Firms´ Accounting Misrepresentations - Reasons, Tools and Outcomes

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Abstract

The current paper investigates and determines the profile of misrepresenting firms through suitable accounting ratios. Moreover, it measures the impact of misrepresentation on the accounting characteristics. Unlike the prior literature, it splits the dataset by the managers' reason for causing the misrepresentation. The reason is therefore hand-collected from SEC investigation reports and verified by further sources. This enables the identification of the characteristics, and quantification of the impact of the misrepresentation depending on its reason. The research is conducted with statistical tests for significance, and a firth logistic regression (Firth 1993). The results show that there are indeed differences in the characteristics of misrepresenting firms, depending on the reason for the misrepresentation. In total, three main categories of reasons for misrepresentations were identified. One category comprises small, well-performing firms. Here, the data show that the main reason for the misrepresentation is the enrichment of the managers (greed), for example through bonuses. Another category comprises small, almost bankrupt firms. Here, the data show that the managers typically misrepresent to avoid bankruptcy. The third category comprises bigger, well-established firms. Here, the data show that misrepresentation occurs in an effort to handle capital market pressure, for example through analyst forecasts. Moreover, the results suggest that, depending on the reason (and consequently the category), the misrepresentation was made through different accounting components (earnings, total assets, sales, current assets, current liabilities, inventory). The results are generally in line with the positive accounting theory as defined by Watts and Zimmerman (1986), since the results underline the importance of accounting in various contracting situations, such as in negotiating management remuneration systems.

Keywords: Earnings quality, financial statement fraud, financial misrepresentation, reason for a misrepresentation, accounting characteristics, AAER

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1. Introduction

The current paper aims to increase the understanding on why firms (and their managers) misrepresent their accounting figures. The study combines the reason for misrepresentation (the 'why') with the characterization of the misrepresenting firm (the 'how'). The underlying idea is that a misrepresentation must by definition be intentional on the part of the firm's manager(s) and, hence, there must be a motive/reason. The follow-up question is then whether this reason is reflected in the way firms misrepresent, and in the appearance (accounting characteristics) of the firm. Combining the reason with the way and appearance produces a refined view of the firm. The major advantage of my research is that the fact of the misrepresentation and the reason for it are observed and thereby known with a high degree of accuracy.

In the prior research, the misrepresenting firms were either characterized based on their accounting characteristics, or the reason for the misrepresentation was detected/analyzed. In the case of the firms' characterization, the research has to date been conducted across all misrepresenting firms pooled, while the reason has been treated as a black box (e.g., Dechow et al., 2011; Benish 1999a and b). Regarding the reason for the misrepresentation, the focus has to date been on the (non-)existence of a reason, while the accounting characteristics have been treated as a black box (e.g., Burns and Kedia 2006; Chu et al., 2019). The major novelty of my paper is that it combines the two literature streams, opening the black boxes in both cases.

The research aims to contribute to the positive accounting literature[1]. The positive accounting theory is in general about the conflicting interests of different stakeholder groups and their impact on accounting. For example, the manager's interest is to increase their own benefits, while the shareholder is mainly interested in the value of their shares (Scott 2015). Misrepresenting is then one way the firm's management can influence the conflict. The questions in this paper are thus: Which type of conflict (reason) is influenced by misrepresentation? How are these conflicts influenced from an accounting perspective? What are the accounting characteristics of these firms given a certain conflict?

Misrepresenting financial figures hits at the very heart of accounting. Consequently, a multitude of further accounting-related theories could apply to the data and the problem discussed in the paper. However, to keep the paper concentrated, these theories are not

[1] also known as efficient contracting theory (Scott 2015)

discussed. Moreover, the paper focuses solely on accounting figures and leaves aside governance aspects and management characteristics.

The target groups for the paper follow, first and foremost, the stakeholder groups noted in the positive accounting theory. These are, for example, debtholder and shareholder. In the case of debt covenants, the interest groups are debtholders. Enhanced knowledge can, for example, help debtholders formulate a more precise/suitable covenant. In the case of management remuneration, the firm itself is directly affected. However, overpaying the managers reduces earnings and thus shareholders' wealth. Additionally, shareholders may want to dismiss underperforming managers, and they therefore need to know reliably whether the managers are performing well.[2] In the case of a misrepresented annual report, this knowledge cannot come from the financial figures, so it is in the interest of the shareholders to identify misrepresentations.

The task of auditors is to obtain reasonable assurance on whether the financial statements are free of misrepresentations (AS 1001.02). Consequently, they play a key role in the prevention of misrepresentations (Zager et al., 2016). Thus, auditors are a further target group for the paper. The results aim to benefit auditors, since they will be able to create a more focused and sharper audit process, which in the end saves them time during the audit, and money due to (potential) penalties.

I conducted the research using a descriptive analysis of certain accounting ratios, a statistical test for difference in these accounting ratios, and a logit regression. Furthermore, I employed investigation reports by the Securities and Exchange Commission (SEC) to identify reasons why managers cause misrepresentation. Using the investigation reports increases the credibility of the detected reasons, since they are unlike the prior literature (e.g., Beneish 1999 and b; Dechow 2011). The sample is split into several sub-samples, according to the observed reasons. Consequently, the characteristics of misrepresenting firms and the impact of misrepresentation are not only determined for all firms in the sample, but also for firms separated by the reason for the misrepresentation. Thus, different conflicts between the stakeholder groups are analyzed separately. Moreover, I hand-collected the restated financial figures. Thus, it became possible to compare the same firm-year once in the misrepresented and once in the non-misrepresented state. This comparison allowed me to identify the accounting items that the firms misrepresented.

[2] Here, an overlap of the positive accounting theory with the principal agent theory can be seen.

The results suggest that there are indeed different reasons for misrepresentation, of which, due to data restrictions, only three main categories have been analyzed: misrepresentation for the direct personal gain of the manager (greed), misrepresentation to avoid negative contractual or institutional consequences (flee), and misrepresentation due to capital market pressure (fear). In each of the categories, the method of the misrepresentation and accounting characteristics differed.

This paper aims to improve the knowledge on misrepresenting firms by creating a profile of them based on their accounting characteristics, separated by the reason for the misrepresentation. This, in turn, contributes to the positive accounting theory, in terms of improving understanding on how the utilization of accounting is related to certain motives. In addition, the results have regulatory implications, and also implications for debtholders and auditors. The remainder of the paper is structured as follows: first, in section 2, the prior literature is reviewed, with special emphasis on the reason for the misrepresentation in the prior literature. Sections 3 and 4 describe the method and the data gathering process, the detection and the categorization of the reasons for the misrepresentation. Then, in section 5, the results are reported and discussed. Section 6 contains a robustness test. The last section provides a summary of the paper.

2. Prior Literature

2.1 Definition of the Terms "Misrepresentation" and "Reason"

In the prior literature, the term "financial misrepresentation" goes by different names. It is, for example, termed "misreporting" by Burns and Kedia (2006), "accounting fraud" by Miller (2006), and "misstatement" by Dechow et al. (2011). However, the definition of the terms coincides in all cases, and the underlying dataset relies on SEC investigation reports in all cases (as I do).

I follow Amiram et al. (2018) in using the term "financial misrepresentation" (abbreviated to "misrepresentation"). In Amriram et al. (2018), experts from multiple fields including law set out to find an optimal definition. The authors defined the term "financial misrepresentation" as a violation of Section 13(b) of the 1934 Securities and Exchange Act. According to this section, firms are required to make and keep books, which fairly and accurately reflect the transactions and dispositions of the firm's assets. Moreover, according to

the section, firms are required to devise and maintain a system of internal controls to assure accurate reporting.

It is important for the purposes of this paper that the above mentioned section requires a natural person or a group of natural persons either to deliberately violate the books or to deliberately make use of a lack of internal control. The key is the deliberate aspect. Errors or unintentional mistakes are not covered in this paper, so a person must have an intention or motive that drives them to deliberately cause a misrepresentation. This intention or motive is termed "reason" in this paper.

2.2 Theoretical Background

In a perfect and complete capital market, all information on a firm is reported in a timely fashion to all actors on the market. Capital markets, however, are neither perfect nor complete (Frankel et al., 2019). The managers of a firm, in particular, possess private information on the firm, which is likely have an influence on other stakeholder's decisions. According to Frankel et al. (2019), a way to mitigate this information asymmetry is the financial report. One function of the financial report is thus to fulfil the liquidity needs of the firm, for example through borrowing from a lender. A second function is to help to determine the compensation of the managers for their services. A third function, according to the authors, is to give shareholders the opportunity to assess the performance of the managers and to decide on whether or not to retain them (Frankel et al., 2019).

As this brief summary of Frankel et al. (2019) shows, financial reports are important for many reasons, so altering them intentionally has adverse effects on many of the firm's stakeholders. Consequently, the current paper touches upon multiple accounting-related theories (efficient market theory, agency theory, etc.).

However, the theory that covers most aspects is probably the positive accounting theory (also known as contracting theory). According to this theory, accounting information plays an important role in actions between different contracting parties (e.g., managers, lenders, and shareholders) (Watts and Zimmerman 1986, 1990). The positive accounting theory describes the actual accounting choices of managers vis-a-vis the most accurate choices (Watts and Zimmerman 1986, 1990). The theory studies how the conflict between different stakeholders is resolved (Scott 2015). Since this paper is mainly about misrepresentations, it mainly intends to contribute to the positive accounting theory.

The positive accounting theory can be applied well to the reasons for misrepresentations (and earnings management) in the prior literature. This becomes most apparent in the case of misrepresentation due to management compensation contracts. Monetary bonuses bound to achieving certain financial targets are a common part of such contracts (Healy 1985). Misrepresenting the financial figures helps in the meeting of these targets (at least on paper). A similar logic applies to other forms of compensation bound to financial targets. A further straightforward case for the application of the positive accounting theory is debt covenants in lending contracts. It would be in line with the positive accounting theory, if management altered its financial figures either to avoid the breach of a debt covenant or to facilitate renegotiations of debt contracts.

There are also implicit contracts. Management runs the firm on behalf of the shareholders, and reports frequently about its work to the public, including the shareholders, by filing documents such as the annual report. Based on these figures, potential and actual shareholders evaluate the value of the firm and consequently the share price. When managers alter the financial figures in a way that the share price increases, and consequently the value of the personally held shares, this is an application of the positive accounting theory. Similarly, when managers alter financial figures due to various capital market incentives, such as meeting the analysts' or shareholders' expectations, this is also an application of the positive accounting theory, since management alters the figures instead of providing the most accurate picture of the firm.

For the sake of completion here, it should be added that the positive accounting theory also has a political contract aspect (Watts and Zimmerman 1986, 1990). "Political contracts" mean the use of accounting information for the firm in its relationship with government, for example in the case of lobbying. This aspect of the positive accounting theory does not appear in the prior literature on misrepresentations, and neither is there any evidence for it in the results of this paper. Consequently, the aspect will not be covered in the following.

2.3 Research Question Development

A typical stylized chain of a misrepresentation process can be seen in *Figure 1*. It starts with a reason for the misrepresentation. The reason describes why the individual natural person intends to cause the misrepresentation. This can, for example, be management greed, where individual managers look to increase their personal bonus, so the intention or motive behind the misrepresentation is management greed. This paper later provides an overview of the actual

observed reasons for the misrepresentation (*Table 3*). I will therefore refer to this later section for greater detail.

Figure 1 around here

The aim of misrepresentation originating from this reason is to present the firm in a certain (favorable) way. To achieve the aim, certain accounting components need to be altered to present the firm in the desired way, perhaps in sales accounting. In this example, the manager may recognize sales that do not yet fulfil the criteria to be recognized (premature revenue recognition). The ultimate outcome is then the misrepresented report to the public. In the case of this paper it is the annual report (10-K), but other reporting to the public can also be affected (like 10-Q). The misrepresented report (outcome) is then the combination of the non-misrepresented accounting figures altered by the accounting components (tools).

In a typical paper in the prior literature, a proxy for a reason for the misrepresentation is determined (e.g., Burns and Kedia 2006, Armstrong et al., 2010, Badertscher 2011). It is then checked whether this proxy (and consequently the reason) occurs in a sample of misrepresenting firms. The conclusion is then whether or not the reason causes a misrepresentation. Consequently, the tool and outcome are considered as black boxes. Furthermore, there are papers that compare misrepresented firm-years with non-misrepresented firm-years (e.g., Benish 1999a, Beneish 1999b, Dechow et al., 2011). The reason for the misrepresentation is thereby treated as a black box. The current paper aims to go through the chain from reason to outcome without the black boxes. In other words, the paper starts by looking at the reasons for a misrepresentation, then at the reasons combined with the tools and ultimately at the reasons, tools, and outcome together. In my paper there is therefore no black box "reason" and no black box "outcome". The benefit of this is that it will be possible to say something about the outcome given a certain reason. Written in question format, this results in the following three research questions:

RESEARCH QUESTION 1. *Which reasons for a misrepresentation can be detected empirically in enforcement reports?*

RESEARCH QUESTION 2. *Is there a link between the manager's reason for the misrepresentation and the tool for the misrepresentation?*

RESEARCH QUESTION 3. *Is there a link between the manager's reason for the misrepresentation and the profile (approximated by accounting ratios) of a misrepresenting firm?*

The first research question is by nature explorative, so making predictions on possible answers to the question is difficult. The outcome of the remaining two questions depends on the outcome of the first, so making predictions on possible answers is also difficult and will therefore not be made.

Approximating the profile of a firm with accounting ratios from the accounting perspective (data originating from financial statements) is a common method suggested in standard text books (e.g., Stolowy and Lebas 2006 pp.557-565). Moreover, accounting ratios are commonly used by outsiders to support their analysis of the firm, for example for company valuation (Ak et al., 2013; Nissim and Penman 2001; Sloan 2019).

2.4 Reasons for Misrepresentations and Earnings Management

Low earnings quality either through earnings management or through misrepresentations has been the subject of several literature reviews (e.g., Healy and Wahlen 1999, Dechow and Skinner 2000, Walker 2013, Dechow et al., 2010, Amiram et al., 2018). An important question thus concerns the extent to which the reasons identified for earnings management can be transferred to misrepresentation cases. The presumption in most of the prior literature is that misrepresentations are an indicator of prior earnings management (Dechow et al., 2010). This assessment is supported by Ettredge et al. (2010) and Badertscher (2011), who can show an increase in other earnings management indicators prior to a misrepresentation. However, as Dechow et al. (2010) implicitly state, there is also a minority in the research community who doubt the link between misrepresentations and earnings management.

The biggest distinction between earnings management and misrepresentations is probably that earnings management is within legal boundaries, while misrepresentations are by definition always a violation of the law, and thus illegal (Dechow and Skinner 2000). Earnings management can play the role of overcoming the information asymmetry between management and outside investors, by providing the outside investors with private information on the firm (Subramanyam 1996). Moreover, earnings management is performed to mislead stakeholders or influence the contractual outcome (Healy and Whalen 1999). In the prior literature, a misrepresentation is always connected to misleading stakeholders or influencing the contractual

outcome (Dechow et al., 2010). Since this paper is about misrepresentations, the following two aspects “misleading stakeholders” and “influencing contracts” will be focused on.

A major difference between the reasons for misrepresentation and for earnings management is the identification strategy of the reason. When looking at the literature, the reason for earnings management is typically identified by taking a sample of firms where the reason occurred and determining whether earnings management occurred as well. An example of this strategy is Kalyta (2009). In this paper, the author determines a sample of firms where the manager had a (financial) incentive to engage in earnings management. The author then tests whether earnings management occurred in the sample.

When researchers analyzed reasons for misrepresentations, authors typically collected a sample of misrepresenting firms. The reason is then identified via proxies. An example of this approach is Johnson et al. (2009). The authors collect a sample of misrepresenting firms (from AAERs) and a control sample. The authors also define proxies to measure the personal monetary incentives of managers to misrepresent. In the end, they test whether, among all misrepresenting firms, personal monetary incentives as defined by the proxy exist. The use of a proxy leads to the question of whether the proxy measures what it should. Furthermore, detection depends on the selection of a suitable control sample. To overcome these problems, this paper relies on the reasons determined by the SEC in its investigation reports. I also confirm the results of the reports with the help of newspaper articles and other publications, if possible, so the actual reason for the misrepresentation is observed and used in the analysis.

The following is a brief overview of the reasons for a misrepresentation. For an in-depth analysis, I refer to Dechow et al. (2010). Moreover, since the literature on misrepresentations only covers a small proportion of possible reasons, a brief overview of the reasons for earnings management is provided as well. When interpreting the reasons for earnings management, the discussion on the extent to which the earnings management literature can be applied to misrepresentation cases should be kept in mind. The aim of the overview of the prior literature with regard to the reasons is to help in the understanding on what reasons the prior literature has touched upon and what results can be expected. Moreover, it should help in clarifying whether the reasons found in the prior literature based on proxies coincide with the reasons found in SEC investigation reports.

2.4.1 Reasons for a Misrepresentation

The literature on reasons for misrepresentation is thin. When looking at management compensation contracts, the prior literature might show that misrepresenting firms are using earnings-based bonus plans as often as non-misrepresenting firms (Dechow et al., 1996; Beneish 1999b). However, the existence of such a bonus plan does not necessarily mean that an incentive might arise (Dechow et al., 2010). Moreover, prior literature has shown that managers misrepresent due to their stock options (Johnson et al., 2009) and to increase the proceeds of the sale of personally held shares (Summers and Sweeney 1998, Tevenot 2012, Beneish 1999b). However, according to Burns and Kedia (2006), only the sensitivity of the CEO's option portfolio is linked to misrepresentation but no other form of compensation. This finding is further strengthened by Erickson et al. (2006) and Armstrong et al. (2010), who cannot identify a link between stock-based compensation and misrepresentations. Despite the mixed empirical findings, internal auditors consider the risk of a misrepresentation higher, if income is above expectations, and if an earnings-based bonus plan exists (Church et al., 2001).

Following Dechow et al. (2010), avoiding the breach of a debt covenant is a reason for misrepresentation, but the evidence in the prior literature for this reason is rare. Dechow et al. (1996) could identify a greater need for external finances and a higher leverage ratio for misrepresenting firms than for non-misrepresenting firms. Beneish (1999b) could not confirm the results, so the empirical prior literature is unclear on whether lending contracts are a reason for misrepresentation. Nevertheless, internal auditors consider it likely that misrepresentations occur in cases of earnings exceeding expectations if debt covenants are very restrictive (Church et al., 2001).

Misrepresentation due to capital market incentives are seldom discussed in the prior literature. There is a dispute between Dechow et al. (1996) and Beneish (1999b) as to whether or not misrepresenting firms have a greater need for external finances (and consequently are more likely to misrepresent to attract the finances). Furthermore, Jensen (2005) discusses the pressure of the capital market on management to deliver desired financial results and avoid its members losing their positions. Empirical evidence supports Jensen's idea. Some firms that have been overvalued in the past or that built up a valuation premium try to maintain their status, first by engaging in earnings management and, if these sources are exhausted, by misrepresenting (Badertscher 2011; Chu et al., 2019). The interpretation is that managers fear the negative consequences such as loss of their position if they do not maintain the status.

A special approach in the prior literature is used by Schrand and Zechman (2012). In this paper, the authors screen SEC investigation reports. Their aim is to identify managers' characteristics. The results suggest that, in 13 of 49 cases, the reason was the intention to enrich themselves. In the remaining cases, the authors assumed overconfident managers where the misrepresentation was only the outcome of overestimating the own abilities. However, the results are mixed so it is not clear whether managers in the remaining 36 cases were in fact overconfident.

2.4.2 Reasons for Earnings Management

The literature on reasons for earnings management is more extensive than for misrepresentations. Some aspects have been touched upon when looking at the case of misrepresentations, but more reasons for earnings management than for misrepresentations have been discussed in the prior literature. Therefore, reasons for earnings management will be introduced next with the intention of complementing the reasons for misrepresentations.

When looking at management compensation contracts as a reason, multiple papers since Healy (1985) have shown that (some) managers engage in earnings management when they have a monetary incentive to do so. This incentive can be, for example, in the form of bonus payments (Healy 1985), a pension plan (Dechow and Sloan 1991; Kalyta 2009), or stock options (Bergstresser and Phillippon 2006). The assumption that the manager's personal wealth is the driving force is common to all the papers.

When looking at lending contract-related reasons, avoiding the breach of a debt covenant is a typical reason for earnings-increasing management (DeFond and Jiambalvo 1994; Jaggi and Lee 2002). After such as breach, earnings-decreasing management typically occurs (Sweeney 1994; Jaggi and Lee 2002). The interpretation is that managers want to avoid the breach but, once the breach has occurred, they want to achieve a more desirable position for renegotiation of the covenants. Earnings management in these cases is performed via accruals and real choices (Roychowdury 2006).

In the literature reviews, capital markets as a reason for earnings management cover a wide variety of aspects (Healy and Wahlen 1999; Dechow et al., 2010: Walker 2013). This includes earnings management around seasoned public offerings (SEO) (e.g., Teoh et al., 1998b: Cohen and Zarowin 2010; Shivakumar 2000), before announcements of mergers by acquiring firms (Erickson and Wang 1999), and before management buyouts (e.g., DeAngelo

1988; Perry and Williams 1994). Moreover, there is some dispute between Teoh et al. (1998a) and Aharony et al. (1993) on the one side, and Ball and Shivakumar (2008) on the other, as to whether earnings management exists around initial public offers (IPO). Furthermore, earnings management could be performed to avoid disclosing a loss (Burgstahler and Dichev 1997; Burgstahler and Eames 2006), and avoid failing to meet the analysts' forecast (Bartov et al., 2002; Burgstahler and Eames 2006).

2.5 Characteristics of Misrepresenting Firms

Questions about the characteristics of misrepresenting firms are typically discussed in the prior literature when looking at the descriptive statistics, before conducting a further analysis. For example, Dechow et al. (2011) presented a descriptive statistic comparing the characteristics of misrepresenting firms with those of remaining firms on COMPUSTAT, non-misrepresented firm-years of misrepresenting firms, and the last non-misrepresented firm-year of misrepresenting firms. However, the main purpose of their paper was to create a prediction model for misrepresentations.

The literature on the accounting characteristics of misrepresenting firms normally compares a set of accounting characteristics with a control sample to identify in which characteristics misrepresenting firms differ from benchmark firms. The main distinction within the literature is the definition of the control sample. Beneish (1999a) used randomly selected non-misrepresenting firms as the control sample. The results of Beneish's analysis suggest that misrepresenting firms are more leveraged than non-misrepresenting firms. Moreover, misrepresenting firms are less profitable, but their sales grow faster than firms that do not misrepresent. In terms of liquidity, no major differences between misrepresenting and non-misrepresenting firms can be identified.

Beneish (1999b) employed two control samples. One comprised size-matched firms, and the other age-matched firms. The results differed depending on the control sample. When looking at size-matched firms, misrepresenting firms had been listed for a shorter period of time, delivered higher growth, and had larger discretionary and total accruals. However, differences in liquidity, leverage, profitability, and cash flow could not be detected. When looking at age-matched firms, the only identified difference was in discretionary and total accruals. In both cases, they were larger for misrepresenting than non-misrepresenting firms. Thus, in terms of liquidity, leverage, profitability, growth, and cash flow, no changes were detected.

As mentioned before, Dechow et al. (2011) aimed to create a misrepresentation prediction model through an intensive descriptive analysis of misrepresenting firms. They used a total of three different control samples. First, they used all non-misrepresented firm-years available on COMPUSTAT within the given time period. Second, they used all non-misrepresented firm-years available for the firms that misrepresent. Third, they used the last non-misrepresented firm-year of misrepresenting firms. The authors therefore employed a cross-sectional and a time-series comparison. Depending on the control sample used, a number of special characteristics of misrepresenting firms were identified. In comparison with the remaining firms on COMPUSTAT, misrepresenting firms differed in almost all characteristics, but only in a few in the case of the last non-misrepresented year.

As these three examples from the prior literature show, there are a variety of different approaches towards the question of how to provide an accounting-based characterization of misrepresenting firms. The comparison between the misrepresented firm-year and the control sample is a common thread. The results vary, first, based on the variables used, and second, on the control sample. However, the underlying assumption of each approach is that misrepresenting firms are uniform. All firms that misrepresent were taken together and compared with a control sample. The possibility that there may be small sub-categories or contrary characteristics was overlooked.

3. Methods

3.1 Overview of Research Design

The first research question is answered by determining the reasons for the misrepresentation based on AAERs and verified by further sources. The design is a textual analysis of the underlying information sources and a descriptive statistic. More on this theme is explained in section 5.1.

The second research question is answered by comparing the accounting ratios of misrepresented firm-years with the non-misrepresented firm-years of the same firm and the same fiscal year. The firm thus serves as its own control. The comparison takes advantage of the legal requirement for firms to correct materially false annual reports (FAS 154.25), so firms normally publish a corrected version of the misrepresented annual report. There are consequently two versions of the financial figures existing for the same firm and the same fiscal year: one incorrect version (as misrepresented) and one corrected version (as restated). For the

comparison, the characteristics of the firms are determined based on the two versions of the annual reports so, as a result, we can deduce which accounting characteristics are affected by the misrepresentation. The aim is to identify certain misrepresentation strategies or patterns corresponding to certain reasons for the misrepresentation. These patterns should show which tool (accounting component) is used for the misrepresentation. The comparison is made with a descriptive statistic and suitable statistical tests.

The third research question is answered by determining the profile approximated by the accounting ratios of the misrepresenting firms. The prior literature in the misrepresentation field has already addressed similar questions. Dechow et al. (2011) used the method of a descriptive statistic and a statistical test for mean difference. Beneish (1999a) also used a statistical test for median difference and a probit-regression analysis. The overall design of this study follows designs in the prior literature. It comprises a descriptive statistic, statistical tests for mean and median difference, and a regression analysis.

Moreover, the third question is answered by comparing the characteristics of misrepresenting firms with the characteristics of peer firms. The variables in which misrepresenting firms differ compared with their peers provide evidence of special accounting characteristics. The special characteristics are used to create a profile for the misrepresenting firm based on the outcome of the misrepresentation. Important to note is that the dataset is split by the reason (see the first question) for the misrepresentation. This is to determine the special accounting characteristics separately by firm according to the reason for the misrepresentation. The comparison is once made with descriptive statistics and a statistical test, and once with regression analysis.

The comparisons are made with descriptive statistics, statistical tests and firth logistic regression. An explanation of the statistical tests can be found in *Appendix A*. The following describes a comparison with logistic regression. Thereafter, the variables are defined.

3.2 Regression Analysis

The aim of the methods is to compare misrepresented data with non-misrepresented data from peer firms. This comparison is first made with a suitable statistical test but, as another form of comparison, a firth logistic regression is performed. Firth logistic regression uses the mean values and neglects the median values. This is one drawback of the regression analysis, since it limits the scope of the results, but the major advantage of the logistic regression is that all

variables are used in the comparison simultaneously. Therefore, in addition to the descriptive statistics including the statistical test, there is also a regression analysis in the paper.

A major problem for using a logistic regression is that misrepresentations are a very rare event. Consequently, misrepresenting firms are very rare in the whole dataset (below 1%). Due to some adjustments, the actual proportion of misrepresenting firms in the dataset analyzed is around 2–3%. This is, however, still a very low proportion. Logistic regressions typically have accuracy problems for such rare events (e.g., King and Zeng 2001, Firth 1993). To overcome the problem, Firth (1993) developed an adjustment to the logistic regression. To be precise, this adjustment is a penalty term, which is added to the maximum likelihood-based score equation (Rahman and Sultana 2017). The penalty term goes to zero as the sample size increases (Wang 2014). A firth logistic regression is a common tool for rare events for binary outcome analyses, at least in the medical research (Puhr et al., 2017). However, since the setting (rare event, binary outcome analysis) also exists in the current research, the application of a firth logistic regression is chosen. The regression is used with the following regression equation:

1) $misrepresent = \alpha + \beta * characteristics\ variables + \varepsilon$

where

misrepresent = binary variable that has the value of 1 if a firm misrepresented and a value of 0 otherwise

characteristics variables = variables reflecting different accounting ratios for creating the accounting ratio profile of the firm

The regression comprises the binary variable "misrepresent", which is 1 if the firm-year is misrepresented and "0 otherwise" as a dependent variable, and a set of variables for determining the accounting characteristics as independent variables. The variables reflecting the accounting characteristics are defined in the next section. The regression is run once for all misrepresenting firms pooled, and once again with a reduced sample of firms misrepresenting for a specific reason only (including the corresponding control samples).

3.3 Variable Definition

The aim of the paper is to identify the accounting profile of misrepresenting firms. As the prior literature suggests, a variety of variables is chosen, which allows the creation of an accounting profile for the misrepresenting firm (Sloan 2019). Due to the importance of accounting ratios,

especially for the valuation of firms, the focus on relevant variables is on such ratios (Ak et al., 2013; Gallizo et al., 2003; Nissim and Penman 2001).

Chen and Shimerda (1981) collected "useful financial ratios" from various pieces of the prior literature. This includes literature from the field of firm failure, bond ratings, market returns, and mergers. The wide range of fields that the ratios originate from makes it a good choice for creating an accounting profile. The ratios allow the characterization of the firms from different perspectives. Moreover, they have been proven in the past to be good in explaining firms, so assuming that they will also do that in this paper is a straightforward conclusion.

Chen and Shimerda (1981) collected a total of 64 accounting ratios from literature prior to 1976. Among these ratios, the authors identified an overlap. As an example, there is a ratio of net income/total asset and a ratio of EBIT/total assets. First, the overlap in the denominator is apparent, since in both cases, it is the same balance sheet item. Moreover, the difference between net income and EBIT are by definition interest and taxes, so there is a clear overlap in the numerator as well. To approach the overlap, the authors suggest running a principal-component analysis. Such an analysis combines variables with a common variation (the overlap) into one factor. The factor is then represented by only one variable (in this case a ratio). Therefore, the authors focused next on papers that ran a principal-component analysis and identified the factors that these papers considered best due to the analysis.

Essentially, Chen and Shimerda (1981) found 10 factors[3] originating from five papers. An overview is provided in *Table 1*. In each of the papers, the factors were determined with a principal-component analysis. These factors are considered by the authors based on prior literature optimal for use in an accounting characterization of firms. The 10 factors are: *asset balance, activity, profitability, liquidity, cash position, receivable turnover, inventory turnover, return on investment, capital turnover,* and *financial leverage* (Pinches and Mingo 1973, Pinches et al., 1973, Stevens 1973, Libby 1975, Pinches et al., 1975). Based on the specific paper, suitable ratios were identified for each of the factors to represent the remaining ratios in the factor. An overview of the variables is provided in *Table 1*. The goal of the factors is to describe the firm from the perspective of the capital market. It should aim to pose questions about the profitability of the firm and riskiness of the investment. The assignment to the aspect (profitability or riskiness) can also be found in *Table 1*. A more detailed explanation of this and

[3] The paper identifies 12 factors. However, two of the factors are explained by the same ratio, so they will not add any new insights to this analysis and are consequently disregarded.

a more detailed explanation of the factors and corresponding ratio are provided in the following paragraphs.

Table 1 around here

The *asset balance* is represented by the ratio "current assets/total assets". The factor basically describes what proportion of the asset side of the balance sheet consists of non-current (fixed) assets, and what proportion of current assets. It should give an understanding of the basic structure on the asset side of the balance sheet. Since it explains to what extent the assets are meant to be quickly sellable, and to what extent they are meant to be held for longer periods, the factor concerns the riskiness. The factor activity is represented by the ratio "current assets/sales". The ratio reflects how quickly the current assets are sold. The faster the current assets are sold, the smaller the ratio becomes, so a decreasing ratio means that the firm is more active. Since the activity is closely linked to current sales and thereby to net income, the factor activity is assigned to the profitability aspect.

The factor *profitability* is reflected by the ratio "net income/total assets". The ratio is also known as return on assets. As the name already suggests, and since the net income as a major profitability indicator of the firm is included, the factor is assigned to the profitability aspect. The factor *liquidity* is reflected by the ratio "current assets/current liabilities". Since current assets are assets meant to be sold quickly, and current liabilities are liabilities meant to be redeemed quickly, this factor explains the short-term liquidity of the firm. A problematic liquidity situation is typically a sign of financial difficulties (Ohlson 1980). Consequently, the factor is assigned to the riskiness aspect. The factor *cash position* is reflected by the ratio "cash/total assets". This ratio shows how much cash the firm has. To make the cash more comparable, it is scaled by the firm size (total assets). Similar to the previous factor, the cash position measures the liquidity, so this factor is also assigned to the riskiness aspect.

The factor *receivable turnover* is reflected by the ratio "receivables/sales". The ratio indicates to what extent the sales have been paid by the customer. The lower the ratio, the more sales have been paid. Since the factor shows the extent to which the receivables have been paid, and since this helps to explain the extent to which the net income is based on cash income, this factor is assigned to the profitability aspect. The factor *inventory turnover* is reflected by the ratio "inventory/sales". The aim of this ratio is to show how quickly the inventory is sold. A low value is thus an indicator of a high turnover rate. With similar argumentation as the activity factor, the factor inventory turnover is assigned to the profitability aspect.

The factor *return on investment* is reflected by the ratio "net income/book value of equity". This ratio is also known as return on equity. It shows how much the firm earned based on the capital provided (invested) by the shareholders in the firm. The factor thus takes the perspective of the shareholder only. It is assigned to the profitability aspect for a similar reason as the profitability factor. Net income as a key profitability indicator dominates the factor.

The factor *capital intensiveness* is reflected by the ratio "sales/total assets". This ratio shows how much capital is needed to achieve the sales. The higher the ratio, the lower the capital requirement. The more capital is required (so the lower the ratio), the higher the risk of bankruptcy (Altman 1968). Consequently, the factor *capital intensiveness* is assigned to the riskiness aspect. The factor *financial leverage* is reflected by the ratio "debt/total assets". This ratio should indicate the extent to which the firm is financed by debt or equity. This is a standard factor in bankruptcy prediction models (e.g., Altman 1968, Ohlson 1980), so it is assigned to the riskiness aspect.

4. Data

4.1 Data Collection

The U.S. Securities and Exchange Commission (SEC), an American governmental agency, is tasked among other things to investigate and detect potential misrepresentations. As described by Cunningham and Leidner (2019), and Stice-Lawrence (2019), the process typically starts by reviewing firms' periodic filings, including annual reports. The SEC also reviews public sources, such as earnings calls, and non-public sources, such as whistle-blower information. If the SEC becomes suspicious about certain accounting practices, it contacts the specific firm and asks for clarification. If the clarification fails to satisfy, a full investigation is conducted. If, in the full investigation, serious wrongdoing is discovered, the SEC issues an Accounting and Auditing Enforcement Release (AAER) and prosecutes the case further. However, the SEC's resources are limited, so it is not able to check all of the information made available. The choice of information to be checked and firms targeted by SEC enforcement actions lies solely in the hands of the SEC itself. However, it is known that certain triggering events, such as a voluntary restatement, may lead to an investigation (Dechow et al., 2011).

In this paper, misrepresentations are defined as violations of Section 13(b) of the 1934 Securities and Exchange Act. Hence, only publications by the SEC on violations of this section

are of interest in the data collection. Such cases are published in AAERs. Consequently, I collected the data from these AAERs in a similar way to that used by Dechow et al. (2011).

A major limitation to the selection of the dataset is the requirement for available restated financial figures. These figures are collected from the annual or quarterly publication (10-K or 10-Q) of the misrepresenting firms that continue to misrepresent after the detection of the misrepresentation. The annual or quarterly publications are retrieved from the database EDGAR. EDGAR is a database provided by the SEC, where almost all filings to the SEC since 1996 are made available to the public. Among them are also the annual reports and quarterly reports, so restated data filed to the SEC before 1996 cannot be collected. Given the data availability problems, the number of distinct misrepresenting firms identified from AAERs is 463. An explanation of the data collection from the 463 firms can be found in *Appendix B.*

Data collection is time-consuming. To get the restated data, all relevant annual and quarterly reports had to be checked for potential further restatements. Identifying the reason for the misrepresentation from various sources including all relevant AAERs (as will be explained further in section 5.1) is also a time-consuming task. Additionally, the question arises of whether using the total population will actually bring different results, so I limited the dataset to 100 randomly selected firms. I then created and implemented the following steps to reduce the sample size from 463 to 100 randomly selected misrepresenting firms with sufficient data:

1) Each of the 463 firms had a random number assigned to it.
2) The firms are sorted according to the randomly assigned number from the lowest to the highest.
3) Starting with the first firm, the data from COMPUSTAT are confirmed, if available, by the filings to the SEC disclosed on EDGAR. If there was no overlap between COMPUSTAT and the filings, the firm was excluded.
4) Starting with the first remaining firm, relevant restated data were collected from EDGAR on the filings to the SEC. If no restated data were available, the firm was excluded from the sample.
5) The collected restated numbers were checked for plausibility by comparing the numbers with the newspaper articles and AAERs. Firms whose restated figures did not coincide with the findings published by the SEC or the media were excluded from the sample.

Through the selection process, the 100 misrepresented firms with the lowest randomly assigned number and with sufficient information available were identified and included in the

sample. The 100 firms that had misrepresented corresponded to 245 misrepresented firm-years between 1993 and 2009. An overview of the distribution of the firm-years is shown in *Table 2*.

Table 2 around here

As *Table 2* shows, the majority of the misrepresented firm-years lie between the fiscal years 2000 and 2005. The decline in numbers after 2005 is a reflection of the following phenomenon: firms sometimes misrepresent several firm-years in a row. The average in the sample is 2.45 firm-years in a row per firm, but there are also cases of seven or more misrepresented firm-years in a row. Once the misrepresentation is uncovered (after the misrepresented period), the SEC begins its investigation. At the end of the investigation, the AAER is published and the firm is included in the dataset. The investigation normally takes 2–3 years. The last AAER on which the dataset is based originates from 2015, so 2006 and the years thereafter are likely misrepresented firm-years, which have not (yet) been made public in an AAER. Consequently, the number of misrepresented firm-years in the sample is lower from 2006 onwards than in the prior years.

4.2 Control Sample

One part of identifying the accounting profile is to determine the differences of the misrepresenting firms compared with their peers. There can be a variety of definitions of what constitutes a peer. As an example, Dechow et al. (2011) used as peers all non-misrepresenting firms on COMPUSTAT. A drawback of this approach is that the misrepresenting firm is among others also compared to firms with naturally different characteristics. An example for these naturally different characteristics is firms in the financial service sector compared to industrial firms. To mitigate the impact of such natural differences, I created a sample with matched firms. A consequent difficulty is that a misrepresenting firm will not (by definition) differ from its matching partners in the matching criteria. Therefore, as a compromise to make the control sample on the one side comparable, but also allow the control sample to differ in key characteristics, the following three matching criteria were used: “year”, “industry”, and “size”.

Year refers to the fiscal year. The financial figures of the misrepresenting firms and the matched peer firms must originate from the same fiscal year. A fiscal year is defined as the year containing the majority of the days in the reporting period. For example, a firm-year with the reporting period April 2004– March 2005 is assigned to 2004, since most days of the reporting period are in 2004. A firm-year with the reporting period November 2004–October 2005 is

assigned to 2005, since most days of the reporting period are in 2005. Industry refers to the industry sector in which the misrepresenting firm and hence the matched firm operate.

To identify the industry sector, the Standardized Industrial Classification (SIC) code is used. The SIC codes are determined by the US government and employed, for example, by the SEC to classify firms. The code comprises four digits. The first is the most general, and assigns the firm to an overall sector. The last digit is the most specific, and assigns the firm to a narrow sub-sector. As in the prior literature (e.g., Desai et al., 2006, Beneish 1999b), firms are matched on the first two digits of the SIC code. Using two digits is thus a compromise between a very general and a very specific perspective.

Size is defined here by total assets. Matched firms should have an equal amount of total assets to the misrepresenting firm, but it is highly unlikely that two firms will have precisely the same amount of total assets. Therefore, firms are considered as matched when their amount of total assets is in a corridor around the total assets of the misrepresenting firm. There needs to be a compromise between considering as many firms as possible and the closeness to the total assets of the misrepresenting firm. Here, the corridor is assigned to +/- 30%[4] around the total assets of the misrepresenting firm.

Based on the financial figures of the same fiscal year, peers are therefore defined as the misrepresented financial figures of all firms within the same 2-digit SIC code industry sector, and with total assets ranging between 70% and 130% of the misrepresenting firm's total assets. The control sample comprises a total of 4,794 non-misrepresented firm-years.

5. Results and Discussion

5.1 Determining the Reason for the Misrepresentation

The first research question asks for an examination of the reasons for a misrepresentation originating from SEC enforcement filings (AAER). I therefore determined the reasons for the misrepresentation based on the explicit statements in AAERs, and I read through the AAERs and retrieved the reason from the report itself. The assessment was further confirmed and extended by further litigation documents of the SEC, information from newspaper articles, analyst reports and conference calls. I then grouped the reasons according to similarities.

[4] Using a smaller corridor (e.g., +/- 20%) leads to generally similar results.

In general, I assigned the individual reasons to seven more general clusters of reasons (in the following named "category"). I based the assignment on similarities among the reasons. First, there are firms where the managers had a personal and direct mostly monetary benefit from the misrepresentation. This includes the sale of personally held company stocks by the manager at prices inflated by the misrepresentation. It also covers misrepresentations for higher bonus payments and misrepresentations to cover asset misapplication by management. Theoretically, cases of option-backdating would also fall into this category, since options are backdated to directly increase managers' personal wealth. However, the characteristics of firms backdating their options differ by their nature only in a very limited scope between the misrepresented and restated case. Therefore, to avoid a distortion, firms where option-backdating was the dominant reason for the misrepresentation are assigned to their own category. Keywords for assigning firms to the first category are: "sale at inflated stock price", "maximizing bonus payment", "securing bonus payment", "inflating stock price to maximize proceeds from the sale of options", "maximizing remuneration", "embezzling the firm's funds", "abusing the firm's funds", and "buying private items with the firm's money". These keywords are combined with a search for the position of the person whom the SEC mainly blames for the misrepresentation. This person must not be responsible for a subsidiary only.

Second, there are firms hiding or masking their true financial health. Such firms fear that without this hiding and masking process, either they will be unable to raise funds vital to their survival, or they may incur contractual penalties such as debt covenants that could jeopardize the future of the firm. Typically, these firms main reason for misrepresenting is to decrease the likelihood of bankruptcy. Keywords for assigning firms to the second category are: "avoiding the breach of a covenant", "raising vital funds", "hiding true financial health", "hiding financial difficulties", and "disclosing negative equity".

Third, there are firms where misrepresentation is a response to pressure from the capital market. This can even be described as fear of the consequences, if the capital market's expectations are not met. This pressure can originate directly from capital market actors such as investors and analysts. The pressure can also be the result of the firm's past actions, such as past years' earnings or earnings guidance. Keywords for assigning firms to the third category are: "meeting/beating/exceeding (…) target" where (…) is the specific target, "meeting/beating/exceeding expectations", "disguising performance below expectations", "reporting favorable performance", "market pressure", and "surprise the market". The

keywords must be combined with some external category that built up the expectation, or with an external communication that caused market participants to raise their expectations.

The three main categories are summarized below:

Category 1: Misrepresentation for the direct personal gain in wealth of the manager (greed).
Category 2: Misrepresentation to avoid negative contractual or institutional consequences (flee)
Category 3: Misrepresentation due to capital market pressure (fear)

All three main categories contain at least ten distinct firms. This number enables the analysis of the categories while mitigating the impact of outliers, but there are three further categories with fewer than ten distinct firms. First, there are firms hiding the backdating of options. This category has already been touched upon. Backdating options enables the managers to execute their options at a lower strike price, and so increases their wealth. However, in accounting terms barely any changes can be detected, so these firms are grouped separately into category 4. The keyword here is the option-backdating in the AAER. Second, there are firms misrepresenting for internal reasons, most notably internal targets. The keywords for this category are similar to category 3: "meeting/beating/exceeding (…) target" where (…) is the specific target, "meeting/beating/exceeding expectations", "disguising performance below expectations", and "reporting favorable performance". The major distinction is that the targets or expectations are internal and not disclosed to the public. Moreover, category 5 includes firms where no evidence of an outside direction of the target could be detected, so category 3 only includes cases where the misrepresentation was due to external targets, and doubtful cases are in category 5. Third, category 6 contains firms misrepresenting to increase the proceeds of capital market activities (an IPO or SEO). Keywords here are "SEO" or "IPO" connected with the willingness to "increase" or "maximize" its "proceeds" or "gains". Category 7 contains firms where a reason could not be identified from any of the sources. This category is named category 0.

Each firm is assigned to only one category at a time, so the categories are defined as strictly non-overlapping. In most cases, the information provided by the sources made it possible to make a clear judgement and to include the specific firm in one category only. However, in around 2–4 cases per main category, the information was unclear or led to the allocation of firms into several categories. For example, a firm communicates a target externally. The bonus for the management is tied to meeting this target. The firm misrepresents

to achieve the externally communicated target and management gets its bonus. The external communication is a signal for category 3 while the explicit mentioning of the bonus in the AAER is a signal for category 1. The explicit mentioning of bonuses (or other rewards for management) occurs comparatively rarely in AAERs. Furthermore, management contracts normally have bonuses bound to performance. Consequently, the explicit mention of a bonus is something specific to AAERs so, in cases where the information allowed a firm to be assigned to category 1 or category 3 equally well, firms were assigned to category 1. Similarly, firms were assigned to category 2 rather than category 3, since the explicit mention of financial difficulties is specific to AAERs. In case of an overlap between category 1 and category 2, firms were assigned to category 1 for similar reasons to the distinction between category 1 and 3. The explicit mention of managers' benefits are rare and something specific to AAERs. In case of a decision between a main category and a minor category, I decided to include the firm in the minor category so that the results of the main categories would be as clean as possible.

An overview of the reasons detected in the AAERs and further sources, as well as the category to which the reasons are assigned, can be found in *Table 3*. The table presents the reason for the misrepresentation in one column, and the number of occurrences of the reason in the sample in another column. The table is also split into multiple panels, each representing one category. Note that multiple reasons may occur. For example, a firm might misrepresent to maximize the managers' bonus payment and their proceeds from the sale of personally held shares. In that case, both reasons are counted in *Table 3*, but there is still only one firm misrepresenting.

Table 3 around here

The column with the reason for the misrepresentation (*Table 3, Column 1*) contains the reasons for the misrepresentation as written in the AAER. This leads to similar wordings and similar meanings of the reasons collected in column 1. For instance, Panel C contains the reason "meeting or beating analysts' earnings expectations". Moreover, the same panel has the reason "meeting or exceeding Wall Street expectations". The relevant meaning for this paper is that management felt pressured into achieving the expectations of the capital markets. However, since its wording is slightly different in the AAERs, the wording is different in *Table 3* as well.

5.2 Frequency of the Misrepresentations by Category

An overview of the frequency of each category within the total sample is shown in *Table 4*. Column 2 of *Table 4* gives the frequency of firms in each category compared to the total of 100 firms, while column 3 excludes category 0 (unassignable firms). Column 4 presents the corresponding firm-years while column 5 shows the average number of firm-years per firm. Note that the frequency in column 3 is shown as a percentage.

Table 4 around here

As shown in *Table 4 Column 3*, the three main categories (category 1, 2 and 3) together cover 80% of the misrepresented firms, where 24% belong to category 1, 22% to category 2, and 34% to category 3. However, the option-backdating cases were only separated from category 1 for statistical reasons. Including them would have led to 30% of the misrepresenting firms being in category 1 and the option-backdating cases. In total, the three main categories and the option-backdating cases would cover 86% of all reasons for misrepresentation. On average, one firm misrepresents for 2.45 firm-years. This number depends on the reason. Most misrepresented firm-years can be found in the option-backdating cases with 7.6 firm-years (not shown in the table) and the fewest in category 2 with 1.5 firm-years. Why there are so few firm-years in category 2 cannot be concluded with certainty. It may be that that the firms ceased trading because the misrepresentation was uncovered, because the aim of the misrepresentation was achieved or because the firm disappeared from the market.

The prior literature seldom qualifies the reasons, as for instance in Schrand and Zechman (2012). The authors analyze 49 cases of which 13 (=26.5%) would fall into category 1. The fact that the 26.5% in Schrand and Zechman (2012) is close to the 24% in *Table 4* speaks for the validity of the results in *Table 4*. In Schrand and Zechman (2012), 26 of the 49 cases (=53%) would fall into categories 3 and 5. Moreover, some of the 26 cases might fall into category 2 as well. Categories 3 and 5 combined in my paper are 45%, which is maybe 3–4 cases short of the 56% in Schrand and Zechman (2012), further validating the results of *Table 4*.

Also, the non-misrepresenting firms in the control sample are assigned to the categories. The specific category depends on the corresponding misrepresenting firm. Of the total of 4,794 non-misrepresented firm-years of the control firms, 2,397 were assigned to category 1, 955 to category 2, and 1,830 to category 3. Note that 388 firm-years were assigned to multiple categories.

5.3 Comparison of the Reasons from the Prior Literature and AAERs

Many reasons for the misrepresentation identified in the AAERs can also be found in the prior literature, but there are some extensions and specifications as well. Firms in category 1 misrepresented to inflate the stock price before the sale of stocks by management, to maximize remuneration for the managers and to hide asset misappropriation. The prior literature discusses the maximization of remuneration (Dechow et al., 1996 and Beneish 1999b), but clear evidence could not be identified. The sale of personally held stock by the managers at inflated share prices is shown in the prior literature (Summers and Sweeny 1998, Tevenot 2012, Beneish 1999b), but there is also literature doubting these results (e.g., Burns and Kedia 2006, Erickson et al., 2006, Armstrong et al., 2010). The results of the AAERs may therefore help to clarify this disagreement in the literature. Asset misappropriation in connection with misrepresentations is not covered by the prior literature and can thus be seen as an extension to the existing literature.

Firms in category 2 misrepresented to hide or mask their true financial health. This reason as such is not mentioned in the prior literature, but in some cases the hiding and masking aimed to raise funds vital for the firm's survival or to avoid contractual penalties such as from a debt contract. Both reasons can be found in parts of the prior literature. Dechow et al. (1996) identified a need for external financing of misrepresenting firms. Moreover, some firms engage in earnings management around SEOs (e.g., Teoh et al., 1998b, Cohen and Zarowin 2010, Shivakumar 2000), so raising funds from the equity market vital for the firm's survival is covered by the prior literature. The avoidance of breaking a debt covenant through a misrepresentation and the subsequent contractual penalty is also covered by the prior earnings management literature (e.g., Watts Zimmerman 1990, DeFond and Jiambalvo 1994, Jaggi and Lee 2002). However, further contractual penalties or other bankruptcy threats are not covered by the prior earnings management or misrepresentation literature.

Firms in category 3 misrepresented due to capital market pressure to meet certain targets. These targets can originate from actors in the capital market such as analysts or investors, but they can also originate from within the firm, for example pressure to achieve the past year's earnings or earnings guidance. Misrepresentations as a form of management entrenchment to meet market pressure in a general form have been covered by Badertscher (2011). In the earnings management literature, the focus lies more on the actors or reasons for the market pressure. This includes meeting analysts' forecasts (Bartov et al., 2002, Burgstahler

and Eames 2006) and avoiding reporting a loss (Burgstahler and Dichev 1997), so the reasons in category 3 are well covered by the prior literature.

Firms in category 4 misrepresented to hide option-backdating. The link between option-backdating and misrepresentation or earnings management has not yet been covered by the prior literature, but the question needs to be raised of whether the misrepresentation is just the logical consequence of the option-backdating. This case is therefore covered by the option-backdating literature. The connection to the misrepresentation is not drawn explicitly. Firms in category 5 misrepresented to meet internal targets. The link between internal targets and misrepresentations has also not been touched on by the prior literature, but the question arises of whether the misrepresentation exists, and whether the last part of a sequence of events is covered in the prior literature, but just not linked ultimately to misrepresentation. Firms in category 6 misrepresented to increase the proceeds of an IPO. This reason can be found, for example, in Teoh et al. (1998a) and Aharony et al. (1993) as a reason for earnings management. Ball and Shivakumar (2008) provided evidence of more conservative accounting. The results of the AAERs can help to clarify the dispute in the prior literature. Indeed, managers sometimes misrepresent to increase the proceeds of an IPO but, given the entire population of firms (especially firms engaging in earnings management), one cannot know how common this reason for a misrepresentation is.

In sum, the reasons identified from AAERs and the reasons suggested in the prior literature largely coincide. There are some extensions to the prior literature as in the case of category 2, but these extensions are rather minor.

5.4 Determining the Tool for the Misrepresentation

The second research question concerns the link between the reason for the misrepresentation and the tool used for the misrepresentation. The tool is thus defined as the accounting component through which the misrepresentation was made. To answer the question, the individual ratios of the misrepresenting firm are compared once as they were misrepresented, and once as they were later restated. The aim is to identify through the different ratios the underlying component.

The results are shown in *Table 5*, which comprises four panels. The first panel shows all misrepresenting firms originating from categories 1, 2, and 3. It should reflect the results, if there was no split according to the reason in the first place. The other panels comprise firms

originating from only one category, so it is possible to determine the component depending on the reason for the misrepresentation. I shall now explain in depth the design and interpretation of the first panel, Panel A. The others are structured in the same way so require no explanation.

Table 5 around here

Table 5 comprises 13 columns. In the first column, the factor is named. A definition of the variables can be found in Table 1. In the next three columns, the number of observations, the mean, median and standard deviations are named for the misrepresented firm-year. In the following columns, the same is shown for the restated firm-year. The last four columns contain the results of the test for mean difference and the test for differences in distribution (hereinafter 'median difference'). There are good reasons to prefer the mean or median, so only if the mean (median) differs significantly can it be argued that the firm-years differ. However, if both differ, the results can be considered as stronger since they verify each other.

Table 5 Panel A contains the comparison of the same financial ratios for the same fiscal year of the same firm. The firm consequently serves as its own control. When looking at the individual results, the factors *profitability, liquidity, return on investment,* and *financial leverage* differ significantly, at least by around 10% of their mean and median between the misrepresented and restated case. We can therefore safely assume that firms differ in these factors due to the misrepresentation. Moreover, the *receivable turnover* and *inventory turnover* differ in their median but not in their mean, so whether the firms differ in this characteristic is open to discussion. From the mean perspective there is no difference, while there is one difference from the median perspective.

The results themselves show that there is indeed a difference between misrepresented and non-misrepresented financial figures. This conclusion as such is probably less surprising, since a restatement implies that something must be changed. Moreover, the net income was increased through the misrepresentation. This conclusion is based on the increase in the *profitability* factor. This factor is represented by the return-on-asset ratio. Since the control sample is assessed based on total assets, the ratio only reflects the changes in net income, leading to the conclusion that net income has been increased through the misrepresentation. This conclusion is further strengthened by the *return-on-investment* factor. This factor is reflected in the return-on-equity ratio whose main part is net income. Since the ratio increased because of the misrepresentation, the net income increased as well. Furthermore, income is booked into equity, so an increase in net income also increases equity. Equity is the denominator

of the return on equity but also the numerator of the ratio for the factor *financial leverage*. Consequently, the factor *financial leverage* decreases due to the misrepresentation.

The median of *receivable turnover* is significantly higher in the misrepresented case than in the non-misrepresented one. This is a consequence of an increase in the numerator receivables, for example because of premature revenue recognition. In the case of the *inventory turnover*, the median is lower, which hints at a lower inventory because of the misrepresentation. This can also be, for example, the effect of premature revenue recognition. The products that are not yet sold appear as inventory, so early recognition lowers the inventory. The receivables and the inventory are part of current assets. This account is also the numerator of the *liquidity* factor. The *liquidity* factor is higher in the misrepresented case than in the non-misrepresented one. This increase could be a reflection of a steeper increase in receivables than a decrease in inventory, but there could also be other factors influencing the current assets upwards or the current liabilities downwards. In summary, for all firms in categories 1, 2, and 3, the misrepresentation was made by increasing net income, probably even combined with boosting sales and consequently receivables.

Panel B of *Table 5* contains a comparison of the misrepresented firm-year with the later restated firm-year for firms in category 1 (management greed). The results show that the mean and median differ only in the cases of *financial leverage* and *profitability*. Moreover, there is a significant mean difference in *asset balance* and *capital intensiveness* but no median differences in these cases. Also, *cash position*, *inventory turnover*, *return on investment* and *capital intensiveness* differ only in the median but not in the mean.

When a firm misrepresents its earnings, for example through premature revenue recognition, the equity increases since earnings are part of equity. Increasing equity leads to an increase in total assets, so the denominator of the *financial leverage* ratio increases, which causes the *financial leverage* ratio to decrease. This is also the explanation for the lower *cash position* in the misrepresented case. As explained before, the cash and cash equivalent account is hard to manipulate, but the denominator total assets are affected by the increase in earnings, so the *cash position* decreases. The median of the *inventory turnover* in the misrepresented case is slightly below the median of the *inventory turnover* in the restated case. Since the difference is at the third digit behind the decimal point, there is doubt about whether it has an economic impact. Nevertheless, the lower value hints at a certain misrepresentation strategy. Increasing sales, for example through premature revenue recognition leads to an increase in the denominator and hence a decrease in the overall ratio.

When looking at *capital intensiveness,* the higher mean value in the restated case can shed further light on the interplay between sales and total assets. Total assets are increased through certain misrepresentation strategies (e.g., capitalizing costs) but sales are also increased through certain misrepresentation strategies (e.g., premature revenue recognition). For at least some firms, total assets increased more than sales, resulting in greater *capital intensiveness*. At least for some firms, the mean difference in *asset balance* is a consequence of higher total assets. The *return on investment* is a consequence of increasing earnings so, in summary, three components of the financial figures can be identified on which the misrepresentation is based: increasing earnings, increasing total assets and increasing sales.

Panel C of *Table 5* contains a comparison of the misrepresented firm-year with the later restated firm-year for firms in category 2 (bankruptcy avoidance). The effect of misrepresentation was to increase the ratio of *profitability, liquidity* and *return on investment,* while decreasing *inventory turnover* and *financial leverage*. Moreover, the median but not the mean is significantly higher in the case of *receivable turnover*. *Receivable turnover* thus hints at a misrepresentation strategy. The receivables are increased due to the misrepresentation, for example through premature revenue recognition or faked sales, so the sales increase as well. The increased sales cause the denominator of the *inventory turnover* to increase, which leads to a decrease in inventory turnover. Unless the firm produces its goods or services at a loss, increasing sales also increases earnings. This increase in earnings is reflected in the *profitability* and the *return-on-investment* ratio. In the restated case, *profitability* and *return on investment* are negative but, apart from mean *profitability,* positive in the misrepresented case indicating that such firms misrepresent to avoid disclosing their losses. Earnings can thus be considered a major tool for misrepresentation. Increasing earnings leads to an increase in equity, since earnings are part of equity. As a consequence, the total assets increase, which causes the equity to decrease.

A little outside the chain is *liquidity*. An increase in receivables also increases current assets, which is the numerator of *liquidity,* so *liquidity* increases. However, current assets are also the numerator of asset balance. *Asset balance* is not just affected by the misrepresentation. Another consequence is that the denominator 'current liabilities' is decreased to appear more liquid. This can be achieved, for example, by failing to present all current liabilities. In summary, the misrepresentation is mainly made through receivables, sales, earnings, total assets and current liabilities.

Panel D of *Table 5* contains a comparison of the misrepresented firm-year with the later restated firm-year for firms in category 3 (capital market pressure). The misrepresentation affected a variety of accounting ratios. Such firms increase their *profitability*, *liquidity*, *cash position* and *capital intensiveness*, and decrease their *financial leverage*. The median difference also signals an increase in *return on investment* and a decrease in *inventory turnover*.

Cash and cash equivalents can be retrieved from the bank statement or physically counted, so they are hard to misrepresent. The increase in *cash position* therefore hints at a decrease in the denominator of the *cash position* ratio, the total assets. The *profitability* factor comprises net income scaled by total assets, so the increase in the factor can be achieved either by increasing earnings or decreasing total assets. The increase in the *profitability* can be partly attributed to the decrease in total assets, which could be seen in the cash position. However, the decrease in total assets is too small to explain the difference in the *profitability* factor alone, so earnings must also have been increased due to the misrepresentation. Furthermore, the increase in earnings can be seen in *return on investment*. Here, no total assets are involved. The ratio comprises earnings scaled by equity, but *return on investment* is greater in the misrepresented case than in the restated. The earnings are thus increased due to the misrepresentation. An increase in earnings leads to an increase in equity. Equity is the numerator of the *financial leverage* factor, so the *financial leverage* factor increases. This increase is further strengthened since total assets are the denominator. As explained earlier in this paragraph, total assets are decreased due to the misrepresentation, so both effects can also be confirmed by *financial leverage*. The denominator of the *capital intensiveness* ratio is total assets and, since total assets decreased due to the misrepresentation, the ratio increased.

The decrease in the *inventory turnover* due to the misrepresentation can be explained, for example, by premature revenue recognition. In the case of premature revenue recognition, products are recognized as sold, although they in fact still belong to the firm and consequently to the balance sheet as inventory. When correcting the issue, the inventory account increases, which increases the nominator of *inventory turnover*. Moreover, in the case of premature revenue recognition, the sales figure is increased. Sales are the denominator of the inventory turnover ratio so both effects, inventory and sales, work together to decrease *inventory turnover* due to the misrepresentation. The ratio reflecting *liquidity* comprises current assets divided by current liabilities. Increasing *liquidity* could be achieved by increasing current assets, for example, by capitalizing costs or decreasing current liabilities by failing to disclose a liability.

5.5 Profile of Misrepresenting Firms – Statistical Tests

The third research question addresses the profile of firms that misrepresent. This perspective is the last part of the chain, namely outcome. It is therefore based on the published misrepresented annual report. *Table 6* contains an overview of the misrepresenting firm's size, measured once by total assets and once by sales. The size is compared between the categories 1, 2, and 3. Misrepresenting firms in category 1 have a mean that is roughly three times smaller, and a median two times smaller in both proxies for size compared to firms in category 3. The results are thus significant with respect to mean and median, so it can be inferred that misrepresenting firms in category 1 are comparatively small.

Table 6 around here

Misrepresenting firms in category 2 are equal in size to those in category 1 but are much smaller than firms in category 3. In fact, firms in category 3 have total assets much greater than those in category 2. The gap in sales is even larger. Here, however, it must be noted that firms in category 2 are in financial distress, so the low sales might be a reflection of this financial distress rather than a good proxy for size. Misrepresenting firms in category 3 are larger than firms in category 1 and 2. In fact, these firms are much larger in terms of total assets and sales, so firms in category 3 can be considered as larger. They are clearly the largest firms among all three categories.

Table 7 contains a comparison between the misrepresented firm-years and non-misrepresented firm-years of the respective peer firms, so two samples of firms are compared. The table is structured in the same fashion as *Table 5*, leading to the same style of interpretation. Panel A compares firms originating from categories 1, 2, and 3 with its peer firms. Taking a larger sample, for example comprising all misrepresenting firms in the dataset, does not lead to qualitatively different results. Note that a peer firm occurs only once in the control sample, even if it is a control firm for multiple misrepresenting firms.

Table 7 around here

The prior literature has already shown that misrepresenting firms in general differ from their peers (e.g., Dechow et al., 2011). Moreover, the prior literature has made an assessment of the characteristics of misrepresenting firms in general. Unsurprisingly, as in the prior literature, the results in Panel A show that misrepresenting firms differ from their peers, so the

results can be seen as confirmation of the prior research and as support for the validity of the underlying dataset.

The results of *Table 7 Panel B* indicate that misrepresenting firms in category 1 (management greed) have a lower *asset balance*, higher *profitability*, lower *cash position*, higher *inventory turnover* and lower leverage than their peers. Whether misrepresenting firms have lower *activity* due to a significant median difference but a lack of significance for the mean is open to discussion. When looking at these misrepresenting firms from the perspective of profitability, higher *profitability*, higher *inventory turnover* and lower *activity* indicate a profitable firm. Lower *financial leverage* is a sign of low riskiness in investing by the firm, but lower *cash position* and lower *asset balance* signal the opposite. The latter two signal a lack of liquid funds and an inability to quickly increase these funds through normal operations so, due to the opposite directions of the variables assigned to the riskiness aspect, riskiness as such can be considered average. It is neither high since the *financial leverage* is low, nor low due to the *cash position* and *asset balance*.

The results in *Table 7 Panel C* indicate that misrepresenting firms in category 2 (bankruptcy avoidance) are less liquid, have an inferior cash position and are more highly leveraged than their peers, since these three variables are very different among their peers. According to the prior literature, lower *liquidity*, lower *cash position*, and higher *financial leverage* are all indicators of increased default probability and so increased risk for the firm (Skogsvik 1990). Variables related to the profitability aspect do not differ, so it can be inferred from the results that misrepresenting firms in category 2 take more risks and might default sooner than their peers, but they appear as profitable as their peers.

The results of the comparison of the accounting ratios between misrepresenting firms in category 3 and their peers are shown in *Table 7 Panel D* (capital market pressure). The results indicate that misrepresenting firms in this category have a lower *asset balance*, higher *profitability*, lower *cash position* and higher *capital intensiveness*. Moreover, the median of the *activity* is below the median of their peers and the median of *inventory turnover* is above that of its peers.

The lower *assets balance* means that there are more non-current (fixed) assets in such misrepresenting firms than in their peers, but current assets are meant to be sold quickly and consequently are closer to liquid funds. In this case, the ratio *asset balance* therefore hints at higher riskiness. The same is true for *cash position* with similar argumentation. *Cash position*

in this case is below the *cash position* of the peers, so there are fewer liquid funds available and consequently the riskiness is higher. The *capital intensiveness* ratio for misrepresenting firms is higher than the same ratio for their peers. A higher ratio has proven to increase the default risk of a firm (Altman 1968), so *capital intensiveness* in this case also signals high riskiness. Consequently, according to their misrepresented figures, misrepresenting firms in category 3 are even more inclined to risk than their peers.

Lower *activity* means that the firms are more successful in selling their current assets (inventory), so this is a sign of profitability. Moreover, the *profitability* factor itself is higher for misrepresenting firms than for their peers, leading to the conclusion that misrepresenting firms in category 3 are more profitable. However, *inventory turnover* indicates the opposite. The ratio shows how fast the inventory is sold. A higher *inventory turnover* ratio is a sign of the faster sale of the inventory and ultimately of higher profitability. In this case, *inventory turnover* for the peer firms is higher than for the misrepresenting firms, indicating that firms that misrepresent are less profitable. Consequently, the accounting ratios provide a mixed picture of profitability. Two ratios point towards being profitable and one in the opposite direction, so profitability can be considered average.

5.6 Profile of Misrepresenting Firms – Regression Analysis

Table 8 compares misrepresenting firms with peer firms through descriptive statistics and statistical tests. However, an issue is that variables are taken separately and not together so, to strengthen the results, a firth logistic regression analysis was performed. Since the event of a misrepresentation is rare within the dataset, using a firth logistic regression brings more accurate results than a logistic regression without the adjustments published by Firth (1993).

Table 8 around here

The dependent variable is the binary variable '*misrepresent'*, which has the value 1 if the firm-year is misrepresented and 0 otherwise. The independent variables are the same as shown in Table 1 and represent the factors as in the previous table, so the independent variables cover a variety of different accounting characteristics. Table 11 presents the results in (A) for misrepresenting firms in categories 1, 2, and 3 combined, in (B) for firms in category 1 (management greed) only, in (C) for firms in category 2 (bankruptcy avoidance) only, and in (D) for firms in category 3 (capital market pressure) only. It is therefore possible to draw

conclusions for all misrepresenting firms in the pooled dataset and for the misrepresenting firms separated by the reason for the misrepresentation.

The results for the case of categories 1, 2, and 3 combined (letter A) differ in several cases to the results of the statistical tests. Significance is lost in the cases of *return on investment* and *asset balance,* while significance is gained in the case of liquidity. However, since the previous interpretation was that misrepresenting firms differ in general to their peers, and since the misrepresenting firms still differ, the interpretation remains unchanged by the results of the regression analysis.

Also, the results for firms in category 1 (letter B) differ between the regression analysis and the statistical tests. In the regression analysis, the factors *liquidity, receivable turnover* and *return on investment* show a significant difference, while *financial leverage* loses its significance. Just as a reminder, the interpretation of the results for the statistical tests shows average riskiness and high profitability. When looking at attitude to riskiness, as in the case of the statistical tests, the negative coefficient of *cash position* and *asset balance* signal increased riskiness, but the positive coefficient for *liquidity* signals decreased riskiness. Riskiness can therefore be considered as average. When looking at the profitability aspect, the positive coefficient for *receivable turnover, inventory turnover* and *profitability* indicate very profitable firms compared with their peers. Nevertheless, the negative *return on investment* factor indicates the opposite. The *return-on-investment* factor, however, reflects profitability from the perspective of the shareholder and therefore the interpretation of a profitable firm in general, with a small potential exception for the shareholders. Both interpretations in principle coincide with the results of the statistical tests.

The results for category 2 (letter C) only indicate that one factor differs by around 5% between the misrepresenting firms and peer firms: *financial leverage*. This one factor, however, developed in line with expectations. Firms in category 2 are more highly leveraged indicating higher propensity for riskiness. Since the factors aligned to the profitability aspect remain insignificant at 5%, it can be concluded that profitability generally remains equal to that of peer firms. Both interpretations are in line with the interpretations of the results of the statistical tests, where the interpretation was that riskiness is increased while profitability is equal.

The results for category 3 (letter D) only partly confirm the results of the statistical tests. The interpretation of the profitability of the statistical tests was difficult due to results pointing in different directions. In the case of the regression analysis, no factor associated with the

profitability aspect is significant, so the interpretation is that misrepresenting firms in this category appear as profitable as their peers. In terms of riskiness, the interpretation of the statistical tests was that misrepresenting firms in category 3 take more risks than their peers. The results of the regression analysis suggest that misrepresenting firms in this category are more liquid but have a lower *cash position*. Higher *liquidity* would indicate lower riskiness while a lower *cash position* suggests higher riskiness, so no clear interpretation is possible. Given that the remaining variables do not signal any significances, it can be said that misrepresenting firms in category 3 appear to be like their peers. The higher propensity for riskiness in the statistical tests cannot be confirmed.

6. Robustness Test

The variables chosen in this paper were selected since they were considered by the prior literature to reflect well the characteristics of firms. However, whether they do is open to discussion. In the prior research, some other variables have also been employed. The question now arises of whether the results can be confirmed with different variables by other researchers. As an example, I chose the variables of Dechow et al. (2011), which the authors themselves call "financial statement variables". An overview of these and their definitions can be found in *Table 9*.

Table 9 around here

I re-produced *Table 7* of my work using the variables of Dechow et al. (2011), and the results can be found in *Table 10*. The table and statistical tests are designed in the same fashion as *Table 7*, so the results can be interpreted in the same way as the results of *Table 7*. At first, the question arises of whether the results are comparable with those of Dechow et al. (2011). I therefore focus especially on Table 6 in Dechow et al. (2011, p. 48-49). In this table, the authors compare misrepresented firm-years with the remaining firm-years on COMPUSTAT.

Table 10 around here

At first glance, there are several differences in the results between Dechow et al. (2011) Table 6 (in the following D6) and my *Table 10 Panel A*. I focus my comparison on whether the t-tests for mean difference show any significance, since the authors only disclose the results of the t-test and not, for example, a rank-sum test. In Dechow et al. (2011), all accrual quality variables are significantly different while all performance variables are non-significantly different. When looking at *Table 10 Panel A*, these results can only partly be confirmed. Among

the accrual quality variables, *rsst-accruals*[5], *change in receivables* and both forms of *DD-residuals* are insignificant. The *rsst-accruals* and the *change in receivables* are insignificant due to the matching criteria. In a comparison with an unmatched sample, the variables become significant. The variables for *DD-residuals* remain insignificant in all cases. Among the performance variables, only the *deferred taxes* are significantly different in *Table 10 Panel A,* while they are insignificant in D6. As before, the reason for this is the matching process. The variable is insignificant when no matching is performed, and the entire dataset is used, so one can conclude that the results in *Table 10 Panel A* are generally in line with the results of Dechow et al. (2011).

The results in *Table 7 Panel A* of this work indicate that there is indeed a difference between misrepresenting firms and their peers in terms of accounting characteristics. The same conclusion can be drawn from *Table 10 Panel A*. Misrepresenting firms differ in many of their characteristics. There is a mean and median difference for *working capital accruals*, *discretionary accruals, changes in inventory, deferred taxes,* and the *percentage of soft assets*. Moreover, a median difference in cash sales and *rsst-accruals* indicates a significant difference between misrepresenting firms and their peers.

The results of the *Tables 7* suggest that the accounting characteristics of misrepresenting firms differ depending on the reason for the misrepresentation. The same conclusion can be drawn from the remaining panels of *Table 10*. Misrepresenting firms in category 1 differ in five out of eight accrual quality variables in their mean and median, and in one performance variable. For category 2, the firms differ in seven out of eight accrual quality variables in terms of the mean, but only in three out of eight variables in terms of the median. The performance variables do not signal any differences between misrepresenting firms in category 2 and their peers. In category 3, only two of the eight accrual quality variables differ significantly in their mean and median. Among the performance variables, no variable differs when looking at the mean differences only, and two differ when considering the median differences. In general, there is a recognizable trend in the number of significant variables from many in category 1 to a few in category 3. This all supports the statement above that misrepresenting firms differ in their accounting characteristics depending on the reason for the misrepresentation. The results of the paper are therefore robust in terms of changes in the underlying variables.

[5] Named after the authors where the variable was first mentioned (Richardson et al., 2005).

7. Conclusion

This paper focused on three elements of a misrepresentation: Reason, Tool, and Outcome. It could be shown that the elements influence each other. A certain reason causes the use of certain tools, and ultimately causes a certain outcome. If produced in greater detail, the paper could show the following results for the three elements: when looking at the reason, three main categories were detected, namely, misrepresentation for the direct personal gain of the manager, to avoid negative contractual or institutional consequences, and due to capital market pressure. The proportions of the reasons compared to the total sample are shown in *Table 4*. Excluding option-backdating cases, misrepresentations for managers' personal gain occur in 24% of cases, to avoid negative contractual or institutional penalties in 22%, due to capital market pressure in 34% and misrepresentations for other reasons including option-backdating cases in 20% of cases.

These reasons give rise to the use of different tools on the part of management to make misrepresentations. Firms misrepresenting for the direct personal gain of the manager (category 1) mainly use the following tools: increasing earnings, increasing total assets, and increasing sales. Firms misrepresenting to avoid negative contractual or institutional consequences (category 2) mainly use increasing receivables, increasing sales, increasing earnings, increasing total assets, and decreasing current liabilities. Firms misrepresenting due to capital market pressure (category 3) mainly use increasing earnings, decreasing total assets, decreasing inventory, increasing current assets, and decreasing current liabilities.

The reasons resulted in the use of different tools that influenced the outcome, which is the published report. This comprises the non-misrepresented financial figures, and adjustments due to misrepresentation. The results show that depending on the reason for the misrepresentation, the outcome differs. Firms misrepresenting for the direct personal gain of the manager (category 1) are comparatively small, typically highly profitable, and with an average attitude to riskiness. Those misrepresenting to avoid negative contractual or institutional consequences (category 2) are also comparatively small, but appear to take more risks and deliver average profitability. Firms misrepresenting due to capital market pressure (category 3) are comparatively large, typically take as many or more risks than their peers, and deliver average or normal profitability.

Furthermore, the paper estimated the proportion of management wealth-related misrepresentation cases compared to the total population of cases. An estimation was also

possible for misrepresentations to avoid negative contractual or institutional penalties, and due to capital market pressure. In both cases, the study confirmed the existence of misrepresentations for a specific reason, and estimated the proportion of misrepresentations due to the specific reason compared to the total population of cases.

The paper contributes to the positive accounting theory. A major advantage is that the reasons for misrepresentation were collected from AAERs and verified by further sources, so the accuracy of the reasons is high. Based on these observed reasons, a split was made among the misrepresenting firms. The firms can therefore be characterized as differentiated by conflict between the stakeholders (reason), which caused the misrepresentation. This characterization includes the tools (accounts) through which the misrepresentation was made, as well as the outcome (financial reports). This information can help us better handle and anticipate misrepresentations in relevant stakeholder categories (e.g., shareholders, analysts, auditors, financial supervisory bodies, regulators), since knowledge on the types of firm can increase awareness of the problem.

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Figure 1 From Cause to Outcome, the Chain of a Misrepresentation

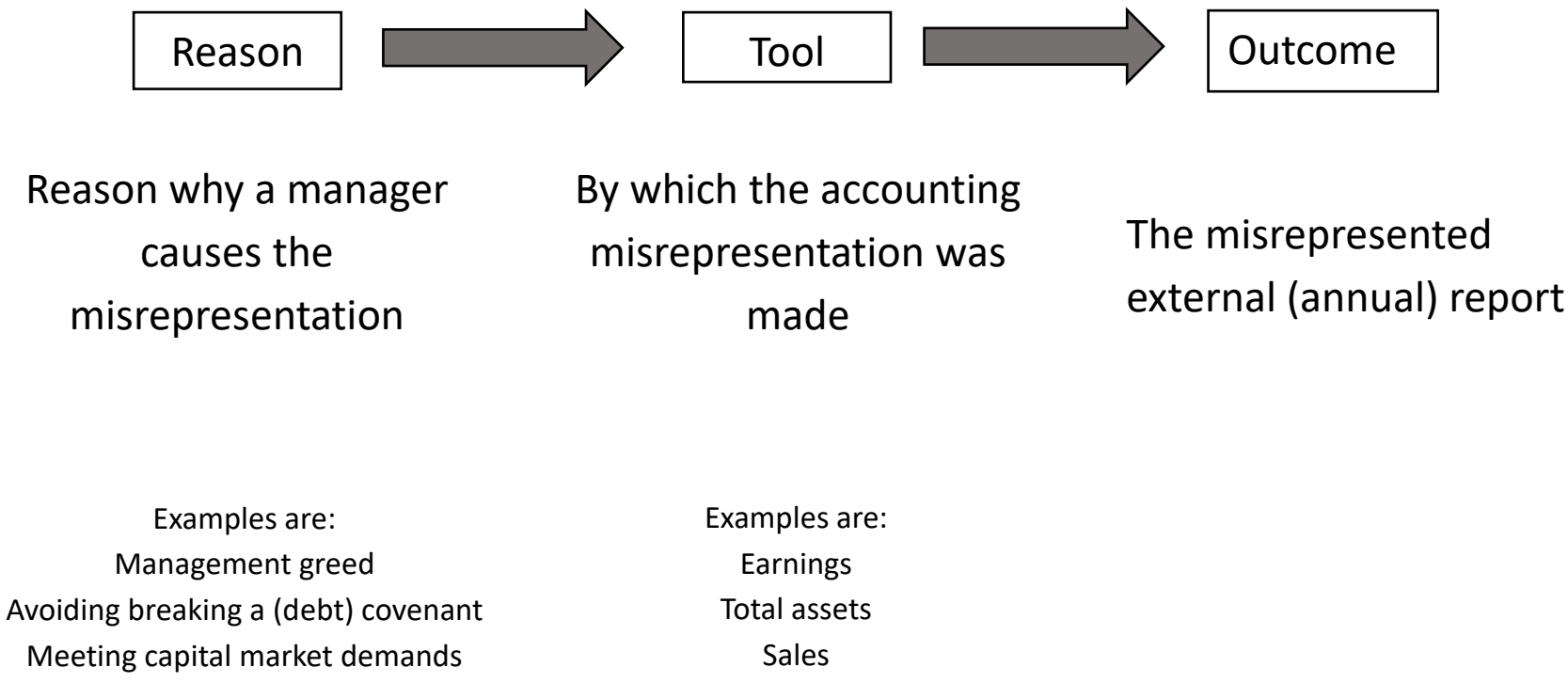

TABLE 1
Variable definition

Factor represented by the ratio	**Source**	**Calculation of the ratio**	**Aspect the factor belongs to**
Asset Balance	Libby (1975)	Current assets/total assets	Riskiness
Activity	Libby (1975), Stevens (1973)	Current assets/sales	Profitability
Profitability	Libby (1975), Stevens (1973)	Net income/total assets	Profitability
Liquidity	Libby (1975), Stevens (1973)	Current assets/current liabilities	Riskiness
Cash position	Pinches et al. (1973 and 1975), Libby (1975)	Cash/total assets	Riskiness
Receivable turnover	Pinches et al. (1973 and 1975)	Receivables/Sales	Profitability
Inventory turnover	Pinches et al. (1973 and 1975)	Inventory/sales	Profitability
Return on Investment	Pinches and Mingo (1973), Pinches et al. (1973 and 1975)	Net income/book value of equity	Profitability
Capital intensiveness	Pinches and Mingo (1973), Pinches et al. (1973 and 1975)	Sales/total assets	Riskiness
Financial Leverage	Pinches and Mingo (1973), Pinches et al. (1973 and 1975)	Debt/total assets	Riskiness

Overview of factors identified in the prior literature and the financial ratios that best describe the factors. Column 1 contains the factor names, column 2 the authors from whom the factors and the ratios originate, column 3 the ratios that best represent the factors, and column 4 the aspect to which the factor is assigned.

TABLE 2

Frequency of Misrepresenting Firm-years by Fiscal Year from a Sample of 100 Randomly Selected Firms

Fiscal Year	Number of Misrepresenting Firms	Percentage	Fiscal Year	Number of Misrepresenting Firms	Percentage
1993	1	0.41	2002	28	11.42
1994	5	2.04	2003	32	13.06
1995	6	2.45	2004	24	9.80
1996	14	5.71	2005	18	7.35
1997	10	4.08	2006	10	4.08
1998	11	4.49	2007	10	4.08
1999	16	6.53	2008	6	2.45
2000	24	9.80	2009	2	0.82
2001	28	11.42	**Total**	**245**	**100**

Overview of misrepresented firm-years by fiscal year for 100 randomly selected misrepresenting firms in the dataset.

TABLE 3
Overview of the reason for the misrepresentation in a sample of 100 misrepresenting firms

Reason for the misrepresentation	**Number of occurrences in AAERS**
Panel A: Reason for the misrepresentation in category 1 (manager's greed)	
Sale of company stock by the management	11
Maximizing the personal bonus of management	6
Maximizing the remuneration of top management	5
Embezzling firm's funds	2
Hiding a trading loss by the president of a subsidiary	1
Sum of the number of occurrences Panel A	25
Panel B: Reason for the misrepresentation in category 2 (avoidance of contractual or institutional penalties)	
Hiding the true financial situation	7
Obtaining vital financing	5
Avoiding disclosing negative equity	3
Avoiding violating a debt covenant	2
Hiding poor operating results	1
Hiding financial difficulties in one subsidiary	1
Sum of the number of occurrences Panel B	19
Panel C: Reason for the misrepresentation in category 3 (capital market pressure/fear of the capital market)	
Meeting or beating analysts' earnings expectations	15
Meeting or exceeding Wall Street expectations	2
Meeting the revenue target	2
Meeting internal targets to increase stock price and surprise analysts/mislead the investing public	1
Reporting favorable earnings to public investors	1

Meeting targets communicated to investment bankers	1
Meeting outside revenue expectations	1
Meeting internal revenue and earnings goals based (in part) on analysts' expectations	1
Market pressure to achieve the past year's performance despite substantial renovation of the stores	1
Meeting own earnings guidance	1
Meeting earnings/gross sales expectations	1
Disguising the performance to be below market expectations	1
Meeting company's (externally communicated) earnings target	1
Sum of the number of occurrences Panel C	29
Panel D: Reason for the misrepresentation in category 4 (backdating options)	
Increasing the managers' proceeds from the exercise of the option	5
Panel E: Reason for the misrepresentation in category 5 (internal reasons)	
Avoiding disclosing a loss	2
Disclosure of the budgeted gross-margin	1
Meeting a subsidiary's financial target	1
Meeting internal sales target of one division	1
Meeting internal financial targets	1
Achieving results closer to the internal annual plan	1
Concealing the extent of the losses internally	1
Hiding losses by the head of the insurance division	1
Sum of the number of occurrences Panel E	9
Panel F: Reason for the misrepresentation in category 6 (increasing proceeds from the capital market)	
Decreasing the stock costs during a merger, increasing the proceeds of a SEO	1
Underrepresenting labor costs to increase the gains of an IPO	1

Sum of the number of occurrences Panel F	2
Total number of occurrences in all categories	90

The table contains an overview of the reasons for the misrepresentation as disclosed in the AAERs by the SEC. The table is ordered by similar reason where each panel represents one category of similar reasons. Multiple reasons can originate from one firm and be disclosed multiple times in the table. Moreover, firms where the reason for the misrepresentation could not be detected are not listed in the table. In the case of multiple reasons belonging to one category, the cases were disclosed multiple times in the same panel.

TABLE 4
Frequency of misrepresenting firms for each of the categories

Category	Frequency	As a percentage excluding category 0	Number of firm-years	Average number of firm-years per firm
1 (management greed)	20	24%	61	3.05
2 (bankruptcy prevention)	18	22%	27	1.50
3 (fear of the capital market)	28	34%	64	2.29
Other reasons (category 4-6)	16	19%	53	3.31
0 (unclassifiable)	18		48	2.67
total	100		245	2.45

This table contains the number of distinct firms for each category, the percentage distribution excluding category 0 (unidentified reason for a misrepresenting), the number of corresponding firm-years and the average number of firm-years per distinct firm.

TABLE 5
Comparison of Misrepresented Firm-years to Restated Firm-years

Panel A: Comparison of misrepresented firm-years to restated firm-years – category 1-3												
category 1-3	firm-year as disclosed (misrepresented)				firm-year as restated (non-misrepresented)				mean difference t-test		median difference signed rank test	
	N	mean	median	std. dev.	N	mean	median	std. dev.	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Asset balance	135	0.502	0.520	0.242	135	0.519	0.532	0.269	-1.666	0.098	-0.687	0.492
Activity	86	0.664	0.534	0.700	86	3.525	0.434	25.522	-1.038	0.302	-0.567	0.571
Profitability	134	0.027	0.036	0.117	134	-0.001	0.014	0.137	3.762	0.000	6.662	0.000
Liquidity	85	2.584	2.172	1.731	85	2.141	1.897	1.363	3.292	0.002	3.806	0.000
Cash position	150	0.130	0.064	0.159	150	0.131	0.069	0.173	-0.188	0.852	0.271	0.786
Receivable turnover	152	0.664	0.201	2.119	152	1.204	0.178	7.241	-0.953	0.342	2.693	0.007
Inventory turnover	146	0.150	0.101	0.162	146	0.953	0.132	9.525	-1.020	0.310	-5.664	0.000
Return on investment	130	0.139	0.097	0.437	130	-0.041	0.066	1.072	1.874	0.063	5.367	0.000
Capital intensiveness	150	1.037	0.951	0.736	150	1.030	0.927	0.698	0.181	0.857	0.552	0.581
Financial leverage	147	0.533	0.542	0.290	147	0.633	0.590	0.476	-3.531	0.001	-7.766	0.000

Panel B: Comparison of misrepresented firm-years to restated firm-years – category 1														
category 1	firm-year as disclosed (misrepresented)				firm-year as restated (non-misrepresented)				mean difference t-test			median difference signed rank test		
	N	mean	median	std. dev.	N	mean	median	std. dev.	mean of the percentage difference	t-value	p-value (two-sided)	median of the percentage difference	z-value	p-value (two-sided)
Asset balance	56	0.485	0.463	0.246	56	0.520	0.464	0.287	-9%	2.459	0.017	0%	1.424	0.154
Activity	31	0.669	0.433	0.876	31	8.270	0.387	42.499	-2133%	0.994	0.328	0%	-0.294	0.769
Profitability	51	0.120	0.110	0.113	51	0.077	0.064	0.211	58%	-2.137	0.038	21%	-4.026	0.000
Liquidity	30	2.810	2.606	1.663	30	2.581	2.055	1.354	1%	-1.207	0.237	0%	-1.164	0.244
Cash position	61	0.108	0.053	0.138	61	0.119	0.059	0.164	-16%	1.528	0.132	-1%	2.168	0.030
Receivable turnover	61	1.095	0.206	2.986	61	1.264	0.206	3.311	-3%	0.847	0.400	0%	-1.139	0.255
Inventory turnover	61	0.165	0.141	0.171	61	0.192	0.147	0.232	-22%	1.501	0.139	-2%	4.038	0.000
Return on investment	57	0.113	0.102	0.184	57	0.077	0.070	0.368	81%	-0.870	0.388	4%	-3.157	0.002
Capital intensiveness	61	0.950	0.855	0.649	61	1.046	0.828	0.706	-10%	2.199	0.032	0%	1.099	0.272
Financial leverage	58	0.440	0.327	0.278	58	0.499	0.388	0.286	-25%	-4.766	0.000	-4%	-4.285	0.000

Panel C: Comparison of misrepresented firm-years to restated firm-years – category 2														
category 2	firm-year as disclosed (misrepresented)				firm-year as restated (non-misrepresented)				mean difference t-test			median difference signed rank test		
	N	mean	median	std. dev.	N	mean	median	std. dev.	mean of the percentage difference	t-value	p-value (two-sided)	median of the percentage difference	z-value	p-value (two-sided)
Asset balance	25	0.548	0.590	0.252	25	0.535	0.577	0.250	-7%	-0.367	0.717	0%	-0.215	0.830
Activity	21	0.888	0.568	0.863	21	0.767	0.573	0.620	-11%	1.014	0.323	0%	0.000	1.000
Profitability	26	-0.084	0.011	0.271	26	-0.156	-0.069	0.285	29%	-1.862	0.074	8%	-2.718	0.007
Liquidity	21	2.178	2.008	1.509	21	1.825	1.899	1.382	17%	-1.769	0.092	3%	-2.364	0.018
Cash position	26	0.160	0.087	0.193	26	0.152	0.086	0.188	-10%	-0.419	0.679	0%	0.102	0.919
Receivable turnover	27	0.243	0.194	0.148	27	0.286	0.163	0.720	2%	0.339	0.737	10%	-2.391	0.017
Inventory turnover	24	0.160	0.119	0.143	24	0.196	0.175	0.153	-82%	1.980	0.060	-2%	2.837	0.005
Return on investment	19	0.482	0.109	1.002	19	-0.014	-0.009	0.719	9%	-2.006	0.060	0%	-2.857	0.004
Capital intensiveness	26	0.913	0.829	0.452	26	0.991	1.029	0.668	-9%	0.852	0.402	0%	0.559	0.576
Financial leverage	26	0.755	0.748	0.355	26	1.030	0.804	0.798	-36%	2.038	0.052	-1%	3.572	0.000

Panel D: Comparison of misrepresented firm-years to restated firm-years – category 3														
category 3	firm-year as disclosed (misrepresented)				firm-year as restated (non-misrepresented)				mean difference t-test			median difference signed rank test		
	N	mean	median	std. dev.	N	mean	median	std. dev.	mean of the percentage difference	t-value	p-value (two-sided)	median of the percentage difference	z-value	p-value (two-sided)
Asset balance	54	0.497	0.516	0.236	54	0.506	0.531	0.237	-6%	1.141	0.259	0%	0.000	1.000
Activity	34	0.597	0.502	0.566	34	0.828	0.494	1.514	-23%	1.330	0.193	0%	1.361	0.174
Profitability	57	0.059	0.083	0.123	57	-0.038	0.063	0.295	42%	-2.942	0.005	13%	-6.205	0.000
Liquidity	34	2.636	2.132	1.912	34	1.949	1.756	1.292	18%	-2.601	0.014	2%	-3.311	0.001
Cash position	63	0.140	0.084	0.163	63	0.133	0.075	0.162	6%	-2.103	0.040	1%	-2.787	0.005
Receivable turnover	64	0.430	0.197	1.395	64	0.379	0.173	1.140	-10%	-1.343	0.184	0%	-1.295	0.195
Inventory turnover	61	0.130	0.093	0.161	61	0.143	0.097	0.187	-31%	1.381	0.172	-1%	2.869	0.004
Return on investment	54	0.046	0.082	0.188	54	-0.209	0.067	1.500	-2%	-1.266	0.211	1%	-3.346	0.001
Capital intensiveness	63	1.173	1.007	0.884	63	1.073	0.977	0.740	6%	-1.858	0.068	1%	-2.588	0.010
Financial leverage	63	0.526	0.554	0.217	63	0.580	0.590	0.232	-14%	3.701	0.001	-3%	5.147	0.000

This table contains a comparison between the financial ratios representing a factor as first disclosed (misrepresented) and then later restated (non-misrepresented) financial ratios of all misrepresenting firms in category 1-3 (Panel A), category 1 (Panel B), category 2 (Panel C) and in category 3 (Panel D). An overview of the variable definition can be found in Table 1. The current table consists of the mean, median and standard deviation. Moreover, the mean and median are compared with a t-test and a signed-rank-test. As a further measure for the difference between the misrepresented and non- misrepresented case, the mean and median of the difference in percentage are shown. Values shaded in grey signal a significance of at least 10%. The financial ratios are winsorized at 1% and 99% to mitigate the impact of outliers.

TABLE 6
Firm Size of Misrepresenting Firms by Category

	category 1		category 2		category 3		mean difference t-test		median difference rank-sum-test	
	mean	median	mean	median	mean	median	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Total assets	1728.533	467.171	1742.814	136.971			0.0198	0.9843	-0.873	0.3826
Sales	1334.31	401.628	1015.784	94.348			-0.3494	0.7277	-0.647	0.5177
Total assets	1728.533	467.171			4726.96	824.5375	2.8992	0.0044	2.618	0.0089
Sales	1334.31	401.628			4397.938	1134.945	2.1898	0.0304	3.882	0.0001
Total assets			1742.814	136.971	4726.96	824.5375	2.0006	0.0485	2.884	0.0039
Sales			1015.784	94.348	4397.938	1134.945	1.7514	0.0833	2.989	0.0028

The table contains the size of the misrepresenting firm one time proxied by total assets and one time proxied by sales. The size is compared to the size of the firms in the other categories with a t-test and a rank-sum test. Values shaded in grey signal a significance of at least 10%.

TABLE 7
Descriptive Statistics and Statistical Tests: Firms in Category 1, 2, and 3

Panel A: Comparison of misrepresented firm-years to firm-years of peers – category 1-3												
category 1-3	firm-year as disclosed (misrepresented)				control firms (peers)				mean difference t-test		median difference rank-sum test	
	N	mean	median	std. dev.	N	mean	median	std. dev.	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Asset balance	137	0.505	0.527	0.242	4457	0.594	0.632	0.245	-4.171	0.000	-4.167	0.000
Activity	137	0.623	0.519	0.592	4392	1.592	0.598	4.485	-2.527	0.012	-4.370	0.000
Profitability	140	0.023	0.036	0.129	4190	-0.010	0.019	0.142	2.758	0.006	2.486	0.013
Liquidity	137	2.689	2.462	1.705	4457	3.273	2.200	3.536	-1.926	0.054	0.111	0.911
Cash position	152	0.132	0.065	0.160	4792	0.258	0.177	0.248	-6.202	0.000	-6.114	0.000
Receivable turnover	152	0.664	0.201	2.119	4703	0.685	0.197	2.078	-0.125	0.901	-0.965	0.335
Inventory turnover	146	0.150	0.101	0.162	4660	0.121	0.052	0.217	1.569	0.117	3.714	0.000
Return on investment	134	0.137	0.092	0.429	4073	0.186	0.081	0.745	-0.756	0.450	1.039	0.299
Capital intensiveness	152	1.036	0.951	0.732	4786	0.939	0.809	0.743	1.591	0.112	2.303	0.021
Financial leverage	152	0.527	0.531	0.287	4785	0.566	0.464	0.497	-0.961	0.337	0.820	0.412

Panel B: Comparison of misrepresented firm-years to firm-years of peers – category 1												
category 1	firm-year as disclosed (misrepresented)				control firms (peers)				mean difference t-test		median difference rank-sum test	
	N	mean	median	std. dev.	N	mean	median	std. dev.	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Asset balance	56	0.485	0.463	0.246	2161	0.609	0.656	0.245	-3.740	0.000	-3.626	0.000
Activity	56	0.618	0.463	0.678	2144	1.431	0.622	3.898	-1.559	0.119	-3.494	0.001
Profitability	56	0.105	0.107	0.140	2194	-0.009	0.037	0.185	4.579	0.000	5.357	0.000
Liquidity	56	3.036	2.821	1.723	2161	3.171	2.250	3.165	-0.331	0.741	1.419	0.156
Cash position	61	0.108	0.053	0.138	2397	0.257	0.190	0.240	-4.853	0.000	-4.834	0.000
Receivable turnover	61	1.095	0.206	2.986	2374	1.012	0.209	2.702	0.236	0.813	-0.830	0.407
Inventory turnover	61	0.165	0.141	0.171	2331	0.118	0.047	0.209	1.748	0.081	2.920	0.004
Return on investment	60	0.110	0.098	0.180	1962	0.204	0.083	0.715	-1.019	0.309	1.032	0.302
Capital intensiveness	61	0.950	0.855	0.649	2391	0.902	0.773	0.722	0.520	0.603	1.199	0.231
Financial leverage	61	0.437	0.353	0.271	2393	0.580	0.458	0.517	-2.146	0.032	-1.951	0.051

Panel C: Comparison of misrepresented firm-years to firm-years of peers – category 2												
category 2	firm-year as disclosed (misrepresented)				control firms (peers)				mean difference t-test		median difference rank-sum test	
	N	mean	median	std. dev.	N	mean	median	std. dev.	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Asset balance	26	0.553	0.601	0.248	947	0.593	0.639	0.258	-0.780	0.436	-0.909	0.363
Activity	26	0.717	0.568	0.574	925	1.995	0.615	5.631	-1.156	0.248	-1.157	0.247
Profitability	25	0.026	0.037	0.193	874	-0.026	0.024	0.187	0.003	0.998	-0.343	0.732
Liquidity	26	2.021	1.881	1.477	947	3.698	2.304	4.349	-1.961	0.050	-2.215	0.027
Cash position	27	0.156	0.082	0.190	955	0.267	0.177	0.258	-2.199	0.028	-2.324	0.020
Receivable turnover	27	0.243	0.194	0.148	931	0.257	0.181	0.595	-0.126	0.900	1.045	0.296
Inventory turnover	24	0.160	0.119	0.143	927	0.150	0.105	0.222	0.227	0.820	1.226	0.220
Return on investment	20	0.460	0.073	0.981	755	0.234	0.066	0.885	1.122	0.262	1.018	0.309
Capital intensiveness	27	0.910	0.833	0.443	954	0.917	0.804	0.740	-0.049	0.961	0.733	0.464
Financial leverage	27	0.736	0.746	0.363	952	0.548	0.426	0.543	1.782	0.075	3.341	0.001

Panel D: Comparison of misrepresented firm-years to firm-years of peers – category 3												
category 3	firm-year as disclosed (misrepresented)				control firms (peers)				mean difference t-test		median difference rank-sum test	
	N	mean	median	std. dev.	N	mean	median	std. dev.	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Asset balance	55	0.502	0.520	0.237	1719	0.568	0.589	0.240	-2.012	0.044	-1.995	0.046
Activity	55	0.584	0.465	0.507	1692	1.478	0.549	4.122	-1.609	0.108	-2.525	0.012
Profitability	59	0.063	0.085	0.123	1695	0.014	0.058	0.179	2.067	0.039	2.282	0.023
Liquidity	55	2.653	2.266	1.717	1719	3.016	2.037	3.289	-0.815	0.415	0.948	0.343
Cash position	64	0.145	0.087	0.166	1828	0.260	0.171	0.253	-3.609	0.000	-3.411	0.001
Receivable turnover	64	0.430	0.197	1.395	1784	0.382	0.194	1.116	0.332	0.740	-1.033	0.302
Inventory turnover	61	0.130	0.093	0.161	1782	0.092	0.014	0.209	1.403	0.161	3.671	0.000
Return on investment	54	0.058	0.084	0.179	1521	0.195	0.095	0.753	-1.331	0.183	-0.649	0.516
Capital intensiveness	64	1.171	1.022	0.877	1822	1.006	0.847	0.769	1.678	0.093	1.780	0.075
Financial leverage	64	0.524	0.554	0.216	1825	0.548	0.481	0.414	-0.471	0.638	0.951	0.342

The table contains a comparison between the financial ratios representing a factor as disclosed (misrepresented) and the same financial ratio of peer firms of all misrepresenting firms in category 1-3 (Panel A), category 1 (Panel B), category 2 (Panel C) and in category 3 (Panel D). An overview of the variable definition can be found in Table 1. The current table consists of the mean, median and standard deviation. Moreover, the mean and median are compared with a t-test and a rank-sum test. Values shaded in grey signal a significance at least 10%. The financial ratios are winsorized at 1% and 99% to mitigate the impact of outliers.

TABLE 8

Comparison of Misrepresented Firm-years to Firm-years of Peers: Firth Logistic Regression

VARIABLES	(A) Category 1-3 misrepresent	(B) Category 1 misrepresent	(C) Category 2 misrepresent	(D) Category 3 misrepresent
Asset balance	-0.241	-1.387***	1.055*	-0.078
	(-0.781)	(-3.068)	(-1.690)	(-0.159)
Activity	-0.014	-0.050	0.021	-0.007
	(-0.594)	(-1.412)	(-0.991)	(-0.225)
Profitability	0.625†	3.995***	0.025	-0.248
	(-1.696)	(-4.086)	(-0.047)	(-0.441)
Liquidity	0.0395*	0.064***	-0.019	0.051**
	(-2.201)	(-2.651)	(-0.489)	(-2.133)
Cash position	-1.487***	-1.394**	-1.201	-1.451**
	(-3.578)	(-2.244)	(-1.620)	(-2.368)
Receivable turnover	0.0767	0.378***	0.081	0.031
	(-0.587)	(-2.693)	(-0.619)	(-0.144)
Inventory turnover	0.597†	2.260***	0.243	0.609
	(-1.86)	(-3.957)	(-0.523)	(-1.332)
Return on investment	0.071	-0.732†	0.148†	-0.031
	(-1.007)	(-1.654)	(-1.858)	(-0.242)
Capital intensiveness	-0.0275	0.138	-0.242	0.001
	(-0.330)	(-1.248)	(-1.178)	(-0.008)
Financial leverage	-0.175	-0.227	0.432**	-0.265
	(-1.090)	(-0.993)	(-2.164)	(-1.159)
Constant	-1.531***	-1.501***	-2.328***	-1.587***
	(-10.75)	(-8.192)	(-8.688)	(-7.599)
Observations	3676	1,746	752	1,452

*** p<0.01, ** p<0.05, * p<0.1

This table contains the result of a firth logistic regression with the binary variable '*misrepresent'* (1 if the firm misrepresented, otherwise 0) as a dependent variable and the variables defined in Table 1 as independent variables. Robust z-statistics are in parentheses. Note that a firth logistic regression has no R^2. The difference between the number of observations in case A and the cases B, C and D combined originates from the multiple assignments of one control firm to misrepresenting firms.

TABLE 9
Variable description according to Dechow et al. (2011)

Variable	Abbreviation	Calculation
WC accruals	wc_acc	((ΔCurrent Assets-ΔCash and Short-term Investments)-(ΔCurrent Liabilities-ΔDebt in Current Liabilities-ΔTaxes Payable))/Average total assets
RSST accruals	rsst_acc	(Δ(Current Assets-Cash and short-term Investments-Current Liabilities-Debt in Current Liabilities)+Δ(Total Assets-Current Assets-Investments and Advances-Total Liabilities+Current Liabilities+Long-term Debt)+Δ(Short-term Investments+Long-term Investments-Long-term Debt-Debt in Current Liabilities-Preferred Stock))/Average total assets
Change in receivables	ch_rec	ΔAccounts Receivable/Average total assets
Change in inventory	ch_invt	ΔInventory/Average total assets
%Soft assets	soft_assets	(Total Assets-PP&E-Cash and Cash Equivalent)/Total Assets
Modified Jones model discretionary accruals	da	The modified Jones model discretionary accruals estimated cross-sectional using all observations in the same year and the same two-digit SIC code. The residual of the following regression is used as the modified Jones model discretionary accruals: WC Accruals=α+β(1/Beginning assets)+γ(ΔSales-ΔRec)/Beginning assets+δΔPPE/Beginning assets+ε
Mean-adjusted absolute value of DD residuals	resid	The mean absolute value of the residual of the following regression is calculated for each industry and is then subtracted from the absolute value of each firm's observed residual: $\Delta WC=b_0+b_1*CFO_{t-1}+b_2*CFO_t+b_3*CFO_{t-1}+\varepsilon$
Studentized DD residuals	sresid	Mean-adjusted absolute value of DD residuals (resid) with studentized residuals
Change in cash sales	ch_cs	Percentage change in cash sales where cash sales is: Sale-ΔAccounts Receivable

Change in cash margin	ch_cm	Percentage change in cash margin where cash margin is: 1-((cost of goods sold-ΔInventory+ΔAccounts Payable)/(Sales-ΔAccounts Receivable))
Change in return on assets	ch_roa	$(earnings_t/average\ total\ assets_t)-(earnings_{t-1}/average\ total\ assets_{t-1})$
Change in free cash flow	ch_fcf	Δ(earnings-RSST Accruals)/Average total assets
Deferred tax expense	tax	Deferred tax expense for year t/total assets for year t-1

TABLE 10

Robustness Test with Financial Statement Variables of Dechow et al. (2011)

Panel A: All misrepresenting firms independent of the reason for the misrepresentation										
	Misrepresented firm-years			Non-misrepresented firm-years			mean difference t-test		median difference rank-sum test	
	N	Mean	Median	N	Mean	Median	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Accruals quality variable										
Wc_accruals	214	0.036	0.018	7206	0.012	0.006	2.296	0.022	2.542	0.011
Rsst accruals	205	0.105	0.067	6821	0.069	0.039	1.571	0.116	2.509	0.012
Change in receivables	241	0.033	0.015	8050	0.026	0.016	1.306	0.192	0.441	0.659
Change in inventory	232	0.021	0.003	7987	0.007	0.000	4.931	0.000	4.673	0.000
%soft assets	245	0.647	0.680	8547	0.556	0.578	5.481	0.000	5.245	0.000
Modified Jones model discretionary accruals	218	0.064	0.055	7244	0.046	0.044	2.332	0.020	2.488	0.013
Mean-adjusted absolute value of DD residuals	214	0.026	0.009	6590	0.020	0.010	0.742	0.458	0.085	0.933
Studentized DD residuals	214	0.008	0.003	6590	0.006	0.003	0.741	0.459	0.080	0.937
Performance variables										
Change in cash sales	233	0.270	0.151	7378	0.314	0.110	-0.455	0.649	2.359	0.018
Change in cash margin	223	0.001	0.000	7126	0.004	0.000	-0.311	0.756	0.404	0.686
Change in return on assets	225	0.006	-0.004	7153	0.013	0.001	0.601	0.548	1.374	0.169
Change in free cash flows	193	0.019	0.009	6058	0.015	0.008	0.688	0.491	0.696	0.486
Deferred tax expense	230	0.024	0.003	7502	0.013	0.000	4.792	0.000	6.181	0.000

Panel B: Firms in Category 1 (Misrepresentation for the Direct Personal Gain of the Manager)										
	Misrepresented firm-years			Non-misrepresented firm-years			mean difference t-test		median difference rank-sum test	
	N	Mean	Median	N	Mean	Median	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Accruals quality variable										
Wc_accruals	53	0.048	0.024	1918	0.021	0.008	1.821	0.069	1.738	0.082
Rsst accruals	54	0.171	0.093	1845	0.056	0.038	2.620	0.009	3.159	0.002
Change in receivables	58	0.047	0.022	2216	0.031	0.018	1.276	0.202	1.009	0.313
Change in inventory	58	0.020	0.003	2173	0.008	0.000	2.008	0.045	2.106	0.035
%soft assets	61	0.733	0.762	2397	0.566	0.586	4.909	0.000	4.975	0.000
Modified Jones model discretionary accruals	54	0.084	0.063	1947	0.051	0.046	1.901	0.058	1.701	0.089
Mean-adjusted absolute value of DD residuals	53	0.032	0.016	1781	0.040	0.016	0.432	0.666	0.383	0.702
Studentized DD residuals	53	0.009	0.005	1781	0.012	0.005	0.436	0.663	0.379	0.704
Performance variables										
Change in cash sales	54	0.222	0.153	1978	0.234	0.096	0.059	0.953	1.283	0.200
Change in cash margin	53	0.000	0.000	1919	0.001	0.001	0.088	0.930	0.744	0.457
Change in return on assets	54	0.005	0.004	1911	0.012	0.000	-0.248	0.804	0.262	0.793
Change in free cash flows	51	0.041	0.024	1580	0.030	0.011	0.243	0.808	1.387	0.166
Deferred tax expense	55	0.044	0.010	2090	0.014	0.000	5.878	0.000	6.734	0.000

Panel C: Firms in Category 2 (Misrepresentation to Avoid Negative Contractual or Institutional Consequences)										
	Misrepresented firm-years			Non-misrepresented firm-years			mean difference t-test		median difference rank-sum test	
	N	Mean	Median	N	Mean	Median	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Accruals quality variable										
Wc_accruals	25	0.064	0.017	866	0.007	0.002	2.526	0.012	1.882	0.060
Rsst accruals	24	0.010	0.044	845	0.074	0.031	0.878	0.380	0.408	0.683
Change in receivables	27	0.053	0.017	906	0.016	0.009	2.299	0.022	1.495	0.135
Change in inventory	24	0.032	0.012	903	0.006	0.000	2.384	0.017	2.094	0.036
%soft assets	27	0.656	0.625	953	0.530	0.548	2.600	0.010	2.637	0.008
Modified Jones model discretionary accruals	25	0.083	0.055	880	0.039	0.040	1.655	0.098	1.610	0.107
Mean-adjusted absolute value of DD residuals	25	0.082	0.014	800	0.037	0.016	1.783	0.075	0.109	0.913
Studentized DD residuals	25	0.025	0.004	800	0.011	0.005	1.780	0.076	0.109	0.914
Performance variables										
Change in cash sales	25	0.403	0.093	822	0.439	0.093	0.112	0.911	0.490	0.624
Change in cash margin	22	0.003	0.001	796	0.006	0.000	-0.080	0.936	0.627	0.531
Change in return on assets	22	0.039	-0.003	774	0.010	0.000	0.686	0.493	0.287	0.774
Change in free cash flows	21	-0.005	-0.011	740	0.001	0.001	0.085	0.933	0.746	0.456
Deferred tax expense	26	0.005	0.000	882	0.010	0.000	0.933	0.351	0.647	0.517

Panel D: firms in category 3 only (Misrepresentation due to Market Pressure)										
	Misrepresented firm-years			Non-misrepresented firm-years			mean difference t-test		median difference rank-sum test	
	N	Mean	Median	N	Mean	Median	t-value	p-value (two-sided)	z-value	p-value (two-sided)
Accruals quality variable										
Wc_accruals	52	0.025	0.015	1569	0.010	0.004	1.112	0.267	1.084	0.279
Rsst accruals	48	0.076	0.049	1473	0.082	0.043	-0.114	0.909	0.495	0.621
Change in receivables	64	0.020	0.009	1707	0.025	0.015	0.489	0.652	0.834	0.404
Change in inventory	61	0.029	0.003	1704	0.006	0.000	4.163	0.000	3.614	0.000
%soft assets	64	0.633	0.604	1824	0.568	0.596	2.101	0.036	1.820	0.069
Modified Jones model discretionary accruals	55	0.042	0.050	1574	0.044	0.043	0.156	0.876	0.481	0.631
Mean-adjusted absolute value of DD residuals	52	0.046	0.017	1435	0.019	0.013	1.471	0.142	1.199	0.231
Studentized DD residuals	52	0.014	0.005	1435	0.006	0.004	1.477	0.140	1.201	0.230
Performance variables										
Change in cash sales	63	0.434	0.190	1594	0.398	0.128	0.209	0.834	1.452	0.147
Change in cash margin	60	0.002	0.000	1540	0.005	0.000	0.154	0.877	0.567	0.571
Change in return on assets	51	0.013	0.014	1508	0.007	0.004	1.138	0.255	2.317	0.021
Change in free cash flows	44	-0.022	0.002	1336	0.004	0.006	0.543	0.587	0.966	0.334
Deferred tax expense	62	0.020	0.009	1622	0.016	0.000	1.008	0.314	3.432	0.001

The table contains a comparison between the financial ratios representing a factor as first disclosed (misrepresented) and the later restated (non-misrepresented) financial ratios of all firms (Panel A), firms in category 1 only (Panel B), firms in category 2 only (Panel C) and firms in category 3 only (Panel D). The variables used in the table are defined in Table 10. Values shaded in grey signal a significance of at least 10%. The financial ratios are winsorized at a 1% and 99% level to mitigate the impact of outliers.

APPENDIX A

Explanation of a t-test for Mean Difference, Signed-rank Test, and a Wilcoxon rank-sum Test

For the data analysis three statistical tests are used, the two-sample t-test for mean difference, the signed-rank-test and the Wilcoxon rank-sum test. The two-sample t-test determines whether the means of two underlying populations of two samples equal each other. It therefore assumes normal distribution.

The signed-rank-test is a test that compares the distribution of two samples (Newbold et al., 2013 p. 602), so one observation of the first sample gets matched randomly with one observation of the second sample. The difference between the two observations is then calculated. This is continued until at least one sample is out of non-matched observations. The absolute values of the differences are then ranked. The algebraic sign (+ or -) is added afterwards to the rank of the pair of observations. The table below contains a short example of the described procedure. The question in the end is whether the rank of the differences of the pairs including their signs is normally distributed (Z-values).

Sample 1	Sample 2	Difference	Absolute difference	Rank	Sign x rank
1	4	-3	3	2	-2
5	3	+2	2	1	+1
3	7	-4	4	3	-3

Example of a signed rank test. The table shows how a signed rank test works. First, the two samples that should be compared are matched randomly. Second, the differences are calculated. Third, the absolute values of the differences are taken. Fourth, based on the absolute values of the differences, the rank is determined. Fifth, the sign from the differences is put at the rank.

The Wilcoxon rank-sum test has similarities with the signed-rank test. It is also based on the rank of the firm in the sample and also tests for differences in the distribution of the sample. However, the signed rank test randomly pairs one observation from the first sample with one from the second, so only as many observations are looked at as are in the first or second sample. In the one with more observations, as many observations as are in the other sample are randomly selected. Due to the large mis-fit between the sample sizes and the small number of misrepresenting firms in the categories, the rank-sum test might be more accurate, since the risk of randomly selecting an outlier in the larger sample disappears.

The Wilcoxon rank-sum test sorts the observations of both samples from the smallest to the largest (Newbold et al., 2013, p.611). Each of the observations gets a number assigned to it starting with 1 for the smallest (2 for the second-smallest, 3 for the third-smallest…). The numbers (ranks) of the observations for each sample are added up. The sum of the ranks is then adjusted by the number of observations. The claim of the test is that the ranks of the observations are normally distributed, so the adjusted sum of the ranks is standardized and compared with the standard normal distribution (Z-values).

In all cases, the mean difference is compared to a t-test. The signed-rank test has advantages in having equal size between the treatment category and control category, while the Wilcoxon rank-sum test has advantages for unequal sizes. The dataset for research question 1 is largely unequal while the dataset for research question 2 is (naturally) equal, so the differences in the distribution (hereinafter ‘median differences’) are measured for the first research question with the Wilcoxon rank-sum test, and for the second research question with the signed-rank test.

APPENDIX B

Sample selection of firms subject of Accounting and Auditing Enforcement Releases (AAERs) between 1993-2013

Number of distinct firms	**Number**
Firms with at least one annual AAER case	585
Less: firms with missing CIK-code	(102)
Less: missing COMPUSTAT data	(20)
Total number of misrepresenting firms between 1993 and 2013	**463**
Number of firm-years	**1123**

The data are limited on one side by collectability from EDGAR. EDGAR data are typically available from 1996 onwards, so restated figures for previous incorrect annual reports cannot be collected from publications before 1996. An SEC investigation normally takes about three years, so a restatement from 1996 normally becomes part of an AAER published in 1999. There is therefore no firm included in the dataset whose misrepresentation was published in an AAER before 1999, so the dataset consists of AAERs published between 1999 and 2015. Since the AAERs are published at the end of a long investigation process, the dataset covers the years 1993-2013. In total, 585 distinct firms could be identified. Of these 585 firms, 122 firms had to be excluded due to a missing CIK-code[6] or no data at all on COMPUSTAT, so the remaining dataset consist of 463 firms misrepresenting 1,123 firm-years or 2.43 misrepresented firm-years per misrepresenting firm. The results of the selection process are shown in the table above.

[6] A firm without a cik code is likely not in EDGAR, so there are no attempts for further identifiers.