be analysed. By using a simple T-test, similar to the test that has been conducted by Burgstahler and Eames (2006), I will statistically determine whether there has been management of these characteristics below their respective thresholds.

In a very similar manner, I will set up the other two components. The difference between these components is derived from the rules and regulations that apply to the exemption of audits. Since the exemption comes into place if companies have stayed below two of the thresholds for two consecutive years, this two-year span will be incorporated in the research. Firstly, I will analyse companies that have exceeded at least two thresholds in the year $t - 1$. The requirement of the first component is remains effective in the other two components. Effectively, this means that when analysing whether companies manage their revenues below the threshold in the second component, I will analyse all companies that have cumulatively exceeded either the asset threshold or the employee threshold at *t*, and have exceeded two or three thresholds at $t - 1$. In the selection, it does not matter which of the three thresholds have been exceeded at $t - 1$.

The analysis of the third component will be equal to the second component, with the only exception that instead of selecting companies that have exceeded at least two of the three thresholds at $t - 1$, I will select companies that have either not exceeded any of the thresholds, or that have exceeded one of the thresholds at $t - 1$.

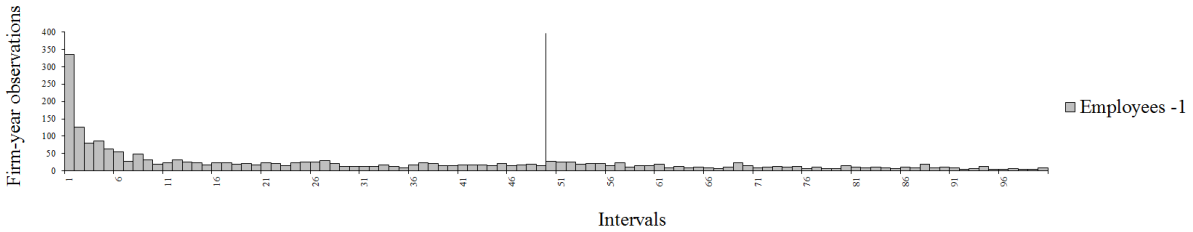
The second and third analyses will be executed to test whether companies engage in management if they have exceeded two of the thresholds in the previous year (component two), or whether companies engage in management more consistently (component three).

EMPLOYEES

The first characteristic that will be assessed, is the employee characteristic. Of the total sample of firm-year observations (5,839), 2,445 (after elimination of outliers 2,428 remain) firm-year observations consist of companies that have exceeded either the asset threshold or the revenue threshold. Table 3 shows the descriptive statistics of this sample. This analysis will give an indication on whether companies use employees as a means to be exempted from statutory audit. In part II of the empirical research, I will use the same intervals as I do in part I of the research. By using the intervals 1-200, the effects of outliers have been eliminated.

As can be seen in Figure 10, the distribution of the companies that have exceeded either the revenue threshold or the asset threshold is very similar to the Rest sample of the companies (Figure 1). In contrast to Figure 1, the Y-axis shows the number of firm-year observations per interval, rather than scaled firm-year observations. Contrary to the expectations, a peak is visible at the interval of 50 employees. Since this is the interval that is just above the threshold of 49 employees, management of employees would have been implied a low amount of firm-year observations at the interval of 50 employees, and a high number of firm-year observations at interval 49. The opposite of these expectations can be observed from Figure 10. When looking at the T-statistics (Appendix B-4), it can be concluded that none of the intervals show an amount of firm-year observations that is significantly different from a smooth slope. These observations would indicate that the number of employees is not being used to be exempted from statutory audits, even though I deemed the management of employees to be the easiest of the characteristics to manage. Further analysis may provide insight in whether the employees have indeed not been used to be exempted from statutory audits.

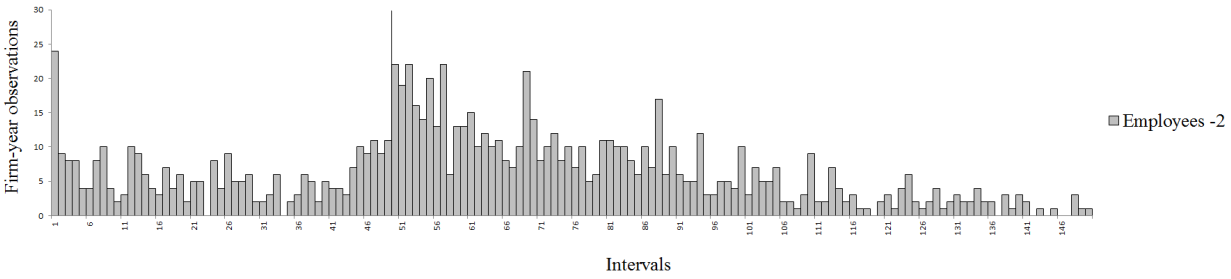
Figure 10 – Histogram of total sample with incentive



When looking at the companies for which either the revenue threshold or the asset threshold has been exceeded, and for which at least two of the thresholds have been exceeded at $t - 1$ (Figure 11), the distribution is very different from the Rest sample. The sample contains 970 firm-year

observations, and the distributions of the sample consists mainly of different peaks, of which the most concentrate between the intervals 50-55. Table 3 shows the descriptive statistics of this sample. These peaks are inconsistent with the expectations. Due to the threshold at interval 49, management of employees would have been indicated by a high number of firm-year observations at interval 49 and the intervals below interval 49, and a low number of observations at interval 50 and further. The peak at interval 50 is statistically significant at $P < 0.05$ (Appendix B-5). Since this sample consists of companies that exceeded at least two of the thresholds at year $t - 1$, this means that the sample may contain companies that have exceeded two of the three thresholds at $t - 2$ as well. For these companies, the management of the employees would not have been beneficial, since the regulations state that companies need to stay below the thresholds for at two consecutive years. The inclusion of these firm-year observations may be the cause of results contrary to the expectations. The peak at the intervals above the threshold may be due to a large number of such companies. For other companies, being in the interval 50 may mean that they will be statutorily audited, although they could have prevented this statutory audit by engaging in any of the management activities as stated in previous sections. Since there is still diversity within this group, a conclusive answer on whether companies use the number of employees to avoid statutory audits cannot be given. This sample does however, give strong indications that this management is not the case.

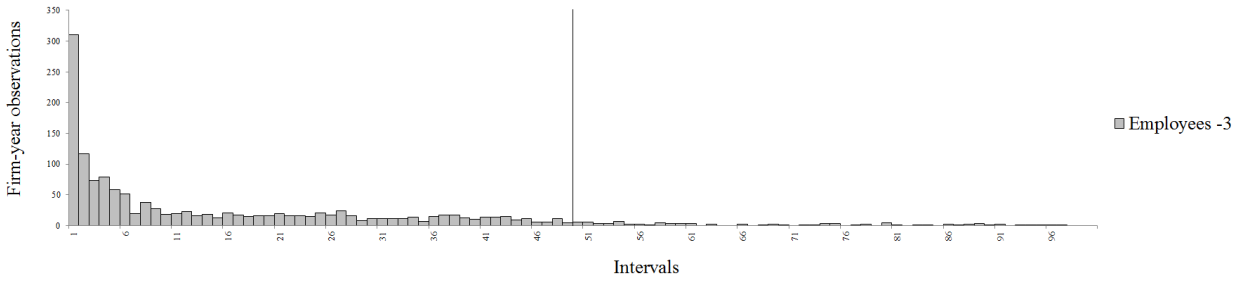
Figure 11 – Histogram of distribution of sample with incentive (Year t – 1 >2 thresholds)



The sample with companies that have exceeded either the revenue threshold or the asset threshold at year *t*, and have exceeded less than two thresholds at year $t - 1$ shows a distribution that is similar to the Rest sample (Figure 1). This sample contains 1,458 firm-year observations. Table 3 shows the descriptive statistics of this sample. Similar to the other samples of the employee characteristic, this distribution shows no consistency with the expectations. In this sample, the interval 49 contains less firm-year observations than interval 50. The differences are much smaller than in the previous sample, resulting in the fact that none of the intervals are significantly different from a smooth slope (Appendix B-6). Similar to the other analyses

regarding the employee threshold, this sample shows no significant sign of management of the employees to stay below the respective threshold.

Figure 12 – Histogram of distribution of sample with incentive (Year t – 1 <2 thresholds)



Based on the results of the three different analyses, it can be concluded that the employee figure is not significantly managed below the threshold within this sample. Companies that have exceeded one of the other thresholds do not engage in management of the employee number to avoid statutory audits. Since all analyses generate similar results (which are opposite of the expectations), the $H1_0$ hypothesis can therefore not be rejected.

Table 3 – Statistics of 'Employee' samples (after elimination of outliers)

Descriptive statistics				
	No. of observations	*Mean*	*Median*	*Std. Dev.*
Sample 1 (Total sample)	2,428	37	26	37
Sample 2 (year *t* – 1 < 2 thresholds exceeded)	970	65	8	37
Sample 3 (year *t* – 1 > 2 thresholds exceeded)	1,458	18	62	23

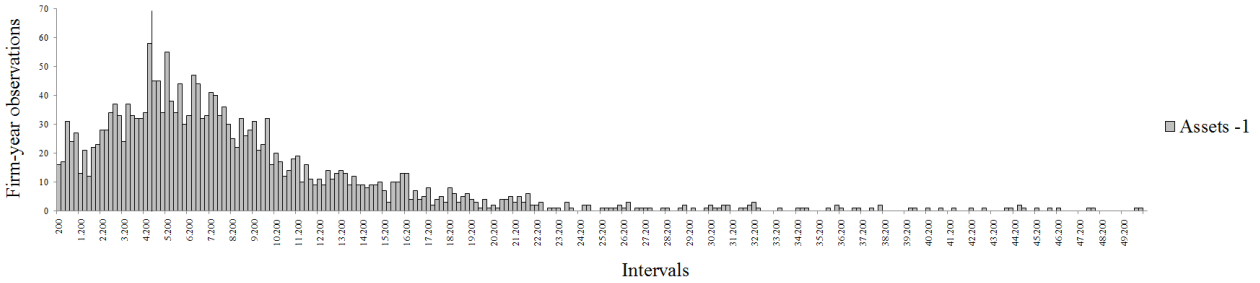
ASSETS

Of the total sample of 5,839 firm-year observations, 2,158 (after elimination of outliers 2,131 remain) firm-year observations consist of companies that have exceeded either the revenue or the employee threshold at year *t*. Table 4 shows the descriptive statistics of this sample. Similar to the analysis of the assets in Part I, the intervals contain companies in a range of 200,000. The values on the x-axis show the upper boundary of the interval, which is included in the interval. Since the threshold for the assets is set at 4,400,000, the interval of 4,400 and its surrounding intervals are of most importance. The interval 4,400 contains firm-year observations of which the total assets amount to any of the figures from 4,200,001 until and including 4,400,000. Intervals will be

called by their upper boundary, and as they are presented in the graphs (in € x 1,000) from this point.

Figure 13 shows a distribution that approaches a normal distribution, similar to the distribution of the Rest sample (Part I). A very clear difference between the distribution of the Rest sample and this sample, is the peak that is shown in interval 4,400. Since this interval falls directly below the threshold, this peak is consistent with the expectation in case of management.

Figure 13 – Histogram of distribution of sample with incentive

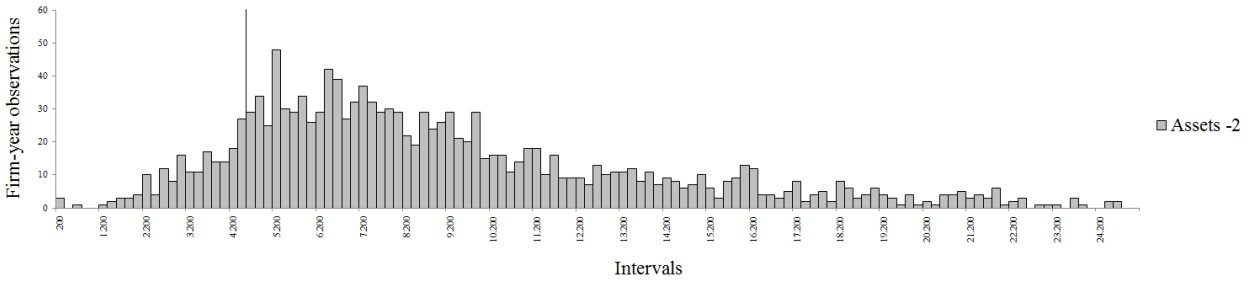


The intervals just above the threshold (4,600; 4,800 and 5,000) are all lower than the interval 4,400. Although these intervals are not significantly different from their expectations, the gap in these intervals compared to their adjacent intervals (4,400 and 5,200) shows indications of management. Where a normal distribution would show a lower amount of firm-year observations in the interval 4,400 and more observations in the intervals right of interval 4,400, the exact opposite is the case. This deviation from a smooth slope is verified by the T-statistic for the interval 4,400 (at $P < 0{,}001$, see Appendix B-7). Since the T-statistic is based on the expectation of firm-year observations (which comprises the adjacent intervals), the intervals 4,600 and 4,800 show no significant deviation from a smooth slope. The significant values for the intervals 4,400 and 5,200 indicate that there is a significant gap between these intervals, since they are of similar height, whilst the intervals between these intervals are significantly lower. These findings provide evidence on the management of assets to stay below the threshold.

The next sample to be analysed is the sample that contains companies which have exceeded either the revenue or the employee threshold at year *t*, and have exceeded more than one threshold at year $t - 1$. Table 4 shows the descriptive statistics of this sample. Figure 14 shows a distribution that contains a peak mainly above the threshold. In case of management, this peak would have been expected just below the threshold, similar to figure 13. Contrary to these

expectations, interval 4,400 shows an amount of firm-years that is just a little above the expectation. The absence of a significant T-statistic (see Appendix B-8) indicates that companies in this sample do not significantly manage their assets below the threshold, if they have exceeded either of the other thresholds, and if they cumulatively exceeded two of the three thresholds in year $t - 1$.

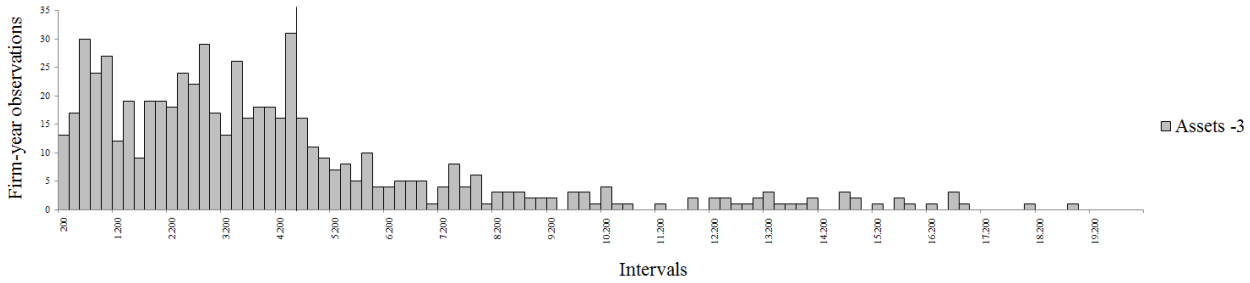
Figure 14 – Histogram of distribution of sample with incentive (Year t – 1 >2 thresholds)



These results, together with the results from the previous component (showing a significant peak at interval 4,400) suggest that companies do not use assets to stay below the thresholds every other year. The results rather suggest that companies manage their assets continuously, in order to stay below the threshold for more consecutive years. This suggestion is supported by the final analysis regarding the asset threshold.

The final sample that is analysed with regard to the assets, is the sample that contains companies that have exceeded either the revenue or the employee threshold, and have cumulatively exceeded less than two of the thresholds at year $t - 1$. Table 4 shows the descriptive statistics of this sample. Figure 15 does not show a specific trend, except for the fact that the number of firm-year observations decreases significantly after the interval 4,400. This sample consists of firm-year observations for which the companies have exceeded either the threshold of the revenues or the employees. Cumulatively, these companies have exceeded less than two of the three thresholds at year $t - 1$. This sample consists of 625 firm-year observations. Taking into consideration the type of firm-years of which this sample consists, the significant T-value for the interval 4,400 indicates that companies use management activities to keep the assets just below the threshold for multiple consecutive years. The significant T-values (see Appendix B-9) in the adjacent intervals to 4,400 are significant mainly because of the high amount of firm-year observations within interval 4,400.

Figure 15 – Histogram of distribution of sample with incentive (Year t – 1 <2 thresholds)



Based on the three specific analyses, it can be concluded that managers use the management of assets to stay below the respective threshold. This has been indicated by the significant T-value in the first analysis of the assets. The majority of these management activities are performed in order to constantly keep the assets below the thresholds, rather than determining whether or not to keep the assets below the threshold, based on prior year's figures. This result is in contrast with the expectations. Where it was expected that companies have more incentive to manage their assets when two or three thresholds have been exceeded in year $t - 1$, this does not seem to be the case. Due to the easy possibility of this type of management, companies are in the ability to constantly keep their assets below the respective threshold. This is supported by the results that are derived from the second analysis, stating that there is no specific management of assets in the case of the exceedance of two of the thresholds at year $t - 1$. These statistically significant results imply that $H2_0$ can be rejected with respect to the amount of thresholds that have been exceeded in year *t*, but not with respect to the amount of thresholds that have been exceeded in year $t - 1$.

Table 4 – Statistics of 'Asset' samples (after elimination of outliers)

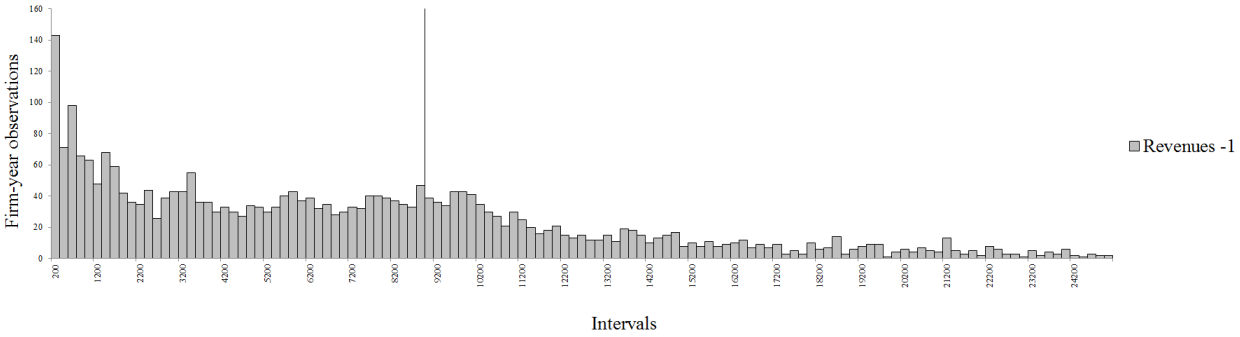
Descriptive statistics (€ x 1,000)				
	No. of observations	*Mean*	*Median*	*Std. Dev.*
Sample 1 (Total sample)	2,131	8,347	6,700	6,907
Sample 2 (year $t - 1 < 2$ thresholds exceeded)	1,506	9,961	8,000	6,898
Sample 3 (year $t - 1 > 2$ thresholds exceeded)	625	4,456	3,300	5,160

REVENUES

Of the total sample of firm-year observations (5,839), the group for which the companies have exceeded either the asset or the employee threshold at year *t* counts 3,188 (3,140 remain after elimination of outliers) firm-year observations. Table 5 shows the descriptive statistics of this sample. The distribution of these observations is displayed in figure 16. Similar to the asset threshold, the intervals consist of companies within a range of € 200.000. Every interval includes its upper boundary. The upper boundaries are presented in the graph. From this point, the intervals will be named by these upper boundaries (in € x 1.000).

Figure 16 shows a distribution that has a single peak at interval 8,800. The intervals just above the threshold (9,000; 9,200 and 9,400) show a gap compared to the intervals 8,800 and 9,600. These observations are consistent with the expectations in case of management of the revenues. The amount of firm-years of which interval 8,800 consists, is significantly larger than its expectation. The gap just above the threshold however, is not statistically significant (see Appendix B-10).

Figure 16 – Histogram of distribution of sample with incentive

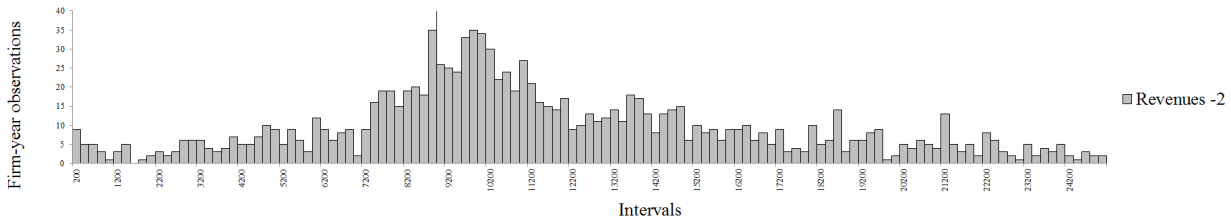


Besides the gap just above the threshold, a gap just below interval 8,800 is visible. The number of observed firm-years in interval 8,600 is significantly lower than its expected value. This is, however, mainly due to the high number of firm-years in interval 8,800. The gap just below interval 8,800 may exist due the data availability. Since companies that are qualified as small entities do not have to publish information on their profit & loss account, these companies may have refrained from publishing this info, and may therefore be 'missing' in the sample.

The second sample with respect to revenues that is to be analysed, is the sample that includes companies that have exceeded either the asset or the employee threshold at year *t*, and have cumulatively exceeded two or three of the thresholds at year *t* – 1.Table 5 shows the descriptive

statistics of this sample. Figure 17 shows firm-year observations for which the companies have exceeded either the employee threshold or the asset threshold, and have cumulatively exceeded at least two of the three thresholds at year *t* – 1. When considering the theory on the management of revenues, this group would be expected to engage in most of the revenue management. The distribution shows an increasing amount of firm-year observations per interval. The first peak is visible at interval 8,800. The intervals just above the threshold show a gap, which is similar to the distribution of the previous analysis. From interval 9,600, the distribution shows a peak, after which the amounts of firm-year observations per interval decrease. These observations are consistent with the expectations in case of management of the revenues. The peak at interval 8,800 is significant at $P < 0.001$ (see Appendix B-11). Mainly due to the peak at interval 8,800, the interval 8,600 is significantly lower than the expected value (at $P < 0.001$). Consistent with the analysis of the assets, the intervals in the gap just above the threshold are not individually significant. This is due to the fact that the expected values of these interval are interdependent. The difference between interval 9,400 and interval 9,600 is significant however.

Figure 17 – Histogram of distribution of sample with incentive (Year t – 1 >2 thresholds)



These results indicate the use of management of revenues to keep the revenues just below the threshold, if the company has exceeded at least two of the three thresholds in the previous year. Since revenues cannot be constantly pushed forward, this result is consistent with the expectations.

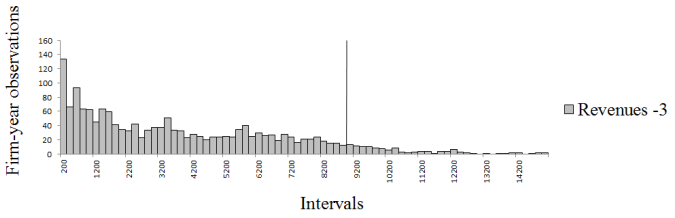
The final analysis comprises the firm-year observations for which the companies exceed either the asset or the employee threshold, and cumulatively exceeded less than two of the three thresholds at year *t* – 1. This sample consists of 1,721 firm-year observations. Table 5 shows the descriptive statistics of this sample. The distribution shows a downward slope, with a few peaks. The interval just below the threshold (8,800) shows a little gap compared to its adjacent intervals. This gap is in contrast with the general expectations. The expectations in case of management would usually be that the interval just below the threshold shows a peak, and the intervals just above the threshold shows a gap. In this sample however, the exact opposite can be observed. The

interval just below the threshold shows a gap, whilst the interval just above the threshold shows a slight increase. These results are not statistically significant however.

Despite the lack of statistical power in this sample (see Appendix B-12), the intervals around the threshold show that companies may use management to keep the revenues below the threshold only if they have exceeded two or more thresholds in the previous year (previous analysis), rather than on a continuous basis. These results are consistent with the theories, since revenues cannot simply be 'pushed' forward on a continuous basis.

However, the lack of data may result in a distribution as shown in Figure 18, while the population would actually show a peak below the threshold. It has to be taken into consideration that companies that did not have to provide such information may have a large impact on this sample.

Figure 18 – Histogram of distribution of sample with incentive (Year t – 1 <2 thresholds)



The analysis of the revenue characteristic shows that a significantly large amount of observations can be found in the interval of 8,800, which is the interval just below the threshold, for companies that have exceeded one of the other thresholds. These observations imply management of revenues in order to stay below the thresholds. This management is however, not visible in every subcategory. For companies that have not exceeded two or more thresholds at year $t - 1$, it seems that the exceedance of one threshold does not trigger companies to manage the revenues below their revenue threshold. This result may be due to the lack of firm-year observations.

For companies that have exceeded either of the thresholds at year t and have cumulatively exceeded two or more thresholds at year $t - 1$, the interval 8,800 does show a significantly greater amount of observations than its adjacent intervals. These results would imply that companies manage their revenues, bases on both the amount of thresholds exceeded at year t, and the amount of thresholds exceeded at year $t - 1$. Despite these results, the lack of information may be of importance here. Since companies that are classified as small do not have to publish all information, the results in the third analysis may be subject to a selection bias. As the sample in the second revenue analysis (Figure 17) contains the information on companies that have exceeded two or more thresholds in year T – 1, this means that the sample may contain

companies that have been classified as medium-sized companies in previous years. If they then manage their characteristics (including revenues) for two consecutive years, the company will still be classified as medium sized in this first year. It will thus fall within the analysis that has been done in Figure 17. The second year however, the company will be classified as small due to the management, and my therefore refrain from providing information. This means that the company has been included in the group of the second analysis, but has not been included in the sample of the third analysis, even though it would have been included in this group if it had published information on the revenues. It may therefore seem possible that the group of the final analysis has been more prone to effects of the lack of information.

Based on the results provided above, the expectations regarding the management of revenues have been met. The companies significantly manage their revenues if either the asset threshold or the employee threshold has been exceeded. The power of the results increases as the proposed incentives increase, meaning that companies that have exceeded two or three thresholds in year t – 1 have engaged in more revenue management than the companies that exceeded less than two thresholds in year t – 1. The $H3_0$ hypothesis can therefore be rejected.

Table 5 – Statistics of 'Revenue' samples (after elimination of outliers)

Descriptive statistics (€ x 1,000)				
	No. of observations	*Mean*	*Median*	*Std. Dev.*
Sample 1 (Total sample)	3,140	9,549	6,900	10,812
Sample 2 (year t – 1 < 2 thresholds exceeded)	1,419	16,105	11,700	12,651
Sample 3 (year t – 1 > 2 thresholds exceeded)	1,721	4,143	3,200	4,089

6.3 Robustness testing

Due to the research design (simple T-tests) the results are very dependent on which intervals are considered in the tests. As stated before, some of the outliers have been excluded from the sample, in order to make sure they do not have an influence on the T-statistics that is too large. The robustness tests and their results will be stated and explained in the next part. However, these results are not tabulated.

Part I

Since the T-statistics are based on the average number of observations per interval the intervals to the right of the sample that do not include observations impact the scaled observations. In order to test whether the results would have been similar in case of the elimination of these 'empty' intervals, I have done the same analyses without these intervals. In case of the employees, the results were that the distributions did not differ significantly around the thresholds. The results remained similar when the amount of included intervals was decreased to 175 and 100.

In case of the assets, the initial tests showed significant results for the intervals 3,800, 4,000, 4,200, 4,600 and 5,200. When decreasing the amount of considered intervals to 200 (with 40,000 as the last interval taken into consideration), the significance of the difference in the intervals decreases. Interval 4,000 is no longer significant at $P < 0.05$. The gap in the Audited sample becomes less significantly different from the gap in the R sample. Most of the intervals however, remain significant at a significance of $P < 0.05$. Since the Audited sample contains a lot less intervals with firm-year observations beyond interval 40,000 compared to the Rest sample, the scaled observations per interval were affected to a higher extent by the elimination than the scaled observations per interval in the Rest sample. This resulted in a lower significance for the difference in scaled observations between the samples. Since many of the intervals in the Audited sample contain no firm-year observations beyond the interval 25,000, the robustness test will be extended to exclude all intervals higher than 25,000. This test generates similar results compared to the previous test, with the exception that interval 4,600 is no longer significant at a P level of 0.05. From the robustness test it can be concluded that, although the level of significance decreases, the greatest part of the gap in the Audited sample around the threshold remains significant at a level of $P < 0.05$.

With respect to the revenue characteristic, the initial test showed a significant gap of observations in the intervals just below the threshold. This is indicated by the significance in the different values of scaled firm-year observations for the intervals 8,200, 8,400 and 9,000. Due to the lack of firm-year observations in the intervals beyond 40,000 in the Audited sample, the robustness test will exclude these intervals from the analysis. Due to this elimination, the only interval that remains significant at a level of $P < 0.05$ is interval 8,200. This means that the significant results in the difference between the scaled observations depended largely on the inclusion of the 'empty' intervals.

Due to the results of the robustness tests of the analysis of Part I, it can be stated that although the first part of the empirical research may indicate management actions of characteristics around the respective thresholds, these results do not provide a decisive answer on whether there is actual management of the characteristics. The lack of robustness in the results imply that these results do not provide strong evidence.

Part II

Similar to the T-tests in Part I, the T-tests in Part II depend largely on whether or not the 'empty' intervals have been included. I will therefore also test whether the exclusion of these intervals have significant effects on the results. Besides the inclusion of such intervals, the T-tests in Part II also depend on the expected value of firm-years within an interval. Since the calculation of these expected values are not very robust (they represent the average of observed firm-years in the two adjacent intervals), the robustness of these results will be tested as well. These robustness tests will be executed similar to the tests that have been done by Burgstahler and Eames (2006). In their research, they test the robustness by calculating the expected value based on the four adjacent intervals and based on the six adjacent intervals (instead of only the two adjacent intervals). This means that, for instance, in the case of the revenues, the robustness of results in interval 8,800 will be tested by calculating the expected amount based on intervals 8,400, 8,600, 9,000 and 9,200 for one of the robustness test. The last robustness test will include intervals 8,200 and 9,400 as well. In order to test whether the results of Part II are robust, these tests will be executed together with the same robustness test as Part I. Due to the large number of analyses, I will focus the robustness tests on the analyses that have generated significant results.

In case of the analysis of the distributions of firm-year observations in the employee intervals, the initial tests generated a significant result at interval 50 for the sample in which the companies exceeded two or more thresholds at year $t - 1$ (Appendix B-5). When increasing the number of intervals taken into consideration to calculate the expected amount of firm-year observations, this result remains significant at a significance level of $P < 0.05$. When excluding the intervals above 150 however, this result does not remain significant. This means that the significance in the initial results is mainly based on the 'empty' intervals beyond interval 150. Since most of these intervals contain no firm-year observations, both the expected and the realised amount of firm-year observations equal zero. These intervals therefore decrease the standard deviation of the total sample, if they are taken into consideration. The fact that excluding these intervals has an effect on the significance of the results, indicates that the initial results are not very robust.

In case of the asset characteristic, the tests generated significant results below the threshold for the total sample of companies that have exceeded either the employee threshold or the revenue threshold (Appendix B-7). These results remained significant with both of the robustness tests. Besides these significant results below the threshold, the gap just above the threshold also remained significant. This would imply robust significant results that indicate assets are being managed just below the threshold. With respect to the companies that have exceeded either of the two other thresholds at year *t*, and cumulatively exceeded less than two of the thresholds at year *t* – 1, the significant result just below the threshold (Appendix B-9) remained significant at a level of $P < 0{,}001$ after both robustness tests. It can therefore be stated that the results of companies managing their assets below the thresholds on a constant basis, is both significant and robust. On the other hand, companies that have exceeded either the revenue threshold or the employee threshold, and exceeded two of the three thresholds at year $t - 1$, the significant results just above the threshold (Appendix B-8) remained significant after the robustness tests.

With regard to the revenue thresholds, the initial tests generated significant results just below the threshold for all companies that have exceeded either the asset threshold or the employee threshold at year *t*. These results remained significant after the execution of the robustness tests. For the test in which the expected value of an interval is calculated by an increasing amount of adjacent intervals, the results even become more significant. In case of the significant results that have been generated in the group of companies that have exceeded either the asset threshold or the employee threshold in year *t*, and have exceeded two or more thresholds at year $t - 1$, the robustness tests generated results that remained significant at a level of $P < 0.001$. These results indicate that companies significantly manage their revenues below the threshold, in order to avoid an exceedance of two or more thresholds for two consecutive years.

7 Limitations and recommendations for further research

The main limitation in this research has been the availability of data. Since companies that are classified as 'small companies' do not have to deposit financial statements that provide information on the revenues, many firm-year observations that might have been of interest could not be included in the research. These firm-year observations may have had a significant influence on the sample, and therefore on the outcome of my analyses. However, due to the restrictions in the rules and regulations, it may be likely that the results would have been more significant if the information had been included in the research. Since only companies that are classified as 'small' can refrain from providing such information, companies that have been statutorily audited could not have refrained from providing the information. Therefore, if companies that have had the opportunity to manage their characteristics below the respective thresholds, but did not take advantage of these opportunities, these companies would have been classified as 'medium' entities. Since these entities have been incorporated in the sample, the probability of these companies having an effect that eliminates the significant results, decreases.

Another limitation within this research, is the fact that the incentives of companies to manage their characteristics in order to avoid statutory audits are not always visible. In this research, I have tried to assess these incentives by creating groups depending on the amounts of thresholds that have been exceeded either at year *t*, or at year $t - 1$. However, this research did not include the division between companies that have been audited voluntarily. Since banks or investors may demand of companies that their financial statements are being audited, even if these companies are classified as 'small' companies, the incentives of these companies to stay below the thresholds may not be to avoid audits (as they are being audited voluntarily). Even though these companies may not have any incentives to manage their characteristics, they are included in the groups that considered companies with an incentive to manage their earnings.

A final limitation deals with the problem that the results of these tests do not provide information on the actual incentive to manage the characteristics. The classification of a company as 'small' does not only result in the exemption of statutory audits. Such a classification also results in the exemption of other administrative burdens. It may therefore be argued that the incentives were not to avoid statutory audits, but to be exempted of any of the other administrative burdens. The avoidance of audits is considered to be the main incentive to manage the characteristics however, due to both the financial and the time-consuming costs.

Due to these limitations, further research may be conducted to test the validity of the results posed in this research. In order validate these results, a similar research may be conducted with data of companies for which the limiting regulations do not apply. This may be done by focussing the research on companies that reside in a country without such rules or regulations. By assessing the total sample of companies that may benefit from management of the characteristics, a more generalizable conclusion may result from such a research.

Secondly, the research can be extended in order to create groups that portray the possible incentives better than what has been done in this research. By including information on the auditors, further research may provide insight on whether the exclusion of voluntarily audited companies may generate different results. The inclusion of information on (voluntary) audits may also provide information on which of the incentives counts most for companies to manage their characteristics.

8 Conclusion

Based on professional experiences, I expect that audits are seen as a nuisance and a burden for small sized companies. Since audits are initially meant to lower information asymmetry between managers and stakeholders, it would be logical that audits are conducted on companies' financial statements for which the stakeholders are not directly involved in the day to day management of the business. Contrary to this however, audits are mandatory to companies of a certain size. The size of a company is classified by three thresholds, namely the total amount of assets, the average amount of employees during a year and the total amount of revenues. If a company exceeds two of these three small size thresholds for two consecutive years, the company is classified as medium sized, and is obligated to have its financial statements audited. Such thresholds seem to be subjective, and are prone to manipulation. Based on the research that has been conducted on earnings management, I have created a theoretical background that identifies possibilities for managers to manage their companies' characteristics below their respective thresholds. Whether managers indeed manage these characteristics below their respective thresholds, is tested by using a simple T-test on the distributions of the sample of companies. The total sample consists of Dutch companies that are classified as medium or small, and encompasses firm-year observations from 2006-2015. Since Dutch companies that are classified as small companies are not mandated to publish information on their profit and loss accounts, a lot of firm-year observations were unusable for this research, as these companies did not publish information that included the total revenues for that firm-year. To assess the management of characteristics, I chose to assess each characteristic separately.

In order to use the most reliable information in the research, I started the empirical aspect of the research with an analysis of the firm-years that are most complete, namely the information of all companies that have been audited, regardless of the presented amount of the assessed characteristic.

The analyses of the first part showed various results. Whilst the analysis of the employees provided no statistical significant differences between the samples with respect to the intervals around the threshold, the analysis on the asset threshold resulted in findings that were contrary to the expectations. The analysis of the revenues did not completely align with the expectations. In this analysis, the companies that have been audited regardless of the amount of revenues showed a distribution that aligns with the expectations. The Rest sample however, does not provide a distribution that was expected beforehand. The robustness tests showed that the results were not robust. It must be considered that the lack of significant, robust results can be either due to the

lack of management, or the lack of firm-year observations due to companies not presenting their profit and loss accounts.

In the second part of the research, I used the companies for which one of the other two thresholds have been exceeded. This part of the empirical research showed significantly more firm-year observations in the intervals just below the thresholds of the revenues and the assets. It therefore indicates that companies use management of revenues and assets to avoid a classification of a medium sized company. This part of the research further showed that in case of the assets, the results are more significant for companies that exceeded less than two of the three thresholds in year $t - 1$, indicating that companies engage in the management of assets on a continuous basis. Contrary to this finding, the revenue characteristic showed that the results were much more significant for companies that exceeded two or more thresholds in year $t - 1$, indicating that companies may rather manage their revenues in order to avoid two consecutive years of exceeding two thresholds, instead of managing their revenues on a continuous basis. These findings have proven to be significantly more robust than the findings of Part I. Also in this part of the research however, it must be considered that the lack of firm-year observations may have a huge influence on the results, possibly making them even more significant and robust. Further analysis on companies in different countries, or including information on the auditors may provide more conclusive evidence. This research does however indicate that companies manage their assets and revenues below their respective thresholds to avoid statutory audits.

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10 Appendix

10.1 Appendix A – Sample selection

Eliminations of observations		
	Firms	*Firm-year observations*
Initial download	114,792	771,819
Lack of information on revenues	*109,173*	*757,576*
Remaining firm-year observations	5,619	14,243
Elimination of large and small entities	*1,043*	*3,068*
Remaining firm-year observations	4,576	11,175
Lack of information on two consecutive years	*2,376*	*5,336*
Total remaining firm-year observations	**2,200**	**5,839**

10.2 Appendix B – Significance tables

Appendix B-1 Employees Total vs Audited

Initial T-Test — Std Dev differences: 0.99

	Audited sample		Rest sample				
Interval	*Observed*	*Scaled*	*Observed*	*Scaled*	*Difference*	*T-statistic*	*Sign.*
37	17	2.0	31	1.5	0.4	0.4342	
38	8	0.9	43	2.1	-1.2	-1.2163	
39	13	1.5	31	1.5	0.0	-0.0327	
40	18	2.1	41	2.0	0.1	0.0509	
41	8	0.9	30	1.5	-0.6	-0.5663	
42	19	2.2	34	1.7	0.5	0.5176	
43	22	2.5	29	1.4	1.1	1.1178	
44	14	1.6	27	1.3	0.3	0.2840	
45	15	1.7	41	2.0	-0.3	-0.2993	
46	11	1.3	26	1.3	0.0	-0.0161	
47	14	1.6	29	1.4	0.2	0.1840	
48	19	2.2	33	1.6	0.6	0.5676	
49	8	0.9	36	1.8	-0.9	-0.8663	
50	27	3.1	42	2.1	1.0	1.0513	
51	20	2.3	36	1.8	0.5	0.5343	
52	18	2.1	40	2.0	0.1	0.1009	
53	24	2.8	30	1.5	1.3	1.3012	
54	20	2.3	31	1.5	0.8	0.7843	
55	24	2.8	34	1.7	1.1	1.1012	
56	10	1.2	24	1.2	0.0	-0.0329	
57	12	1.4	33	1.6	-0.2	-0.2494	
58	18	2.1	23	1.1	0.9	0.9509	
59	14	1.6	29	1.4	0.2	0.1840	
60	20	2.3	35	1.7	0.6	0.5843	
61	20	2.3	27	1.3	1.0	0.9843	

Appendix B-2 **Assets Total vs Audited**

Initial T-Test

Std Dev differences
0.85

	Audited sample		Rest sample				
Interval	*Observed*	*Scaled*	*Observed*	*Scaled*	*Difference*	*T-statistic*	*Sign*
2000	6	1.4	70	3.8	-2.4	-2.8194	**
2200	15	3.4	71	3.8	-0.4	-0.4539	
2400	13	3.0	68	3.7	-0.7	-0.8034	
2600	11	2.5	92	4.9	-2.4	-2.8650	**
2800	24	5.5	113	6.1	-0.6	-0.6881	
3000	16	3.7	109	5.9	-2.2	-2.5935	*
3200	19	4.3	102	5.5	-1.1	-1.3400	
3400	27	6.2	96	5.2	1.0	1.1995	
3600	24	5.5	104	5.6	-0.1	-0.1175	
3800	13	3.0	100	5.4	-2.4	-2.8325	**
4000	13	3.0	89	4.8	-1.8	-2.1350	*
4200	16	3.7	113	6.1	-2.4	-2.8472	**
4400	21	4.8	116	6.2	-1.4	-1.6880	
4600	14	3.2	98	5.3	-2.1	-2.4358	*
4800	17	3.9	101	5.4	-1.5	-1.8164	
5000	32	7.3	85	4.6	2.8	3.2463	***
5200	29	6.6	117	6.3	0.3	0.4076	
5400	17	3.9	81	4.4	-0.5	-0.5482	
5600	21	4.8	76	4.1	0.7	0.8484	
5800	22	5.0	84	4.5	0.5	0.6110	
6000	27	6.2	63	3.4	2.8	3.2919	***
6200	18	4.1	67	3.6	0.5	0.6094	
6400	24	5.5	81	4.4	1.1	1.3409	
6600	22	5.0	85	4.6	0.5	0.5476	
6800	13	3.0	65	3.5	-0.5	-0.6132	

Appendix B-3 **Revenues Total vs Audited**

Initial T-Test

Std Dev differences
1.97

	Audited sample		Rest sample				
Interval	*Observed*	*Scaled*	*Observed*	*Scaled*	*Difference*	*T-statistic*	*Sign.*
6400	20	6.0	57	5.1	0.9	0.4574	
6600	26	7.9	68	6.1	1.7	0.8743	
6800	22	6.6	56	5.1	1.6	0.8103	
7000	12	3.6	53	4.8	-1.2	-0.5874	
7200	19	5.7	49	4.4	1.3	0.6706	
7400	22	6.6	53	4.8	1.9	0.9478	
7600	21	6.3	58	5.2	1.1	0.5651	
7800	27	8.2	66	6.0	2.2	1.1195	
8000	15	4.5	50	4.5	0.0	0.0107	
8200	36	10.9	55	5.0	5.9	3.0055	***
8400	30	9.1	46	4.2	4.9	2.4969	*
8600	18	5.4	46	4.2	1.3	0.6546	
8800	18	5.4	58	5.2	0.2	0.1045	
9000	31	9.4	50	4.5	4.9	2.4671	*
9200	27	8.2	53	4.8	3.4	1.7154	
9400	26	7.9	41	3.7	4.2	2.1120	*
9600	24	7.3	52	4.7	2.6	1.3007	
9800	16	4.8	58	5.2	-0.4	-0.2025	
10000	25	7.6	49	4.4	3.1	1.5918	
10200	18	5.4	42	3.8	1.6	0.8380	
10400	14	4.2	39	3.5	0.7	0.3615	
10600	25	7.6	30	2.7	4.8	2.4628	*
10800	14	4.2	26	2.3	1.9	0.9574	
11000	20	6.0	36	3.2	2.8	1.4201	
11200	15	4.5	30	2.7	1.8	0.9276	

Appendix B-4 **Employees test 1**

Initial T-Test			Std Dev differences 4.28		
	Employees -1				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign*
37	23	20.0	3.0	0.7004	
38	22	19.0	3.0	0.7004	
39	15	18.5	-3.5	-0.8172	
40	15	16.5	-1.5	-0.3502	
41	18	16.5	1.5	0.3502	
42	18	18.0	-	-	
43	18	17.0	1.0	0.2335	
44	16	20.0	-4.0	-0.9339	
45	22	15.5	6.5	1.5176	
46	15	19.5	-4.5	-1.0507	
47	17	17.5	-0.5	-0.1167	
48	20	16.5	3.5	0.8172	
49	16	24.0	-8.0	-1.8678	
50	28	20.5	7.5	1.7511	
51	25	27.0	-2.0	-0.4670	
52	26	22.0	4.0	0.9339	
53	19	23.5	-4.5	-1.0507	
54	21	20.5	0.5	0.1167	
55	22	18.0	4.0	0.9339	
56	15	22.5	-7.5	-1.7511	
57	23	13.0	10.0	2.3348	*
58	11	19.5	-8.5	-1.9846	*
59	16	13.5	2.5	0.5837	
60	16	17.5	-1.5	-0.3502	
61	19	13.0	6.0	1.4009	

Appendix B-5 **Employees test 2**

Initial T-Test			Std Dev differences 3.02		
	Employees -2				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign*
37	6	4.0	2.0	0.6626	
38	5	4.0	1.0	0.3313	
39	2	5.0	-3.0	-0.9939	
40	5	3.0	2.0	0.6626	
41	4	4.5	-0.5	-0.1656	
42	4	3.5	0.5	0.1656	
43	3	5.5	-2.5	-0.8282	
44	7	6.5	0.5	0.1656	
45	10	8.0	2.0	0.6626	
46	9	10.5	-1.5	-0.4969	
47	11	9.0	2.0	0.6626	
48	9	11.0	-2.0	-0.6626	
49	11	15.5	-4.5	-1.4908	
50	22	15.0	7.0	2.3190	*
51	19	22.0	-3.0	-0.9939	
52	22	17.5	4.5	1.4908	
53	16	18.0	-2.0	-0.6626	
54	14	18.0	-4.0	-1.3252	
55	20	13.5	6.5	2.1534	*
56	13	21.0	-8.0	-2.6503	**
57	22	9.5	12.5	4.1411	****
58	6	17.5	-11.5	-3.8098	****
59	13	9.5	3.5	1.1595	
60	13	14.0	-1.0	-0.3313	
61	15	11.5	3.5	1.1595	

Appendix B-6 **Employees test 3**

Initial T-Test			Std Dev differences 3.18		
	Employees -3				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign*
37	17	16.0	1.0	0.3145	
38	17	15.0	2.0	0.6290	
39	13	13.5	-0.5	-0.1572	
40	10	13.5	-3.5	-1.1007	
41	14	12.0	2.0	0.6290	
42	14	14.5	-0.5	-0.1572	
43	15	11.5	3.5	1.1007	
44	9	13.5	-4.5	-1.4152	
45	12	7.5	4.5	1.4152	
46	6	9.0	-3.0	-0.9435	
47	6	8.5	-2.5	-0.7862	
48	11	5.5	5.5	1.7297	
49	5	8.5	-3.5	-1.1007	
50	6	5.5	0.5	0.1572	
51	6	5.0	1.0	0.3145	
52	4	4.5	-0.5	-0.1572	
53	3	5.5	-2.5	-0.7862	
54	7	2.5	4.5	1.4152	
55	2	4.5	-2.5	-0.7862	
56	2	1.5	0.5	0.1572	
57	1	3.5	-2.5	-0.7862	
58	5	2.0	3.0	0.9435	
59	3	4.0	-1.0	-0.3145	
60	3	3.5	-0.5	-0.1572	
61	4	1.5	2.5	0.7862	

Appendix B-7 **Assets test 1**

Initial T-Test			Std Dev differences 3.73		
	Assets -1				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign.*
2000	23	25.0	-2.0	-0.5364	
2200	28	25.5	2.5	0.6705	
2400	28	31.0	-3.0	-0.8045	
2600	34	32.5	1.5	0.4023	
2800	37	33.5	3.5	0.9386	
3000	33	30.5	2.5	0.6705	
3200	24	35.0	-11.0	-2.9500	***
3400	37	28.5	8.5	2.2795	*
3600	33	34.5	-1.5	-0.4023	
3800	32	32.5	-0.5	-0.1341	
4000	32	33.0	-1.0	-0.2682	
4200	34	45.0	-11.0	-2.9500	***
4400	58	39.5	18.5	4.9614	****
4600	45	51.5	-6.5	-1.7432	
4800	45	39.5	5.5	1.4750	
5000	34	50.0	-16.0	-4.2909	****
5200	55	36.0	19.0	5.0954	****
5400	38	44.5	-6.5	-1.7432	
5600	34	41.0	-7.0	-1.8773	
5800	44	32.0	12.0	3.2182	***
6000	30	38.5	-8.5	-2.2795	*
6200	33	38.5	-5.5	-1.4750	
6400	47	38.5	8.5	2.2795	*
6600	44	39.5	4.5	1.2068	
6800	32	38.5	-6.5	-1.7432	

Appendix B-8 **Assets test 2**

Initial T-Test			Std Dev differences 3.06		
	Assets -2				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign.*
2000	4	6.5	-2.5	-0.8172	
2200	10	4.0	6.0	1.9613	
2400	4	11.0	-7.0	-2.2881	*
2600	12	6.0	6.0	1.9613	
2800	8	14.0	-6.0	-1.9613	
3000	16	9.5	6.5	2.1247	*
3200	11	13.5	-2.5	-0.8172	
3400	11	14.0	-3.0	-0.9806	
3600	17	12.5	4.5	1.4709	
3800	14	15.5	-1.5	-0.4903	
4000	14	16.0	-2.0	-0.6538	
4200	18	20.5	-2.5	-0.8172	
4400	27	23.5	3.5	1.1441	
4600	29	30.5	-1.5	-0.4903	
4800	34	27.0	7.0	2.2881	*
5000	25	41.0	-16.0	-5.2300	****
5200	48	27.5	20.5	6.7010	****
5400	30	38.5	-8.5	-2.7785	**
5600	29	32.0	-3.0	-0.9806	
5800	34	27.5	6.5	2.1247	*
6000	26	31.5	-5.5	-1.7978	
6200	29	34.0	-5.0	-1.6344	
6400	42	34.0	8.0	2.6150	*
6600	39	34.5	4.5	1.4709	
6800	27	35.5	-8.5	-2.7785	**

Appendix B-9 **Assets test 3**

Initial T-Test			Std Dev differences 2.37		
	Assets -3				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign.*
2000	19	18.5	0.5	0.2112	
2200	18	21.5	-3.5	-1.4781	
2400	24	20.0	4.0	1.6893	
2600	22	26.5	-4.5	-1.9004	
2800	29	19.5	9.5	4.0120	****
3000	17	21.0	-4.0	-1.6893	
3200	13	21.5	-8.5	-3.5897	****
3400	26	14.5	11.5	4.8567	****
3600	16	22.0	-6.0	-2.5339	*
3800	18	17.0	1.0	0.4223	
4000	18	17.0	1.0	0.4223	
4200	16	24.5	-8.5	-3.5897	****
4400	31	16.0	15.0	6.3348	****
4600	16	21.0	-5.0	-2.1116	*
4800	11	12.5	-1.5	-0.6335	
5000	9	9.0	-	-	
5200	7	8.5	-1.5	-0.6335	
5400	8	6.0	2.0	0.8446	
5600	5	9.0	-4.0	-1.6893	
5800	10	4.5	5.5	2.3228	*
6000	4	7.0	-3.0	-1.2670	
6200	4	4.5	-0.5	-0.2112	
6400	5	4.5	0.5	0.2112	
6600	5	5.0	-	-	
6800	5	3.0	2.0	0.8446	

Appendix B-10 **Revenues test 1**

Initial T-Test			Std Dev differences 3.25		
	Revenues -1				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign.*
6400	32	37.0	-5.0	-1.5396	
6600	35	30.0	5.0	1.5396	
6800	28	32.5	-4.5	-1.3856	
7000	30	30.5	-0.5	-0.1540	
7200	33	31.0	2.0	0.6158	
7400	32	36.5	-4.5	-1.3856	
7600	40	36.0	4.0	1.2317	
7800	40	39.5	0.5	0.1540	
8000	39	38.5	0.5	0.1540	
8200	37	37.0	-	-	
8400	35	35.0	-	-	
8600	33	41.0	-8.0	-2.4633	*
8800	47	36.0	11.0	3.3871	***
9000	39	41.5	-2.5	-0.7698	
9200	36	36.5	-0.5	-0.1540	
9400	34	39.5	-5.5	-1.6935	
9600	43	38.5	4.5	1.3856	
9800	43	42.0	1.0	0.3079	
10000	41	39.0	2.0	0.6158	
10200	35	35.5	-0.5	-0.1540	
10400	30	31.0	-1.0	-0.3079	
10600	27	25.5	1.5	0.4619	
10800	21	28.5	-7.5	-2.3094	*
11000	30	23.0	7.0	2.1554	*
11200	25	25.0	-	-	

Appendix B-11 **Revenues test 2**

Initial T-Test			Std Dev differences 2.09		
	Revenues -2				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign.*
6400	6	8.5	-2.5	-1.1940	
6600	8	7.5	0.5	0.2388	
6800	9	5.0	4.0	1.9104	
7000	2	9.0	-7.0	-3.3432	***
7200	9	9.0	-	-	
7400	16	14.0	2.0	0.9552	
7600	19	17.5	1.5	0.7164	
7800	19	17.0	2.0	0.9552	
8000	15	19.0	-4.0	-1.9104	
8200	19	17.5	1.5	0.7164	
8400	20	18.5	1.5	0.7164	
8600	18	27.5	-9.5	-4.5373	****
8800	35	22.0	13.0	6.2089	****
9000	26	30.0	-4.0	-1.9104	
9200	25	25.0	-	-	
9400	24	29.0	-5.0	-2.3880	*
9600	33	29.5	3.5	1.6716	
9800	35	33.5	1.5	0.7164	
10000	34	32.5	1.5	0.7164	
10200	30	28.0	2.0	0.9552	
10400	22	27.0	-5.0	-2.3880	*
10600	24	20.5	3.5	1.6716	
10800	19	25.5	-6.5	-3.1044	***
11000	27	20.0	7.0	3.3432	***
11200	21	21.5	-0.5	-0.2388	

Appendix B-12 **Revenues test 3**

Initial T-Test			Std Dev differences 2.83		
	Revenues -3				
Interval	*Observed*	*Expected*	*Difference*	*T-statistic*	*Sign.*
6400	26	28.5	-2.5	-0.8847	
6600	27	22.5	4.5	1.5924	
6800	19	27.5	-8.5	-3.0079	***
7000	28	21.5	6.5	2.3002	*
7200	24	22.0	2.0	0.7077	
7400	16	22.5	-6.5	-2.3002	*
7600	21	18.5	2.5	0.8847	
7800	21	22.5	-1.5	-0.5308	
8000	24	19.5	4.5	1.5924	
8200	18	19.5	-1.5	-0.5308	
8400	15	16.5	-1.5	-0.5308	
8600	15	13.5	1.5	0.5308	
8800	12	14.0	-2.0	-0.7077	
9000	13	11.5	1.5	0.5308	
9200	11	11.5	-0.5	-0.1769	
9400	10	10.5	-0.5	-0.1769	
9600	10	9.0	1.0	0.3539	
9800	8	8.5	-0.5	-0.1769	
10000	7	6.5	0.5	0.1769	
10200	5	7.5	-2.5	-0.8847	
10400	8	4.0	4.0	1.4155	
10600	3	5.0	-2.0	-0.7077	
10800	2	3.0	-1.0	-0.3539	
11000	3	3.0	-	-	
11200	4	3.5	0.5	0.1769	