Classification Shifting and the Value Relevance of non-GAAP and GAAP Earnings

Master's Thesis

Name: Ercan Simsek
Student number: 361167

Thesis supervisor: Dr. Chris Knoops
Co-reader: Prof. dr. M. Pronk

Master in Accounting, Auditing & Control
Specialization: Accounting & Auditing
Erasmus School of Economics

ABSTRACT: This paper examines the effect of classification shifting on the value relevance of non-GAAP and GAAP earnings. In addition, it examines whether firms with an increase in the additional value relevance of reporting non-GAAP earnings are less likely to engage in classification shifting due to the additional benefit of reporting non-GAAP earnings that are perceived to be of high quality. The results show that, in line with prior literature, non-GAAP earnings are more value relevant than GAAP earnings. Moreover, classification shifting negatively affects the value relevance of GAAP earnings, whereas no credible evidence has been obtained for non-GAAP earnings due to insignificant results. These findings imply that investors focus more on non-GAAP than on GAAP earnings during earnings announcements, which indicates that non-GAAP earnings are found to be more permanent than GAAP earnings. Finally, the results show that the larger the difference in value relevance between non-GAAP and GAAP earnings, the less likely firms are to engage in classification shifting.

Keywords: non-GAAP earnings, GAAP earnings, "Street" earnings, classification shifting, earnings management, value relevance

1. Introduction

The purpose of this thesis is to examine the relation between classification shifting and the value relevance of earnings. More specifically, the thesis investigates the relation between the value relevance of non-GAAP and GAAP earnings information and the deliberate misclassification of income statement items by managers in order to present a more favorable picture of the financial condition of the firm. Such deliberate misclassification is an earnings management method called classification shifting (McVay, 2006). According to McVay (2006), managers have incentives to manage earnings to present a more favorable picture of the firm by shifting particular expenses, that are actually core expenses and therefore recurring, to special items. A special item, which includes extraordinary expenses, is defined by the Financial Accounting Standards Board (FASB) as an expense that is the result of a non-operating event or transaction that is both (1) unusual in nature and (2) infrequent in occurrence (ASU, 2015). The criterion of 'unusual in nature' implies that the expense is assumed to be unusual in nature only when the event or transaction that resulted in the expense is considered to be unrelated to the typical operating activities of an entity and therefore considered to be an expense that is abnormal and unusual. The criterion of 'infrequent in occurrence' implies that the event or transaction that gave rise to the expense must be of a type that can be classified as nonrecurring and therefore expected to not recur as a result of the future activities typical to the entity. However, both criteria are subjective in that it leaves room for the own interpretation of an entity to classify an expense as nonrecurring and to shift it to special items (McVay, 2006). Such subjectiveness in the classification criteria leads to the classification of recurring expenses as special items, enabling managers to use classification shifting in order to present a picture that is not equal to the true financial performance of the firm. Therefore, managers might engage in classification shifting in order to manipulate and thereby mislead investors to meet certain benchmarks (McVay, 2006).

Previous literature provides evidence that investors have shifted their focus from GAAP earnings to non-GAAP earnings because these voluntarily disclosed measures by companies include fewer non-recurring expenses than GAAP earnings that is obligatorily reported by companies in their financial statements. Therefore, investors find non-GAAP measures reported by managers more value relevant than GAAP earnings (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Lougee and Marquardt, 2004). Although non-GAAP earnings might be found

more value relevant and therefore more informative to investors, McVay (2006) shows that these voluntarily disclosed earnings might be used opportunistically by managers to manage earnings by shifting core expenses to special items in order to present a picture that is not in line with the true financial performance of the firm. Concerns about the opportunistic use of non-GAAP earnings by managers have been raised not only by the Securities and Exchange Commission (SEC) in 2000 stating that, "The appropriate classification of amounts within the income statement is as important as the appropriate measurement or recognition of such amounts", but also recently by Warren Buffett and the chairman of the International Accounting Standards Board (IASB), Hans Hoogervorst. Warren Buffett has raised his concern about classification shifting and the use of non-GAAP earnings measures by managers in his 2014 letter to shareholders by saying that, "When CEOs tout EBITDA as a valuation guide, wire them up for a polygraph test" (Buffett, 2014, p. 15). Moreover, according to Hans Hoogervorst in his IASB speech called "Mind the Gap (between non-GAAP and GAAP)", the expenses managers exclude from non-GAAP earnings measures can mislead investors because some expenses that are classified as special or extraordinary items are, instead of non-recurring, recurring expenses. He argues that, "Some costs are routinely left out as being nonrecurring while others might find these normal costs of doing business" (Hoogervorst, 2015, p. 4). Doyle, Lundholm and Soliman (2003) provide evidence in this respect and show that "other exclusions", which is part of total exclusions excluded from non-GAAP measures, include recurring expenses that investors find value relevant. However, Doyle et al. (2003) fail to provide evidence on the special items component, which is considered the other component besides "other exclusions" to sum up to total exclusions excluded from non-GAAP measures, because the regressions specific to the special items component provide insignificant results.

According to Dechow, Ge and Schrand (2010), the value relevance of earnings, which is the investor responsiveness to earnings measured by the ERC, can be used as a proxy for earnings quality. In light of the study of classification shifting by McVay (2006) and the concerns raised by practitioners and regulators about classification shifting and the opportunistic use of non-GAAP earnings measures, this thesis examines whether classification shifting affects the value relevance of non-GAAP earnings.

In addition, the thesis examines whether firms with a difference in value relevance in non-GAAP and GAAP earnings are less likely to engage in classification shifting. Using the absolute

difference in ERC between non-GAAP and GAAP earnings as a proxy for non-GAAP earnings quality[1] (Dechow et al., 2010), which is the incremental value relevance of reporting non-GAAP earnings, I predict that firms with high non-GAAP earnings quality will face higher opportunity costs of engaging in classification shifting. The opportunity cost of engaging in classification shifting is the cost of choosing to engage in classification shifting instead of not choosing to engage in classification shifting. Therefore, firms reporting non-GAAP earnings and not engaging in classification shifting will benefit from the additional value relevance of reporting non-GAAP earnings which investors consider of high quality. The opportunity cost of engaging in classification shifting, which is a reduction in value relevance in non-GAAP earnings and therefore a reduction in non-GAAP earnings quality, outweighs the benefit of engaging in classification shifting for a firm with high non-GAAP earnings quality. Combined, the thesis attempts to answer the following research question:

> RQ: Does classification shifting affect the value relevance of non-GAAP earnings and what is the association between the difference in value relevance in GAAP and non-GAAP earnings and the use of classification shifting?

Providing an answer to this research question is important because of the recent debate on the reporting of non-GAAP earnings, the warnings by the SEC to investors to be cautious when evaluating such earnings measures reported by firms, and the concerns raised by practitioners and regulators on the use of classification shifting and non-GAAP earnings measures that might mislead investors about the true financial performance of a firm. The true financial performance of a firm is the financial performance of the firm communicated via financial statements and/or earnings announcements to investors without earnings management by managers.

This thesis differs from prior literature in two ways. First, whereas prior literature focuses on the value relevance of non-GAAP and GAAP earnings and on which of the two measures investors find more value relevant (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Lougee and Marquardt, 2004), this thesis focuses on the association between classification shifting and the value relevance of non-GAAP earnings. Evidence obtained from comparing the

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1 The absolute difference in value relevance in non-GAAP and GAAP earnings can be considered as the additional value relevance, and therefore earnings quality, achieved as a result of reporting non-GAAP earnings.

value relevance of non-GAAP and GAAP earnings, as done in prior research, cannot explain whether managers used classification shifting to manage earnings. In fact, prior research concludes that non-GAAP earnings are more value relevant than GAAP earnings because of fewer non-recurring items included in non-GAAP earnings, without considering the possibility of earnings management through classification shifting. This thesis fills this gap by first providing evidence on classification shifting and thereafter by examining the association between classification shifting and the value relevance of non-GAAP earnings. Second, prior literature has focused primarily on the constraints of real and accruals earnings management whereas not much is known on what constrains the use of classification shifting (Abernathy et al., 2014). This thesis attempts to examine whether the likelihood that a firm avoids using classification shifting increases in the quality of earnings. Firms that use classification shifting, as a result of the behavior or policies of management, will have lower earnings quality compared to firms who do not use classification shifting. The intuition behind this is as follows. Considering that firms with fewer non-recurring expenses included in non-GAAP earnings will have more value relevant non-GAAP earnings relative to GAAP earnings (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003), resulting in an increase in non-GAAP earnings quality. Moreover, I expect that the larger the non-GAAP earnings quality[2] for a firm, which is the difference between the value relevance of non-GAAP and GAAP earnings, the higher the firm's opportunity cost of engaging in classification shifting. Therefore, firms reporting non-GAAP earnings and not engaging in classification shifting will benefit from the additional value relevance of reporting non-GAAP earnings which investors consider more value relevant and therefore of higher quality. The opportunity cost of engaging in classification shifting, which is a reduction in value relevance in non-GAAP earnings and therefore a reduction in non-GAAP earnings quality, outweighs the benefit of engaging in classification shifting for a firm with high non-GAAP earnings quality. The additional benefit of reporting non-GAAP earnings to investors will result in a stronger stock price response to earnings because investors will value the non-GAAP earnings as more value relevant compared to GAAP earnings. Therefore, the opportunity cost of engaging in classification shifting for a firm who does not engage in classification shifting, thereby benefiting from the reporting of non-GAAP earnings, will exceed the benefit of

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2 The ERC based on the non-GAAP earnings on the earnings announcement is used as a proxy for non-GAAP earnings quality.

engaging in classification shifting. Therefore, the lower the likelihood that a firm with high non-GAAP earnings quality will engage in classification shifting.

The thesis attempts to answer the above-mentioned research question by first calculating the unexpected core[3] earnings for each firm in the sample using the McVay (2006) model. Thereafter, to examine the interaction effect of classification shifting on the value relevance of earnings, I follow Athanasakou et al. (2011), and classify firms in the sample of classification-shifting firms or non-classification-shifting firms for a particular period when it meets two criteria; (1) its unexpected core earnings () is positive and (2) I/B/E/S earnings per share is greater than GAAP net income per share. Furthermore, an event study will be performed to calculate Cumulative Abnormal Returns (CARs) on the quarterly earnings announcement of each firm in the sample. These CARs will be used to examine the value relevance of GAAP and non-GAAP earnings that will be operationalized by looking at the effect of GAAP and non-GAAP earnings surprises, or forecast errors, on the CARs for the full sample, performing an Ordinary Least Squares (OLS) regression. To examine the association between classification shifting and the value relevance of GAAP and non-GAAP earnings, the interaction effect of classification shifting on the GAAP and non-GAAP surprises will be examined. Finally, the association between the difference in value relevance in GAAP and non-GAAP earnings and a firm's involvement in classification shifting will be evaluated, performing an OLS regression. Data are obtained from Compustat, CRSP, and I/B/E/S.

The findings are as follows. In line with prior literature, non-GAAP earnings are found to be more value relevant than GAAP earnings (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Doyle et al., 2003). However, although the GAAP-based regression shows that classification shifting significantly and negatively affects the relation between CARs and the GAAP earnings surprises, I fail to provide credible evidence to conclude that classification shifting increases or decreases the association between CARs and the non-GAAP earnings surprises, this due to insignificant results. Furthermore, significant results are obtained to conclude that an increase in the difference in value relevance between GAAP and non-GAAP earnings decreases the use of classification shifting by firms, this due to the additional benefit of reporting non-GAAP earnings besides GAAP earnings.

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3 I use here 'core' instead of 'non-GAAP' since the calculation of non-GAAP within the model of McVay (2006) does not change across firms, but the calculation of non-GAAP earnings across firms reported at earnings announcements might change.

This thesis contributes to existing academic research on classification shifting by providing evidence on the association between classification shifting and the value relevance of GAAP and non-GAAP earnings and could be of value to practitioners, regulators, and users of financial statements to understand the effect of classification shifting on the capital markets. The results show that both earnings measures are considered to be value relevant, whereas the non-GAAP earnings number is considered more value relevant than GAAP earnings, indicating that users of financial statements concentrate on the non-GAAP earnings measure to make capital market decisions. However, the findings also indicate that firms use classification shifting to present a financial performance that is not in line with the true financial performance of the firm, providing evidence that users of financial statements should be cautious when interpreting non-GAAP earnings measures reported by firms. An implication for external auditors is that classification shifting is being used as an earnings management method and that preventive actions should be found to decrease the manipulation of earnings measures by managers.

The results of the thesis should be of relevance to investors and analysts who demand earnings information that reflects the true financial performance of a company, without the use of earnings management, to make capital market decisions, and to regulators and practitioners who aim to prevent and detect earnings management in order to enhance the credibility of financial statements. Besides understanding how classification shifting affects the value relevance of non-GAAP earnings, the results of this thesis could also provide insights into what constrains classification shifting.

2. Theoretical Background

In this section I explain the theory behind earnings management and earnings quality. The agency theory provides an explanation for the specific choices of managers in terms of accounting methods. In the first subsection, the Efficient Market Hypothesis (EMH) is explained. The principal-agent problem according to the agency theory is explained in the second subsection. Thereafter, the incentives for earnings management based on the Positive Accounting Theory (PAT) are outlined and based on the Efficient Market Hypothesis (EMH), the use of the Earnings Response Coefficient (ERC) as a proxy of the value relevance of earnings is explained.

2.1 The Efficient Market Hypothesis (EMH)

The founders of the EMH, Eugene F. Fama and Paul A. Samuelson, have both independently from each other demonstrated in the 1960s that stock prices will incorporate all available information immediately, because when information becomes available, the information will spread very quickly to all market participants and will be priced into stock prices without delay by those investors (Malkiel, 2003).

Although the ERC measures how investors respond to accounting information obtained from the financial statements of a firm (Dechow and Schrand, 2004), the ERC is a good proxy for earnings quality and the value relevance of earnings when the capital markets are informationally efficient (Roberts, 1967). According to Roberts (1967), the EMH can be decomposed into three levels, namely (1) the weak form of the EMH, which implies that investors cannot earn abnormal profit by using technical analysis, (2) the semi-strong form of EMH, which implies that all publicly available and relevant information about a firm are immediately incorporated into the firm's stock price, and (3) the strong form of EMH, which implies that the information known to an investor will be fully incorporated into the firm's stock price.

In this thesis it is assumed that all publicly available information relevant to the firm is incorporated into its stock price immediately, since this is assumed when using the ERCs as a proxy for the value relevance of earnings and therefore earnings quality.

2.2 The Principal-Agent Problem

According to Eisenhardt (1989), agency theory describes the principal-agent problem that arises due to conflicting desires or goals between two parties, which are the principal and the agent. In agency relationships there are two problems that can arise. The first problem is the so-called *agency problem*, which occurs in the event that the desires or goals of the agent and the principal are in conflict and when the principal is not able to monitor what the agent is actually doing. The second problem is called the *problem of risk sharing*, whereby the agent and the principal have different attitudes towards risk (Eisenhardt, 1989). According to Eisenhardt (1989, p. 58), the specific problem is that "the principal cannot verify that the agent has behaved appropriately". Therefore, the principal-agent problem describes the agency problem and the problem of risk sharing between the investor and the firm. Assuming the principal is the investor and the agent the managers of a firm, an agency problem might be probable since the manager might have the incentive to manage earnings in order to present a picture of the firm's financial

performance that does not faithfully represent the business condition of the firm, whereas the investor expects the managers to not influence the financial reporting process, requiring the firm to present high quality earnings and accounting information that reflects the true financial performance of the firm.

2.3 The Positive Accounting Theory (PAT)

Although empirical finance methods as introduced by Ball and Brown (1968) and others used the "information perspective" to examine the relation between accounting information and stock returns, the explanation for the accounting choices of firms were introduced into the literature of accounting by the positive accounting research performed by Watts and Zimmerman (1986). Termed as the Positive Accounting Theory (PAT) by Watts and Zimmerman (1986), it provides the debt, contracting, and political hypotheses to predict and explain accounting choices of firms, which the "information perspective" in empirical finance methods have failed to predict and explain. The reason for the failure of empirical finance methods such as the capital asset pricing model frameworks in explaining accounting choices is that such frameworks assume that accounting choices are not relevant in affecting the value of a firm (Watts and Zimmerman, 1990). For example, the capital asset pricing model assumes information to be costless and transaction costs to not exist, thereby implying that if accounting methods chosen by firms do not have an effect on taxes, accounting choices are not relevant in explaining the factors affecting firm value. Therefore, the PAT introduced by Watts and Zimmerman (1986) included transaction and information costs into three hypotheses, namely (1) the bonus hypothesis, (2) the debt/equity hypothesis, and (3) the political cost hypothesis, to explain and predict why accounting choices should affect firm value. Therefore, the PAT explains, assuming individuals are self-interested, the accounting choices of firms and its consequences. It provides an explanation for why managers behave opportunistically and manage earnings (Watts and Zimmerman, 1990). As neatly described by Kabir (2010), a firm consists of several contracts, including the involvement of a minimum of two parties each with its own responsibilities and objectives. The accounting methods and the choices for such methods are essential to the nexus of contracts. From this point of view, earnings are the output which depends on the accounting methods and choices of managers within a firm, thereby affecting the terms and conditions as set out in contracts. Therefore, the effect of accounting methods and choices on contracts, in turn, affects the firm

9

value through the nexus of contracts. To conclude, abandoning the zero contracting costs assumption helps explain the incentive of managers to influence accounting choices and methods in order to manage earnings to meet certain terms and conditions as set out in contracts (Kabir, 2010).

Although Watts and Zimmerman (1978) provided evidence for the opportunistic behavior of managers leading to the influence of managers in adopting particular accounting methods, subsequent research in the area of PAT has focused on the efficiency perspective. The efficiency perspective indicates that the choice of particular accounting methods by managers could be because of efficiency reasons. For example, depending on the type of asset and business the company operates in, a manager can choose an asset depreciation method that best reflects the wear and tear of that asset over a period of time. This ensures efficiency since the adopted accounting method may consequently lead to a reduction in cost because according to investors and other stakeholders it might be the best method to reflect the wear and tear of the asset, thereby not requiring the investors and other stakeholders to seek for more information on the particular choice of accounting method by the manager and its efficiency (Deegan and Unerman, 2006).

2.4 Earnings Management

Methods of earnings management, such as accrual-based earnings management, real earnings management and classification shifting, applied by managers have one thing in common and that is to mislead investors in order to present a picture of the financial performance of the firm that is not equal to the true financial performance of the firm or to inform investors better by credibly signaling choices or estimates of accounting about the firm's financial performance. Although the methods differ, the objective is the same; either to mislead or to credibly signal the firm's financial performance through accounting estimates or choices. Therefore, I use the definition of earnings management provided by Healy and Wahlen (1999), since they provide a definition of earnings management based on such an objective. According to Healy and Wahlen (1999, p. 368), "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying performance of the company or to influence contractual outcomes that depend on reported accounting numbers." Several aspects of this definition can be linked to the definition of

10

classification shifting. First, as indicated by the definition of earnings management, judgment or subjectivity used by managers to classify certain recurring expenses as special items in order to mislead investors about the true financial performance of the firm is termed by McVay (2006) as classification shifting. According to McVay (2006), classification shifting is an earnings management tool that enables managers to misclassify income-statement items as special items by using their judgment or subjectivity in financial reporting. One of the objective of classification shifting could be to mislead investors about the true financial performance of the firm, allowing the firm to meet certain targets, such as earnings forecasts, in order to satisfy investors. Another objective of classification shifting could be to credibly signal the firm's financial performance through accounting estimates or choices which investors value in terms of the firm's financial performance (Healy and Wahlen, 1999). However, although the objective is the same as the other two methods of earnings management, as pointed out by McVay (2006), classification shifting differs from accruals-based earnings management and real earnings management in two ways. First, classification shifting is considered to be a relatively less costly method of earnings management since the use of classification shifting in the current period does not result in the reversal of accruals, which might affect the capital market decisions of investors in later periods. Second, judgment or subjectivity in allocating certain recurring expenses to special items allows managers to misclassify income-statement items and to accomplish earnings management without changing the bottom-line income number. This judgment or subjectivity makes it for auditors more difficult to detect classification shifting than the other two methods of earnings management, according to McVay (2006).

2.5 Incentives for Earnings Management

Why do managers manage earnings? This section will attempt to outline the incentives for earnings management and link these incentives to classification shifting. Healy and Wahlen (1999) describe several motivations for managers to manage earnings, namely (1) capital market motivations, (2) contracting motivations, and (3) regulatory motivations, all of which will be described in detail below.

2.5.1   Capital Market Motivations

11

On the one hand, investors use information obtained from financial reports, financial analysts, and newspapers to pick and value stocks to make capital market decisions in order to make a profit. On the other hand, managers are being pressured to maximize stakeholders value, consistent with the "stakeholder theory", implying that firms have to care about the interests of stakeholders since the firm's capital market decisions based on the value of the firm's stock depends on the type of products and services the firm provides to customers, the utility consumers derive from these products and services, and the perception of investors about the long-run total value of the firm (Jensen, 2001). According to Healy and Wahlen (1999), the attached importance by investors to accounting information presented in financial reports in valuing stocks, might provide managers with an incentive to manipulate earnings in order to mislead investors about the true financial performance of a firm. Therefore, managers will try to provide that type of information investors will value and which, in turn, will result in a positive investor response to the accounting information at the earnings announcement. However, to understand what investors find value relevant when considering to make a capital market decision based on a particular stock, one has to look at how earnings numbers relate to stock returns. According to Beaver (1998), there are "three links" that are important in understanding the valuation implications of earnings numbers on stock prices. First, information obtained from the financial report about the current period earnings gives investors valuable insights to estimate earnings of future periods, which is called the first link. Second, the future earnings provide investors with information to create future dividend expectations, which is called the second link. Finally, the future dividends help the investor to estimate the firm's share value, which equals the present value of expected future dividends. Therefore, according to Nichols and Wahlen (2004), the first link provides the investor with information about how much wealth has been created in that particular period to estimate future earnings by distinguishing between operating income, which are likely to recur in future periods, and special items, which are non-recurring and therefore less value relevant for investors. However, investors who are not able to detect the misclassification of income-statement items to special items, because auditors were unable to detect classification shifting due to the judgment or subjectivity used by managers in financial reporting, will be fooled into thinking that special items consist of only non-recurring expenses, which increases the risk of improperly valuing stocks. Nichols and Wahlen (2004) argue that the second link enables the investors to estimate the dividend-paying ability of the firm based on the

current earnings and future earnings forecasts. Furthermore, the second link provides the investors with all the necessary information to estimate the firm's share value. Therefore, these three links provided by Beaver (1998) explains the relation between accounting information in terms of earnings numbers and stock prices. In addition, the three links explain why benchmarks such as the earnings-based valuation ratios are being used to compare a particular firm to the industry or competitors.

According to Nichols and Wahlen (2004), earnings persistence, which is the probability of reoccurrence of current earnings in future periods, is an important factor that influences the investors' expectations of future earnings. For example, if a firm in the last four years has generated earnings of $100, then the investor will be more inclined to expect the same earnings persistence in future periods. However, when a firm has generated fluctuating earnings over the last four years of $100, $70, $110, and $250 due to earnings information consisting of non-recurring items, then the investor will be less inclined to attach a high earnings persistence to that firm's stock. In addition, Nichols and Wahlen (2004) argue that the change in stock prices is being influenced by the persistence of unexpected earnings, which equals the difference between actual earnings minus expected earnings. They argue that, if current period earnings beat expectations, share prices will increase because of the occurrence of unexpected earnings, however the change depends on how the unexpected earnings affects future earnings and dividends. If unexpected earnings are expected to persist in future periods, the increase will be larger. The same counts for earnings that do not meet expectations. When earnings fall short of expectations, the decrease in stock price will depend on the expectation of the persistence of such a decrease in earnings in future periods. Therefore, to indicate high persistence of unexpected earnings and low volatility of earnings, managers might have incentives to manage earnings in order to positively attract capital market participants to invest in the firm.

Having understand what investors value when making capital market decisions, several earnings management studies have shown evidence that firms involve in earnings management to meet or beat earnings expectations, since such meeting or beating results in unexpected earnings indicating an increase in the firm's financial performance (Healy and Wahlen, 1999). As previously indicated, earnings persistence as well as unexpected earnings play an important role in the firm's stock price performance. Since the unexpected factor and the persistence of earnings are found to be value relevant by investors, managers may decide to act opportunistically and

engage in earnings management to meet or beat earnings expectations in order to surprise investors and buy or hold the firm's stock.

2.5.2   Contracting Motivations

The role that earnings numbers play is not limited to the capital markets and investors but extends to contracting between two parties, namely the firm and its stakeholders. Earnings numbers are used for monitoring and regulating purposes to match the incentives of the firm and its stakeholders. Besides affecting investors, earnings management for contracting purposes affects also debt investors (Healy and Wahlen, 1999). According to Healy and Wahlen (1999), earnings management enables managers to increase their bonuses as a result of compensation contracts which depend on the profit incentives. Moreover, firms close to lending covenants might be more inclined to manage earnings in order to meet covenants, since such lending contracts depend on meeting certain liquidity and solvability measures (Watts and Zimmerman, 1978).

2.5.3   Regulatory Motivations

Certain industries are under heavier regulation and monitoring by the government than others, such as the banking, utility, and insurance industries. According to Healy and Wahlen (1999), such regulatory monitoring by the government creates the incentive for firms to manage earnings in order to meet certain requirements or conditions specified for certain industries. For example, the banking industry has to meet certain capital adequacy requirements that depend on the accounting information of the bank's financial reporting. Moreover, providers of insurance services are required to meet certain conditions to stay solvable and healthy, and utilities have been regulated to apply a certain rate and to earn only a certain return on investments. Therefore, such industry-specific regulatory constraints provide managers with the incentive to manage earnings in order to not violate regulation and to not be under heavier monitoring than usual. According to Watts and Zimmerman (1978), firms facing anti-trust investigations or other consequences that are politically motivated have the motivations to manage earnings downwards to appear less healthy. This also counts for firms trying to obtain subsidy from the government or protection against bankruptcy.

2.6 Earnings Quality

This section deals with earnings quality and links it with earnings management in order to explain how earnings management might affect earnings quality, taking into consideration the use of Earnings Response Coefficients (ERCs) to proxy the value relevance of earnings.

According to Schipper and Vincent (2003), earnings quality is of importance to users of financial statements and standard setters. It is of importance to users of financial statements since capital market participants would not want to be fooled when interpreting accounting information and making capital market decisions. It is of importance to standard setters since they see earnings quality as an indicator of the quality of accounting standards. According to Dechow and Schrand (2004), standard setters use relevance and reliability in determining whether earnings are of high quality. However, in 2010 the International Accounting Standards Board (IASB) has decided to replace, the qualitative characteristic that makes financial information useful, *reliability* with *faithful representation* because of different meanings attached to reliability resulting in a lack of common understanding of the meaning of reliability. An earnings number is relevant when it has predictive power and carries value to use for valuation. An earnings number is faithfully represented when it accurately reflects the business condition of the firm (IASB, 2010).

According to Dechow, Ge and Schrand (2010), high quality earnings are earnings that provide relevant and faithfully represented information to an investor about the firm's financial performance which allows the investor to make an informed decision.

Schipper and Vincent (2003) argue that persistence, variability, and predictive ability are earnings quality constructs that help one to understand the quality of earnings. Persistent earnings are sustainable in the sense that current periods earnings become a permanent part of earnings in future periods. Moreover, persistent earnings indicate high earnings quality because a larger value is attached to recurring earnings by investors when valuing stocks. It indicates that earnings are more permanent. Predictive ability implies earnings are of high quality when the investor can accurately predict future earnings by using the accounting information obtained from the firm's financial statements, and other information that the investor finds value relevant when determining the firm's future earnings (Schipper and Vincent, 2003; Brown and Sivakumar, 2003).

15

Smoothness is the opposite of variability, and it is most of the time associated with high earnings quality. The reason behind this is that the smoothness of earnings indicates the success of the business model is sustainable in that the operating income does not vary much over periods and that the earnings reported are free of earnings management (Schipper and Vincent, 2003).

A similar approach in defining earnings quality has been taken by Dechow and Schrand (2004). They argue that a high-quality earnings number will (1) accurately reflect the current operating performance of a firm, (2) indicative of the performance in future periods, and (3) accurately measure the stock price today after taking the present value of future earnings.

Having gone through the definition of earnings quality, it's time to go through the different earnings quality proxies as presented by Schipper and Vincent (2003) and Dechow et al. (2010). According to Schipper and Vincent (2003), there are four types of earnings quality proxies, namely (1) time-series properties of earnings, (2) relation among income, accruals and cash, (3) qualitative concepts from FASB's conceptual framework, and (4) implementation perspective. Time-series properties of earnings are persistence, predictability and variability/smoothness. Main concerns with time-series properties of earnings are that they are not only affect by the incentives of management, but also are affected by the regulation and the environment of the business, and measures such as persistence, predictability and variability/smoothness are difficult to interpret (Schipper and Vincent, 2003). The second type of earnings quality proxies is the relation among income, accruals and cash, which are operating cash flow or operating income, changes in total accruals, discretionary accruals, and accruals-to-cash relations. The main concerns with these types of measures is that operating cash flow or operating income assumes cash is the "correct" measure of performance, and accruals measures, such as changes in total accruals, discretionary accruals and accruals-to-cash relations raise confusion about whether all changes reflect earnings management, whether the measures accurately predict the nondiscretionary part of accruals, and whether the accruals-to-cash relations are able to distinguish between unintentional estimations errors and intentional earnings management (Schipper and Vincent, 2003). The third type of earnings quality proxies are the qualitative concepts from FASB's conceptual framework, which are relevance, faithful representation, comparability and consistency. The main concerns with these qualitative concepts are that they are hard to operationalize and trade-offs have to be made among these qualitative concepts. For

16

example, fair values can be relevant, but not faithfully represented (Schipper and Vincent, 2003). The fourth type of earnings quality proxies are based upon the implementation perspective, such as required estimates and judgments. For example, accounting standards resulting in the recognition of events that are based on estimates of managers. Such measurement errors cause a decrease in earnings quality because of adjusting transactions due to measurement errors. Another example of a proxy based on the implementation perspective is the use of judgment by management to undermine the purpose of the accounting standard (Schipper and Vincent, 2003).

Dechow et al. (2010) present three categories of proxies of earnings quality, namely (1) properties of earnings, (2) investor responsiveness to earnings, and (3) external indicators of earnings misstatements. Properties of earnings include measures such as earnings persistence and accruals, earnings smoothness, asymmetric timeliness and timely loss recognition, and target beating. Investor responsiveness to earnings is a proxy of earnings quality based on the Earnings Response Coefficient (ERC) or the R-squared obtained from the association between earnings and stock returns. External indicators of earnings misstatements are proxies based on the enforcement releases, restatements or deficiencies in internal control that are evaluated under the Sarbanes Oxley Act (Dechow et al., 2010).

2.6.1   Earnings Response Coefficient (ERC)

According to Dechow and Schrand (2004), the higher the value relevance of earnings, the larger the responsiveness of investors to earnings numbers. The responsiveness of investors to earnings numbers can be measured by the ERC, which measures how investors respond to accounting information obtained from the financial statements of a firm. Therefore, ERCs measure the quality of earnings (Dechow and Schrand, 2004). The reason I focus on the ERCs is that it proxies the value relevance of earnings as perceived by investors based on the decision usefulness of earnings (Dechow et al., 2010).

2.7 Summary of Theoretical Background

The EMH posits that when information becomes available, the information will spread very quickly to all market participants and will be priced into stock prices without delay by those investors (Malkiel, 2003). This is assumed when using the ERC as a proxy for earnings quality. The principal-agent problem based on the agency theory provides a basis on the differences in

17

incentives and objectives or goals of an agent and its principal. The principal-agent problem consists of two problems, namely the agency problem and the problem of risk sharing. The agency problem occurs when there is a difference in the incentives or goals of an agent and principal, and the principal is unable to monitor the actions of the agent (Eisenhardt, 1989). The PAT builds on the agency theory and provides the debt, contracting, and political hypotheses to predict and explain accounting choices of firms (Watts and Zimmerman, 1986). By introducing transaction and information costs into the above-mentioned hypotheses, the PAT explains why managers choose a particular accounting method. It provides a basis in explaining why managers behave opportunistically and manage earnings (Watts and Zimmerman, 1990). However, the opportunistic behavior perspective is not the only perspective explained by the PAT. The PAT also indicates that managers might engage in choosing particular accounting methods just because such methods better reflect the business condition of the firm. This is called the efficiency perspective. It is efficient because the manager's choice for a particular method might allow the investor to not put effort into gaining additional information about the reason for the manager's choice of opting for a particular type of accounting method (Deegan and Unerman, 2006). Having explained the theories which lead managers to manage earnings, it's now time to summarize the findings on earnings management. Earnings management might be used by managers to either mislead investors because of particular incentives or to manipulate certain accounting numbers just because they result in a contractual outcome (Healy and Wahlen, 1999). There are three methods of earnings management, namely real earnings management, accruals based earnings management, and classification shifting. According to McVay (2006), classification shifting is an earnings management tool that enables managers to misclassify income-statement items as special items by using their judgment or subjectivity in financial reporting. One of the objective of classification shifting could be to mislead investors about the true financial performance of the firm, allowing the firm to meet certain targets, such as earnings forecasts, in order to satisfy investors. Another objective of classification shifting could be to credibly signal the firm's financial performance through accounting estimates or choices which investors value in terms of the firm's financial performance (Healy and Wahlen, 1999).

Healy and Wahlen (1999) describe several motivations for managers to manage earnings, namely (1) capital market motivations, (2) contracting motivations, and (3) regulatory motivations. According to Beaver (1998), there are "three links" that are important in

18

understanding the valuation implications of earnings numbers on stock prices. First, current period earnings to estimate future earnings. Second, future earnings to create future dividend expectations. Finally, future dividend to estimate the firm's share value by discounting back the expected future dividends. However, when considering the financial performance of the firm, investors do consider earnings persistence when valuing earnings (Nichols and Wahlen, 2004). Moreover, it has become common use by managers to use earnings management in order to beat or meet earnings forecasts (Healy and Wahlen, 1999). As previously indicated, earnings persistence as well as unexpected earnings play an important role in the firm's stock price performance. Since the unexpected factor and the persistence of earnings are found to be value relevant by investors, managers may decide to act opportunistically and engage in earnings management to meet or beat earnings expectations in order to surprise investors and buy or hold the firm's stock.

According to Dechow et al. (2010), high quality earnings are earnings that provide relevant and faithfully represented information to an investor about the firm's financial performance which allows the investor to make an informed decision. There are several proxies used for earnings quality. Four proxies for earnings quality are provided by Schipper and Vincent (2003), which are (1) time-series properties of earnings, (2) relation among income, accruals and cash, (3) qualitative concepts from FASB's conceptual framework, and (4) implementation perspective. Three proxies for earnings quality are provided by Dechow et al. (2010, which are (1) properties of earnings, (2) investor responsiveness to earnings, and (3) external indicators of earnings misstatements.

ERCs measure the quality of earnings (Dechow and Schrand, 2004). The higher the value relevance of earnings, the larger the responsiveness of investors to earnings numbers, and therefore the larger the ERC (Dechow and Schrand, 2004).

3. Literature Review

This chapter outlines the relevant literature evidence on earnings management, with specific focus on classification shifting, earnings quality, and the ERC. The literature review will attempt to provide the most relevant literature based on the presented theoretical background in this thesis. In addition to outlining the literature evidence, the last subsection, "Filling the literature gap", explains in detail the difference between previous research and the objective of this thesis.

3.1 Earnings Management

According to Healy and Wahlen (1999), one of the reasons for managers to manage earnings is because of capital market motivations. Because managers know that investors and analysts use accounting information to value stocks, firms might manage earnings in order to enhance stock price performance in the short-term. According to McVay (2006), classification shifting is a very attractive method of earnings management because it inflates core earnings, which are non-GAAP earnings measures reported by managers and analysts typically excluding expenses and revenues from non-core operations, without changing bottom-line earnings and is a less costly tool relative to other earnings management methods. McVay (2006) argues that accrual and real earnings management cause future performance expectations of firms to increase present earnings but at the same time reduce future earnings. This is not the case with classification shifting. Classification shifting does not cause an accrual to reverse in a later period and the opportunity cost of using classification shifting does not result in lost profits. In addition, shifting particular expenses from the income statement to special items can be subjective, which may cause a decrease in the ability of auditors to appropriately verify the classification. Furthermore, classification shifting causes no change in the bottom-line income number reported by a firm, it only shifts income line items within the income statement (Nelson et al., 2002).

Broad support for the findings of McVay (2006) for the use of classification shifting by managers has been provided by Fan, Barua, Cready and Thomas (2010). Fan et al. (2010) find evidence that indeed managers use classification shifting. Moreover, using quarterly data, Fan et al. (2010) examine whether managers are more inclined to use classification shifting in the fourth quarter than the quarters before. Their reasoning is as follows. According to Brown and Pinello (2007), audit procedures performed at the end of the quarter are stricter and more accurate that the ability of managers to manage earnings by using accrual based earnings management decreases. The evidence presented by Brown and Pinello (2007) is in line with their expectation. Therefore, Fan et al. (2010) examine whether managers are more inclined to use classification shifting in the fourth quarter because of the more rigorous audit procedures performed at the end of the reporting period. The results they obtain indicate that regression coefficients for the fourth quarter are less negative than regression coefficients obtained for interim quarters. Another factor examined by Fan et al. (2010) is whether the degree to which managers have used accrual based

earnings management in previous periods has an effect on the use of classification shifting in the current period. As reported by Barton and Simko (2002), firms that engage in accrual based earnings management are more likely to have a higher level of net operating assets. Fan et al. (2010) find that the regression coefficient is less negative for those firms with higher levels of net operating assets when examining the association between unexpected core earnings and special items. Therefore, Fan et al. (2010) conclude that managers are more likely to engage in classification shifting when their ability to manage earnings by the use of accruals is constrained. Furthermore, Fan et al. (2010) find evidence that firms that just meet or beat earnings forecasts are more likely to have used classification shifting than firms that do not just meet or beat earnings forecasts.

According to Athanasakou et al. (2011), the results obtained by McVay (2006) indicate that classification shifting results in positive unexpected core earnings as calculated by the model of McVay (2006) and I/B/E/S earnings per share greater than GAAP net income per share. Firms that meet these two criteria can be considered classification-shifting firms. I/B/E/S earnings are core earnings or non-GAAP earnings (Athanasakou et al., 2011).

According to Chan, Chan, Jegadeesh and Lakonishok (2001), earnings management causes reported earnings to deviate from real firm performance. Therefore, they argue, earnings quality decreases when managers use earnings management for capital market motivations.

To examine whether the results as reported by McVay (2006) for U.S. firms are similar for East Asian firms in the period 2001 to 2004, Haw, Ho and Li (2011) attempt to provide evidence on the use of classification shifting by firms in the East Asian economies. The findings are consistent with the findings of McVay (2006); managers shift core expenses to special items in order to inflate non-GAAP earnings (Haw et al., 2011). Moreover, Haw et al. (2011) find that, consistent with Fan et al. (2010), the use of classification shifting increases when opportunistically shifting core expenses to special items allows a firm to meet or beat earnings forecasts.

Behn, Gotti, Herrmann and Kang (2013) examine an international sample of 40 countries, whether there is a difference in the use of classification shifting across countries with weak and strong investor protection. Moreover, they examine whether sophisticated financial analysts play a role in constraining the use of classification shifting because of their experience, knowledge, and corporate monitoring. The results indicate that there is no difference in the use of

21

classification shifting in weak and strong investor protection countries. Moreover, regression results show that an increase in analyst following results in a decrease in classification shifting (Behn et al., 2013).

A different type of classification shifting is done through shifting R&D expense. According to Skaife, Swenson and Wangerin (2013), GAAP allows firms to use discretion and judgment in selecting costs to be reported as R&D expense. Moreover, they provide evidence that managers behave opportunistically and engage in R&D classification shifting in order to affect the perceptions of investors of firm performance (Skaife et al., 2013). Managers engage in R&D classification shifting when they are convinced that they are unable to meet or beat earnings forecasts. Therefore, R&D classification shifting helps managers to justify missing the earnings forecasts (Skaife et al., 2013).

3.2 Earnings Quality: The Value Relevance of non-GAAP and GAAP Earnings

According to Bradshaw and Sloan (2002), users of financial statements have shifted their focus from GAAP measures to non-GAAP earnings. They provide evidence on this development by showing that the investors responsiveness to non-GAAP earnings has increased and become more substantial in determining stock prices than GAAP measures. Therefore, according to their study based on an U.S. sample using quarterly data from 1985 until 1997, non-GAAP earnings have become the primary determinant of stock returns. Non-GAAP earnings exclude nonrecurring items typically included in GAAP earnings such as restructuring charges, research and development expenses, goodwill amortization, and write-downs and impairments. Non-recurring items are considered as having no meaning for future earnings, therefore as having no value relevance for investors in making capital market decisions. Bradshaw and Sloan (2002) predict that the investor responsiveness to non-GAAP earnings, which they define and term as "Street" earnings will be higher than GAAP earnings because of (1) the ability of managers to mislead investors by focusing on "Street" earnings instead of GAAP earnings or (2) non-recurring items excluded from "Street" earnings are indeed non-recurring and therefore considered as having no meaning in explaining future earnings. The assumptions made by Bradshaw and Sloan (2002) exclude the possibility of earnings management through classification shifting and assume that users of financial statements are able to identify deliberate misclassification by managers of income statements items to special items in order to inflate core

earnings. However, evidence obtained from comparing the value relevance of "Street" and GAAP earnings cannot detect whether managers used classification shifting and whether the users of financial statements are being misled by such earnings management practice.

Brown and Sivakumar (2003) compare, based on an U.S. sample using quarterly data from 1989 until 1997, the value relevance of two operating income measures; (1) "Street" earnings as reported by managers and analysts and (2) Earnings Per Share (EPS) from operations, a measure of operating income computed and reported by Standard and Poor's (S&P). Brown and Sivakumar (2003) argue that prior research has provided significant evidence on the fact that investors find "Street" earnings more value relevant than GAAP earnings. Therefore, they shift their focus and compare the value relevance of two non-GAAP measures, namely "Street" earnings reported by managers and analysts and EPS from operations as computed and reported by S&P. Brown and Sivakumar (2003) show that stock returns are more associated with "Street" earnings, which are operating income measures disclosed by firms in the earnings release, than EPS from operations. Therefore, they argue that the evidence indicates that investors find operating income measures reported by managers and analysts more value relevant than EPS from operations reported by S&P. The explanation put forward by Brown and Sivakumar (2003) based on the obtained results is that "Street" earnings have less non-recurring items than EPS from operations. Therefore, they conclude that the operating income measure reported by managers and analysts must have fewer non-recurring items than the operating income measure reported by S&P, and are therefore considered as more value relevant by investors than the operating income measure reported by S&P.

Lougee and Marquardt (2004) use a sample of 249 press releases from 1997 until 1999 and examine whether the value relevance of pro forma earnings or non-GAAP earnings differs systematically with (1) the value relevance of GAAP earnings and (2) strategic reporting considerations. Strategic reporting considerations by managers are identified as the difference in value relevance of pro forma earnings relative to GAAP earnings when the GAAP earnings surprise is negative or positive. The results show that the value relevance of pro forma earnings is higher when the value relevance of GAAP earnings is low relative to pro forma earnings or when the forecast error of GAAP earnings is positive, indicating no strategic reporting considerations by management.

Elliott and Hanna (1996) use quarterly data from 1975 until 1994 and examine how nonrecurring items affect the value relevance of GAAP earnings. Investigating write-offs reported by firms during the period 1975-1994, they show an increase in the write-offs reported by firms, the occurrence of multiple write-offs reported by firms during a reporting period, and the impact of write-offs reported on the value relevance of earnings. The ERC is used as a proxy for value relevance of earnings, and shows that write-offs reported by firms reduce the value relevance of earnings. Elliott and Hanna (1996) provide three explanations for the reduction in value relevance as (additional) write-offs are reported by firms. First, write-offs reported by firms before the earnings announcement date may reduce the unexpected information component of earnings reported by the firm at the date of the earnings announcement. Second, write-offs may signal that the firm is responding to adverse circumstances causing additional write-offs. Therefore, investors will respond by increasing the discount rate they use to value future earnings. Such an increase in the discount rate should subsequently lower the ERC. Finally, managers might manage earnings by reporting write-offs to opportunistically meet strategic objectives. Therefore, if (additional) write-offs reduce the investors' confidence in understanding and valuing recurring and non-recurring items, then write-offs can be considered as a proxy for decreasing earnings quality, implying that the earnings-returns association changes with earnings quality.

Doyle, Lundholm and Soliman (2003) use an U.S. sample based on firm-quarter data from 1988 until 1999 and examine whether the excluded non-recurring items from pro forma earnings are indeed non-recurring and therefore have no meaning in explaining a firm's future value. Their purpose of studying the predictive value of expenses excluded from pro forma earnings is twofold. First, whether the excluded items from the pro forma earnings have any predictive value in explaining future cash flows. Second, whether the stock market fully absorbs the value relevance of pro forma earnings. If investors fully absorb the value relevance of pro forma earnings after the earnings announcement, those excluded items would imply to be indeed non-recurring and therefore of no value in explaining future cash flows. In their stock return analysis, total exclusions from pro-forma earnings are decomposed into special items and other exclusions. Total exclusions are equal to non-GAAP earnings minus GAAP earnings, whereas other exclusions are equal to total exclusions minus special items. They do this for each firm per quarter. The decomposition of total exclusions increases the power of the test and shows that

other exclusions, in contrast to special items, have predictive value in explaining future cash flows. All coefficients on the special items component appear to be insignificant, whereas the coefficients on the other exclusions component are significantly negative. Moreover, investigating stock returns and cash flows that occur in later periods show that investors are being systematically fooled by the other exclusions component of total exclusions, rather than the special items component, excluded from pro forma earnings. Therefore, investors are being fooled into thinking that other exclusions are indeed non-recurring indicating that pro forma earnings are being used by managers to exclude recurring expenses to mislead investors. It is important to point out that Doyle et al. (2003) fail to provide evidence on the special items component because of the insignificant results. However, because the results for the other exclusions component, that is part of total exclusions excluded from pro forma earnings, are significant, they conclude that the other exclusions component include recurring expenses that mislead investors into thinking they are non-recurring expenses. Although the evidence presented by McVay (2006) supports the results of Doyle et al. (2003) suggesting that pro forma earnings exclude recurring expenses, McVay (2006) argues that classification shifting, which is the deliberate misclassification of core expenses to special items, "offers some degree of camouflage" and is therefore distinct from the practice of excluding non-special-item exclusions from pro forma earnings (McVay, 2006, p. 505).

Although non-GAAP earnings are found to be more value relevant than GAAP earnings (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003), according to Kolev, Marquardt and McVay (2008), such non-GAAP earnings measures have no objective definition and the expenses included or excluded differs from firm to firm. Moreover, the SEC has issued a warning in 2003 regarding the misuse of non-GAAP reporting and has implemented Regulation G to regulate the non-GAAP reporting (Kolev et al., 2008). The implementation of Regulation G has resulted in higher quality exclusions from non-GAAP earnings. Moreover, some firms stopped reporting non-GAAP earnings after the implementation of Regulation G and the excluded expenses from non-GAAP earnings of those firms were of low quality before the implementation of Regulation G. These effects after the implementation of Regulation G in 2003 show that the SEC has achieved its objective in terms of increasing the quality of non-GAAP earnings (Kolev et al., 2008). However, special items, which is part of the exclusions from non-GAAP earnings, decreased in quality after the implementation of Regulation G, indicating that managers have

25

opportunistically benefited from the implementation by shifting recurring expenses to special items (Kolev et al., 2008).

According to Dechow, Ge and Schrand (2004), an earnings number reported by a company will be of high quality when it reflects the true operating performance, when it provides value relevant information about a company's future performance, and when it accurately predicts the value of a company. Therefore, it is straightforward to assume that non-GAAP earnings, which is a measure of core operating performance, is more value relevant than GAAP earnings (Brown and Sivakumar, 2003) and previous literature provides evidence that this is true (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Lougee and Marquardt, 2004); non-GAAP earnings are more value relevant than GAAP earnings.

According to Dichev, Graham, Harvey and Rajgopal (2016), earnings quality is a measure of the extent to which earnings reported in financial statements truly reflect the performance of a firm. In their survey-based study, Dichev et al. (2016) find that 78% of the interviewed CFO's characterize earnings as high quality when there are no one-time or special items included in the financial statements. Moreover, as argued by Dichev et al. (2016), the credibility of financial statements decreases as firms report one-time or special items and this effect increases when firms report one-time or special items frequently during a period of one year. Therefore, firms that report special items frequently lose credibility in earnings quality. The value relevance of non-GAAP earnings decreases because the occurrence of special items decreases the understandability of investors and financial analysts of the core operating performance of the firm. As understanding the core operating performance of a firm by investors and financial analysts becomes difficult, it decreases the stock price of a company and results in a higher cost of capital (Dichev et al., 2016). Furthermore, Dichev et al. (2016) asked CFOs what indicators investors, researchers, and analysts should look for in detecting misrepresentation of earnings. CFOs ranked large and frequent one-time or special items as fourth out of the 20 indicators of earnings misrepresentation. As argued by DeFond and Park (2001) and Lev and Thiagarajan (1993), the ERCs are related with earnings quality.

3.3 The Earnings Response Coefficient (ERC)[4]

4 This section outlines the relevant literature on the use of the ERC. The reason I restrict to the ERC is because it assumes market efficiency and allows me to measure the difference in value relevance between non-GAAP and GAAP earnings, which I need to test H2.

According to Dechow et al. (2010), the value relevance of earnings, which is the investor responsiveness to earnings measured by the ERC or the from the earnings-returns model, can be used as a proxy for earnings quality from a capital market perspective. DeFond and Park (2001) show that the Earnings Response Coefficient (ERC) decreases when abnormal accruals cause an increase in the magnitude of earnings surprises, indicating that earnings quality decreases. They argued and show that if investors understand the reversing nature of accruals, the investors will find earnings less value relevant due to the level of abnormal accruals indicating earnings management. In such a case, the ERC were found to be lower. However, in the event that abnormal accruals are negative and therefore income decreasing, the ERC is found to be higher due to the effect of negative abnormal accruals lowering the earnings surprise at the earnings announcement (DeFond and Park, 2001).

The ERC has been widely used in prior research to proxy earnings quality. In addition to the findings of Defond and Park (2001), Lev and Thiagarajan (1993) also find evidence that the ERCs are related with earnings quality. Their findings show that the signals analysts use, such as growth in accounts receivable, inventory or SG&A, to indicate an increase in firm performance are related to the ERCs of firms where such signals imply positive future earnings.

3.4 Filling the Literature Gap

Previous research has shown that non-GAAP earnings are more value relevant than GAAP earnings because non-GAAP earnings includes fewer non-recurring expenses than GAAP earnings, and therefore it is considered to be more permanent (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Lougee and Marquardt, 2004). The objective of these papers were to examine the difference in value relevance in non-GAAP and GAAP earnings and to understand what causes the difference.

The objective of this thesis is different from prior research. In this thesis, I examine how earnings management, specifically classification shifting, affects the value relevance of non-GAAP and GAAP earnings by using the ERCs obtained from firm-specific regressions. In addition, I examine whether an increase in the difference in value relevance between non-GAAP and GAAP earnings has an effect on the use of classification shifting. As shown by DeFond and Park (2001) and Lev and Thiagarajan (1993), the ERCs are related with earnings quality. Although prior research shows that the shift in focus from GAAP earnings to non-GAAP

27

earnings is being caused by the exclusion of non-recurring expenses from non-GAAP earnings, the possibility of earnings management through classification shifting has not been examined. If investors are able to identify the use of classification shifting by firms to manage earnings, the ERC should be lower due to the lower value relevance of earnings, which indicates a decrease in earnings quality. Therefore, the objective of this thesis is to examine the effect of classification shifting on the value relevance of non-GAAP earnings and whether classification shifting decreases as the difference in the value relevance of GAAP and non-GAAP earnings increases.

Such research is important because understanding the effect of classification shifting on the capital market decisions of investors and financial analysts and finally on the abnormal stock return of a classification shifting firm will help regulators and practitioners to constrain the use of classification shifting as an earnings management method. In this thesis I investigate whether the difference in value relevance in non-GAAP and GAAP earnings constrain the use of classification shifting. The intuition behind this is as follows. Considering that firms with fewer non-recurring expenses included in non-GAAP earnings will have more value relevant non-GAAP earnings relative to GAAP earnings, resulting in an increase in non-GAAP earnings quality, I expect that the larger the non-GAAP earnings quality for a firm, the higher the firm's opportunity costs of engaging in classification shifting, and therefore the lower the likelihood that a firm with high non-GAAP earnings quality is a classification-shifting firm.

This thesis aims to contribute to the earnings management literature by investigating the effect of using classification shifting on the value relevance of non-GAAP and GAAP earnings and whether the difference in the value relevance of non-GAAP and GAAP earnings constrains the use of classification shifting. The ERCs will provide evidence on whether earnings quality increases or decreases when firms use classification shifting to inflate non-GAAP earnings.

3.5 Summary of Literature Review

McVay (2006) finds that managers opportunistically shift core expenses to special items in order to increase earnings. This is called classification shifting. But why do managers manage earnings? According to Healy and Wahlen (1999), one of the reasons for managers to manage earnings is because of capital market motivations. It is a method used by managers to either inflate earnings or to meet or beat earnings forecasts provided by analysts.

Research by Bradshaw and Sloan (2002) and Brown and Sivakumar (2003) has shown that investors have shifted their focus from GAAP earnings to non-GAAP earnings since such earnings are more permanent and therefore more value relevant for investors in making an informed decision about the financial performance of a firm. However, regulators have warned the users of financial statements to be cautious when interpreting non-GAAP earnings reported by firms (Buffett, 2014; Hoogervorst, 2015). Although such earnings measures are more value relevant, managers might have the incentive to manage earnings (McVay, 2006; Fan et al., 2010; Barua et al., 2010). The incentive of managers to manage earnings affects earnings quality. According to Dechow et al. (2004), an earnings number reported by a company will be of high quality when it reflects the true operating performance, when it provides value relevant information about a company's future performance, and when it accurately predicts the value of a company. However, when managers use earnings management, earnings do not reflect the true financial performance of a firm, thereby negatively affecting earnings quality. According to Dichev et al. (2016), the credibility of financial statements decreases as firms report one-time or special items and this effect increases when firms report one-time or special items frequently during a period of one year. Therefore, firms that report special items frequently lose credibility in earnings quality. Since special items are considered to be nonrecurring items that are of no value relevance for investors, investors struggle to value the financial performance of a firm which frequently reports special items (Dichev et al., 2016).

DeFond and Park (2001) show that the Earnings Response Coefficient (ERC) decreases when abnormal accruals cause an increase in the magnitude of earnings surprises, indicating that earnings quality decreases. They argue and show that if investors understand the reversing nature of accruals, the investors will find earnings less value relevant due to the level of abnormal accruals indicating earnings management.

According to Athanasakou et al. (2011), the results obtained by McVay (2006) indicate that classification shifting results in positive unexpected core earnings as calculated by the model of McVay (2006) and I/B/E/S earnings per share greater than GAAP net income per share. Firms that meet these two criteria can be considered classification-shifting firms. I/B/E/S earnings are core earnings or non-GAAP earnings (Athanasakou et al., 2011).

Table 1

29

McVay (2006)	This article is used to develop H1. Based the McVay (2006) model I am able to estimate core earnings, and thereafter to calculate unexpected core earnings. The calculated unexpected core earnings are used to classify the full sample into classification-shifting firms and non-classification shifting firms, similar to the approach of Athanasakou et al. (2011). According to McVay (2006), managers manage earnings by misclassifying core expenses to special items. This is called classification shifting and undermines the credibility of the financial statements of a firm.
Bradshaw and Sloan (2002)	This article is used to develop H1. To be specific, I follow Bradshaw and Sloan (2002) in calculating the surprises or forecast errors and in finding the correct variable in the databases to calculate these surprises for GAAP and non-GAAP earnings. Bradshaw and Sloan (2002) show that investors have shifted their focus from GAAP earnings to non-GAAP earnings since such earnings are more permanent and therefore more value relevant for investors in making an informed decision about the financial performance of a firm. However, regulators have warned the users of financial statements to be cautious when interpreting non-GAAP earnings reported by firms (Buffett, 2014; Hoogervorst, 2015). Although such earnings measures are more value relevant, managers might have the incentive to manage earnings (McVay, 2006; Fan et al., 2010; Barua et al., 2010). The incentive of managers to manage earnings affects earnings quality.
Brown and Sivakumar (2003)	Similar to Bradshaw and Sloan (2002), this article shows that non-GAAP earnings are more value relevant than GAAP earnings (Brown and Sivakumar, 2003). This thesis examines whether this is true and thereafter evaluates the association between the value relevance of non-GAAP and classification shifting. Moreover, this thesis examines the association between the difference in value relevance in GAAP and non-GAAP earnings and the use of classification shifting.
Athanasakou et al.	This article allows me to classify firms into classification shifting firms

(2011)	and non-classification shifting to partition my full sample in order to test H1. The results obtained from testing H1, which are the ERCs for GAAP and non-GAAP earnings of each firm, allows me to test H2. According to Athanasakou et al. (2011), the results obtained by McVay (2006) indicate that classification shifting results in positive unexpected core earnings as calculated by the model of McVay (2006) and I/B/E/S earnings per share greater than GAAP net income per share. Firms that meet these two criteria can be considered classification-shifting firms. I/B/E/S earnings are core earnings or non-GAAP earnings (Athanasakou et al., 2011).
DeFond and Park (2001)	This article shows that the ERCs decreases when abnormal accruals cause an increase in the magnitude of earnings surprises, indicating that earnings quality decreases. Investors find earnings of low quality due to the abnormal level of accruals (DeFond and Park, 2001). This thesis examines whether the same is true for earnings management through classification shifting. If classification shifting results in the misclassification of core expenses to special items and results in an increase in non-GAAP earnings, investors who are able to understand and identify classification shifting will find earnings of low quality.

4. Hypothesis development

The principal-agent problem describes the difference in desires or objectives of the principal and the agent. In principal-agent relationships there are two problems that can arise: the agency problem and the problem of risk sharing. The agency problem arises when the agent pursues other incentives or has other objectives that are not in line with the incentives or objectives of the principal and whereby the principal is not able to monitor the actions of the agent. The problem of risk sharing (Eisenhardt, 1989). The PAT is based on the agency theory and explains the incentives for managers to influence accounting choices and methods to manage earnings based on the bonus hypothesis, the debt/equity hypothesis, and the political cost hypothesis. It is built on the agency theory because the principal-agent problem describes the conflicting desires or objectives of the agent and the principal, resulting in the PAT predicting and explaining the incentives for management to influence the financial reporting process due to managerial

opportunism (Watts and Zimmerman, 1990). The incentives for earnings management by managers are in turn explained by the PAT, as predicted and explained by the bonus hypothesis, the debt/equity hypothesis, and the political cost hypothesis. However, the PAT explains and predicts besides the incentives of managers to manage earnings also the incentives of managers to manage earnings in terms of the efficiency perspective. The efficiency perspective asserts that managers might choose particular accounting methods in order to inform the users of financial statements better by, for example, choosing a particular depreciation method that better reflects the amount of depreciation of an asset (Deegan and Unerman, 2006).

As described by the agency theory and the PAT, managers have incentives to manage earnings. One way to achieve earnings management is classification shifting. By shifting core expenses to special items, managers are able to increase non-GAAP earnings. It enables managers to present a picture that is more favorable (McVay, 2006). In addition, it is sometimes used by managers to meet or beat earnings forecasts, since investors respond positively to unexpected earnings increases. The reason why investors find non-GAAP earnings more value relevant is because such earnings are considered to be more permanent and include fewer non-recurring expenses. (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003). However, I predict that firms that use classification shifting will experience a decline in the value relevance of non-GAAP earnings. The intuition behind this is as follows. The PAT argues that when managers are self-interested and behave opportunistically, that accounting choices will be influenced by those managers for their own private gains (Watts and Zimmerman, 1990). Therefore, according to Dechow, Ge and Schrand (2010), incentives for earnings management affect earnings quality because the earnings management decreases the extent to which the reported earnings reflect the true financial performance of a firm. Earnings quality is measured by the extent to which earnings are reliable and faithfully represent the underlying performance of a firm (Dichev et al., 2016). Based on a survey they have conducted, Dichev et al. (2016) show that CFO's characterize earnings as high quality when a firm has few special items included in the financial statements or when it does not frequently report special items. Reporting frequently one-time or special items undermines the credibility of the financial statements and reduces the quality of earnings (Dichev et al., 2016). Therefore, I predict that the value relevance of non-GAAP earnings decreases because the occurrence of special items decreases the understandability of investors and financial analysts of the core operating

performance of the firm. As understanding the core operating performance of a firm by investors and financial analysts becomes difficult, it decreases the stock price of a company and results in a higher cost of capital (Dichev et al., 2016). As argued by DeFond and Park (2001) and Lev and Thiagarajan (1993), the ERCs are related with earnings quality. As shown by DeFond and Park (2001), investors find earnings of low quality, reflected by low ERCs, when firms report abnormal accruals, which could indicate that managers manage earnings. This thesis examines therefore whether earnings quality decreases when manage manage earnings through classification shifting. To achieve this, I use the method of Athanasakou et al. (2011) to partition firms into classification-shifting firms and non-classification shifting firms. According to Athanasakou et al. (2011), firms using classification shifting will have positive unexpected core earnings as calculated by the model of McVay (2006) and will have non-GAAP earnings per share greater than GAAP earnings per share. Firms that meet these two criteria will be considered as classification-shifting firms.

Combined, these theoretical arguments and prior research lead to the following hypothesis:

H1 null hypothesis: The effect of the value relevance of non-GAAP earnings on the earnings announcement is not different for firms using classification shifting as compared to firms that do not use classification shifting.

H1 alternative (researcher) hypothesis: The effect of the value relevance of non-GAAP earnings on the earnings announcement is different for firms using classification shifting as compared to firms that do not use classification shifting.

As argued by McVay (2006), non-GAAP earnings are subject to opportunistic use by managers because classification shifting, assuming only income-decreasing special items, increases non-GAAP earnings. In response to concerns about the opportunistic use of non-GAAP earnings by managers, the Securities and Exchange Commission (SEC) issued a warning about non-GAAP earnings, also called pro-forma or core earnings, in 2001. The warning by the SEC also stated that a non-GAAP earnings number would not be interpreted as misleading when the company informed, as a disclosure, how non-GAAP earnings deviated from GAAP earnings (Kolev, Marquardt and McVay, 2008). Therefore, as classification shifting, considering only

income-decreasing special items, increases non-GAAP earnings (McVay, 2006), the value relevance of non-GAAP earnings for a particular firm will decrease, as measured by the ERC, compared to the value relevance of GAAP earnings. The larger and more frequent a firm reports special items, the lower will be the value relevance of non-GAAP earnings compared to the value relevance of GAAP earnings (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Elliott and Hanna, 1996). Therefore, I predict that the greater the difference in value relevance in non-GAAP and GAAP earnings, whereby non-GAAP earnings are considered to be the more value relevant measure as shown by previous evidence (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Lougee and Marquardt, 2004), the costlier it is for firms to engage in classification shifting. The rationale behind this is as follows. The fewer non-recurring expenses are included in non-GAAP earnings, and therefore the more permanent non-GAAP earnings are, the more value relevant non-GAAP earnings are relative to GAAP earnings. Therefore, the larger the difference in value relevance in non-GAAP and GAAP earnings, the more permanent are non-GAAP earnings (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003). According to Dechow, Ge and Schrand (2010), the value relevance of earnings, which is the investor responsiveness to earnings measured by the ERC or the from the earnings-returns model, can be used as a proxy for earnings quality. However, the difference in value relevance in non-GAAP and GAAP earnings will differ depending on how permanent non-GAAP earnings are according to investors. Using the absolute difference in ERC between non-GAAP and GAAP earnings as a proxy for non-GAAP earnings quality, I predict that firms with high non-GAAP earnings quality will face higher opportunity costs of engaging in classification shifting. The opportunity cost of engaging in classification shifting, which is a reduction in value relevance in non-GAAP earnings and therefore a reduction in non-GAAP earnings quality, outweighs most of the time the benefit of engaging in classification shifting for a firm with high non-GAAP earnings quality. Therefore, I predict that companies with a large difference in value relevance tend to not engage in classification shifting.

Combined, these theoretical arguments and prior research lead to the following hypothesis:

H2 null hypothesis: There is no relation between classification shifting and the difference in value relevance in GAAP and non-GAAP earnings.

H2 alternative (researcher) hypothesis: There is a negative relation between classification shifting and the difference in value relevance in GAAP and non-GAAP earnings.

5. **Research Design**

Data are available through databases within the Wharton Research Data Services (WRDS) system to which the university library subscribes. The sample for this study consists of US firms over the period 2003-2014. Daily data on stock prices and returns are obtained from the CRSP. Quarterly accounting data for US firms are available through the COMPUSTAT Fundamentals Annual Database. Quarterly data on actual and analyst forecasts of non-GAAP EPS and GAAP EPS are from Thomson Reuters I/B/E/S. The sample will start in 2003 because this was the first year managers in the US were required to reconcile core earnings numbers to the GAAP measure, called Regulation G. Because of its effect on the transparency and quality of core and GAAP earnings numbers reported by managers in the US (Kolev et al., 2008), I decided to focus on a sample period that started after Regulation G became effective. As a result of the Sarbanes-Oxley Act of 2002, the Securities and Exchange Commission (SEC) has implemented Regulation G in 2003 to ensure that investors and other stakeholders are not fooled by the non-GAAP measures reported by firms. It requires firms to reconcile non-GAAP measures to the closest GAAP measure of earnings (Skadden, 2013).

The total sample consisted of 59,588 observations. From this total sample, 304 observations were deleted because of duplicates that were created after converting the dataset to quarterly data, resulting in 59,284 firm-quarter observations. Following McVay (2006), I have deleted observations with sales of less than $1 million to avoid the existence of outliers, since sales is used frequently in calculating key variables. This procedure deleted 4,379 observations and caused the total sample to drop to 54,905 firm-quarter observations. Several new variables, including lagged variables, had to be generated which resulted in missing values. Generating a lagged variable for core earnings resulted in 11,891 missing values. Generating operating assets and operating liabilities resulted in 5,449 and 12,365 missing values. Generating net operating assets, which is the difference between operating assets and operating liabilities resulted in 12,365 missing values. Generating lagged net operating assets resulted in 14,527 missing values. Generating asset turnover ratio resulted in 17,348 missing values. Generating lagged accruals resulted in 11,670 missing values. Generating lagged sales resulted in 6,130 missing values.

35

Generating percentage change in sales resulted in 7,360 missing values. Predicting core earnings resulted in 21,899 missing values and generating unexpected core earnings resulted in 21,899 missing values. Merging the CAR dataset with the classification-shifting data deleted in total of 49,540 observations, causing the firm-quarter observations to drop to 5,739 observations. Deleting missing values resulted in a final sample of 4,021 observations, ready to be used to test the hypotheses. The sample selection procedure is summarized and outlined in Table 1.

Table 2
Steps in the sample selection procedure

Initial sample	59,588 observations
Less: converting to quarterly	304 observations
Less: sales less than $1 million	4,379 observations
Less: merging datasets	49,540 observations
Less: dropping missing values	1,344 observations
Total final sample	**4,021 observations**[5]

To test hypothesis one, I first estimate core earnings for each firm in my sample. Expected core earnings are predicted for each firm by using the McVay (2006) model. Core earnings for each firm are estimated as follows:

where is core earnings (sales minus both COGS and selling, general and administrative expenses) scaled by sales, is asset turnover ratio, stands for operating accruals [(net income before extraordinary items – cash from operations)/Sales], is the percentage change in sales and is the percentage change in sales when the sales change is negative (McVay, 2006).

The outcome from regression equation 1 are the coefficient estimates using the full sample. These coefficient estimates are in turn used to calculate predicted core earnings () by multiplying the estimated coefficients with the actual values of the independent variables for each firm. Unexpected core earnings () are calculated by subtracting predicted core earnings (), as estimated in the regression equation above, from the actual core earnings reported () by each firm. Therefore,

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[5] Merging datasets results in the deletion of 49,540 observations due to merging based on a company identifier variable and a time variable in STATA. Therefore, it could be that there is a selection bias.

To examine whether classification shifting affects the value relevance of non-GAAP earnings, I evaluate whether the ERC changes for the interaction effect, between classification shifting firms and the surprise in non-GAAP earnings (), which is the difference between actual non-GAAP earnings per share () and the consensus forecast of non-GAAP earnings by financial analysts, which are called "Street" earnings ().

Therefore, I create a dummy variable to distinguish classification shifting firms from non-classification-shifting firms in my sample. Consistent with Bradshaw and Sloan (2002), I obtain "Street" earnings from the Thomson Financial I/B/E/S database. Following the methodology of Athanasakou et al. (2011), I classify a firm as a classification shifting firm () if its unexpected core earnings () is positive and I/B/E/S earnings per share is greater than GAAP net income per share. The intuition behind this as follows. According to McVay (2006), when a firm shifts core expenses to special items, the shift results in an increase in unexpected core earnings, requiring it to be positive, whereby expected core or non-GAAP earnings are larger than actual non-GAAP earnings. Furthermore, I/B/E/S earnings, which are "Street" earnings reported by analysts, are inflated when a firm shifts core expenses to special items because special items are excluded from core earnings (McVay, 2006). Therefore, for a classification shifting firm, it is expected that I/B/E/S earnings per share exceeds GAAP net income per share (Athanasakou et al., 2011).

Using an event-study methodology, I calculate cumulative abnormal returns (CARs). The event is the quarterly earnings announcement of firms in the sample. The event-window selected to arrive at the CARs is 7 trading days (-3, 3). Classifying firms into classification shifting firms and non-classification-shifting firms will allow me to examine the effect of classification shifting on the Earnings Response Coefficient (ERC). The ERC is a proxy for the value relevance of earnings. It is the coefficient that indicates whether the use of classification shifting by a firm has an effect on the ERC. The OLS regression equation is as follows:

37

Hypothesis one predicts that the coefficient on the variable () will be negative and significant.

To test hypothesis two, I again use the McVay (2006) model to estimate expected core earnings () and subtract it from actual core earnings () to derive unexpected core earnings () and follow again the methodology of Athanasakou et al. (2011) to classify firms into classification shifting firms () and non-classification-shifting firms (). Since I want to examine the difference between the ERC of the GAAP earnings surprise and the ERC of the non-GAAP earnings surprise to operationalize hypothesis two, I calculate the ERC of the GAAP earnings surprise, in addition to the ERC of the non-GAAP earnings surprise, as follows:

The surprise in GAAP earnings () is the difference between actual GAAP earnings per share () minus the consensus forecast of GAAP earnings ().

To operationalize hypothesis two, I perform an OLS regression per firm over the period 2003-2014. The dependent variable is the ratio of classification shifting used, , between 2003-2014 and is calculated by dividing the periods of a firm that meet the classification shifting criteria, , by the total number of both classification-shifting and non-classification-shifting periods, .

The independent variable used in the regression of hypothesis two, , is based on the difference between the ERC of the GAAP earnings surprise () and the ERC of the non-GAAP earnings surprise (). Therefore, the coefficient estimate for the variable is subtracted from the coefficient estimate for the variable to derive a measure for the difference in abnormal return ():

The operationalized dependent and independent variables are used in the following regression equation:

Hypothesis two predicts that the coefficient on the variable () will be negative and significant. Therefore, the relation between classification shifting and the difference between the ERC of the GAAP earnings surprise () and the ERC of the non-GAAP earnings surprise (), which equals , is expected to be negative and significant. The expected relation is that when the absolute difference in value relevance in GAAP and non-GAAP earnings increases, the ratio of a firm's involvement in classification shifting over the period 2003-2014 decreases, ceteris paribus. Such a result would indicate that firms with a considerable difference in value relevance are less likely to engage in classification shifting because of the additional value relevance obtained from reporting non-GAAP earnings, which investors value more than GAAP earnings.

6. **Empirical results and analysis**

Table 3 tabulates the descriptive statistics of the key variables used in testing the hypotheses. Of the total available 4,021 firm-quarter observations, 35% are classification-shifting firms and 65% are non-classification shifting firms. The mean surprise, also called forecast error, on non-GAAP and GAAP per share are -0.26% and 0.03%, respectively. The mean of the difference between the absolute value of the abnormal return to the GAAP earnings surprise and the absolute of the abnormal return to the non-GAAP earnings surprise () is equal to 2.29%. The unexpected core earnings variable, , calculated using the McVay (2006) model has a mean of 5.93%.

TABLE 3
Descriptive statistics of key variables

Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
	3,097	0.602	1.074	-5.979	41.16

39

	3,098	6.826	1.651	1.235	13.35
Median consensus estimate	4,021	0.312	0.597	-4.430	11.32
	4,021	0.295	0.760	-12.83	11.28
	4,019	-0.00257	0.0215	-0.158	0.0438
	3,991	0.000314	0.0433	-0.270	0.103
	3,679	0.101	2.064	-85.83	37.31
	3,763	-0.176	1.450	-44.61	22.69
	3,236	0.331	2.324	-6.124	105.4
	3,843	0.512	6.279	-0.995	274.5
	4,021	0.471	0.499	0	1
	2,974	0.177	0.126	-2.087	0.911
	2,936	0.0593	1.489	-37.14	43.98
	4,021	0.345	0.476	0	1
	3,991	0.0229	0.0381	2.58e-06	0.314
	4,019	0.000255	0.0100	-0.158	0.0438
	3,991	-0.00812	0.0320	-0.270	0.103

This table reports the number of observations, mean, standard deviation, minimum and maximum of all key variables used in testing the hypotheses. A detailed variable list can be found in the Appendix, providing a definition for each of the key variables.

Extreme values of variables that might influence and alter the statistical tests are prevented by winsorizing all variables at the 1 and 99 percent level.

Table 4 shows the results of testing, regression equations 2 and 3, the relation between CARs and non-GAAP and GAAP earnings surprises over the period 2003-2014. As shown in Table 4, the GAAP-based regression results are significant for all independent variables, which are , , and . The GAAP-based regression output shows that is significant at the 1% significance level, whereas the variables and are both significant at the 5% significance level. The coefficients in the GAAP-based regression output for the variables and indicate that the CAR, on average, will decrease by 1.430 and increase by 0.204, respectively, when and increase by one unit, ceteris paribus. These results are as expected and in line with previous literature examining the effect of earnings numbers on stock returns (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Doyle et al., 2003). The non-GAAP-based regression result for the interaction effect, , is both positive and insignificant. Although the non-GAAP earnings surprise, , is significant at the 5% significance level and has a bigger effect on CARs than the effect of the GAAP earnings surprise, which is as expected, the moderating effect, is both positive and insignificant, which is not as expected. This indicates that there is no credible evidence to either

accept or reject the null hypothesis that the effect of value relevance of non-GAAP earnings on the earnings announcement is not different for firms using classification shifting as compared to firms that do not use classification shifting. The results indicate that although as prior literature shows (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Doyle et al., 2003) that non-GAAP earnings are more value relevant for investors at earnings announcements than GAAP earnings, the results I have obtained don't provide credible evidence to reject or accept the null hypothesis and to conclude that classification shifting mediates the relation between CARs and the non-GAAP earnings surprises. Moreover, the GAAP-based regression output shows that classification shifting does negatively affect the relation between CARs and the GAAP earnings surprises, on average, for all firms in the sample. Therefore, the value relevance of GAAP earnings decreases for firms using classification shifting. Prior research indicate that non-GAAP earnings are more value relevant than GAAP earnings because non-GAAP earnings include fewer non-recurring expenses (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003), the results in this thesis indicate that earnings management through classification shifting significantly decreases the value relevance of GAAP earnings. However, comparing the decrease in value relevance in GAAP earnings as a result of classification shifting with non-GAAP earnings is not possible, since the effect of classification shifting on the association between the CARs and non-GAAP earnings is insignificant. As shown in Table 4, a heteroscedasticity test and a Shapiro-Wilk test is performed. The test for heteroscedasticity results in a p-value less than the 5% significance level, indicating that heteroscedasticity is accepted. To correct for heteroscedasticity, I have used robust standard errors. The standard errors shown in Table 4 represent robust standard errors. Moreover, the non-normality of the data, as tested by the Shapiro-Wilk, is not an issue since I use robust standard errors. The low R-squared values of 0.005 and 0.006 for the GAAP-based and non-GAAP based regressions, respectively, are due to possible omitted correlated variables. Furthermore, I would like to indicate that there might be endogeneity issues since it could be that earnings quality is affected by classification shifting, but also that classification shifting usage by firms is affected by the credibility of GAAP and non-GAAP earnings.

According to Espahbodi (2000), the association between stock returns and earnings is affected by factors such as market-to-book ratio, size, book value per share, earnings persistence, and earnings predictability. These factors, when included as independent variables into the value

relevance regressions significantly explains a higher percentage of the change in abnormal stock returns (Espahbodi, 2000).

TABLE 4

The Association between Cumulative Abnormal Returns (CARs) and non-GAAP and GAAP Surprises, 2003-2014 (quarterly data)

Variable	Expected Sign		
		0.023***	-0.011**
		(0.009)	(0.006)
	+		0.939**
			(0.461)
	+ or −	-1.430**	
		(0.706)	
	+ or −		0.064
			(0.588)
	+	0.204**	
		(0.095)	
Constant		0.004	0.020***
		(0.003)	(0.003)
Observations		2,155	2,168
R-squared		0.005	0.006
adj. R-squared		0.0033	0.0051
F-statistic		3.3901	4.7075
p(F)		0.0173	0.0028
Heteroscedasticity accepted?		Yes	Yes
Heterosc Test: chi2(1)		18.8010	72.7184
Heterosc Test: P(chi2(1))		0.0000	0.0000
Corrected for heteroscedastic errors		0.0000	0.0000
Shapiro-Wilk Normality Statistic		13.3561	11.2240
Shapiro-Wilk p-statistic		0.0000	0.0000

Standard errors in parentheses

Cumulative Abnormal Returns (CARs) are calculated by running an event-study in Stata. The event-window is selected to be 7 days (-3, 3), with an estimation-window from -15 up and until -30 trading days before the quarterly earnings announcement. The quarterly earnings announcements are obtained from I/B/E/S Actuals database. Non-GAAP-based and GAAP-based surprises are defined as earnings per share (either non-GAAP or GAAP) minus the I/B/E/S earnings per share, which is the median consensus earnings per share forecast for the final month of the fiscal quarter, scaled by the stock price. GAAP earnings per share are obtained from Compustat (North America) Fundamentals Quarterly database and are defined as earnings before extraordinary items and discontinued operations (item #25) divided by average common shares outstanding (item #61). Non-GAAP earnings are obtained from IBES Actuals database and reflect GAAP earnings per share adjusted for certain charges considered by IBES to be nonrecurring (Bradshaw and Sloan, 2002). Stock price is obtained from CRSP Daily Stock File. As suggested by *Dr. Felix Lamp*, the regressions exclude negative earnings surprises to prevent colinearity between classification shifting, , and positive earnings surprises for both non-GAAP and GAAP earnings per share. A firm is classified as a classification shifting firm () if its unexpected core earnings () is positive and IBES earnings per share is greater than GAAP net income per share, and 0 otherwise.

Table 5 depicts the association between classification shifting and the difference in value relevance in non-GAAP and GAAP earnings. It shows the results of testing regression equation 4. As shown in Table 5, when the difference in value relevance increases with one unit, the probability of a firm being a classification-shifting firm decreases with 0,015%, ceteris paribus. Moreover, the result is as expected and the independent variable is significant at the 5% significance level. Therefore, I reject the null hypothesis that there is no relation between classification shifting and the difference in value relevance in GAAP and non-GAAP earnings and accept the alternative hypothesis that there is a negative relation between classification shifting and the difference in value relevance in GAAP and non-GAAP earnings. As shown by prior research, as a result of accruals based earnings management, the ERCs decrease when firms use abnormal accruals to achieve earnings surprises. The decrease in ERCs indicates that investors value earnings as being of lower quality (DeFond and Park, 2001). The results as shown in Table 5 indicate that this is the same for earnings management through classification shifting. Investors react to the use of classification shifting by finding non-GAAP earnings less value relevant. According to Dichev et al. (2016), the reason behind the decrease in the value relevance of earnings is because earnings management causes investors to find financial statements less credible and therefore earnings of lower quality. The low R-squared value of 0.014 as shown in Table 5 is due to possible omitted correlated variables. According to Espahbodi (2000), the association between stock returns and earnings is affected by factors such as market-to-book ratio, size, book value per share, earnings persistence, and earnings

43

predictability. These factors, when included as independent variables into the value relevance regressions significantly explains a higher percentage of the change in abnormal stock returns (Espahbodi, 2000).

TABLE 5

OLS Regression between Classification-Shifting Firms and the Absolute Difference in Value Relevance of non-GAAP and GAAP Earnings per Share

Variable	
	-0.015**
	(0.006)
Constant	29.145***
	(2.034)
Observations	202
R-squared	0.014
adj. R-squared	0.009
F-statistic	6.535
p(F)	0.011

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

This table reports the results of an OLS regression performed to examine the relation between classification-shifting firms and the absolute difference in value relevance of non-GAAP and GAAP earnings per share. The classification shifting variable, , equals the ratio of classification shifting occurrence divided by the total of periods attributable to the firm. In other words, it shows the degree of classification shifting usage by a firm during the period 2003-2014. The absolute difference in value relevance of non-GAAP and GAAP earnings per share equals the absolute difference between the ERC of non-GAAP and GAAP earnings per share of a firm obtained from running firm-specific OLS regressions in the total sample. As suggested by *Dr. Felix Lamp*, the regressions exclude negative earnings surprises to prevent colinearity between classification shifting, , and positive earnings surprises for both non-GAAP and GAAP earnings per share. A firm is classified as a classification shifting firm () if its unexpected core earnings () is positive and IBES earnings per share is greater than GAAP net income per share, and 0 otherwise. When a firm meet both criteria for a particular period, the firm will be recognized as using classification shifting in that period. The variable is used to calculate for each firm a ratio, , to measure its involvement in classification shifting over the period 2003-2014.

7. **Conclusions**

It is documented that firms have shifted their focus from GAAP earnings to non-GAAP earnings since nonrecurring expenses that are included in GAAP earnings are excluded from it.

Previous literature shows that users of financial statements find non-GAAP earnings more value relevant than GAAP earnings numbers reported by firms (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Doyle et al., 2003). However, McVay (2006) provides evidence on the fact that non-GAAP earnings can mislead investors due to the use of an earnings management method by managers called classification shifting. McVay (2006) argues that managers might have capital market incentives to classify recurring expenses during a particular period as special items, thereby presenting a financial performance to the users of financial statements that is different than the true financial performance of the firm.

This thesis examines the relation between CARs and the GAAP and non-GAAP earnings surprises and looks at the interaction effect of classification shifting on the relation between CARs and non-GAAP earnings surprises. This is done by testing hypothesis one. Hypothesis two examines the relation between the use of classification shifting by a firm over the period 2003-2014 and the difference in value relevance of GAAP and non-GAAP earnings surprises.

The results show that, indeed, as in line with prior literature, investors find non-GAAP earnings more value relevant than GAAP earnings at the earnings announcement. However, whether classification shifting mediates the relation between CARs and the non-GAAP earnings surprises remains unanswered due to insignificant results obtained from the non-GAAP-based regression, requiring me to conclude that hypothesis one, which is that the effect of value relevance of non-GAAP earnings on the earnings announcement is not different for firms using classification shifting as compared to firms that do not use classification shifting, cannot be rejected or accepted due to no credible evidence. The non-GAAP-based regression examines the effect of classification shifting on the value relevance of non-GAAP earnings. Moreover, the GAAP-based regression shows that classification shifting negatively mediates the relation between CARs and the GAAP earnings surprises, indicating that the value relevance of GAAP earnings decreases due to the classification shifting practiced by managers. Furthermore, the results indicate that when the difference in the value relevance of GAAP and non-GAAP earnings increases, firms decrease their involvement in classification shifting.

The thesis contributes to the existing body of knowledge in the literature by providing evidence that classification shifting negatively mediates the relation between CARs and the GAAP earnings surprises, implying that the value relevance of GAAP earnings decreases for firms using classification shifting to present a picture of the financial performance of a firm that

is not in line with the true financial performance of the firm. Moreover, the results show that the involvement of firms in classification shifting decreases the larger the difference in value relevance in GAAP and non-GAAP earnings gets. The implications of these findings are that firms prefer not to engage in classification shifting when the benefit of reporting of non-GAAP earnings is substantial.

This study has a few limitations. According to Abernathy et al. (2014), managers might make trade-off decisions based on, for example, costs between choosing for one of the three earnings management methods, namely real earnings management, accruals based earnings management, and classification shifting. This thesis does not examine such trade-offs decisions by managers among the three difference types of earnings management methods, but focuses solely on the effect of classification shifting on non-GAAP and GAAP earnings, and whether firms with a substantial difference in the value relevance of non-GAAP and GAAP earnings are more likely to not use classification shifting. Furthermore, endogeneity issues such as omitted correlated variables and measurement errors could be present. As argued by Espahbodi (2000), the association between stock returns and earnings is affected by factors such as market-to-book ratio, size, book value per share, earnings persistence, and earnings predictability. Therefore, excluding such variables from the regression could result in a lower R-squared.

Insights of this study can be compared with the effect of classification shifting on the value relevance of earnings numbers of non-American firms to examine whether the results are similar. In addition, a similar analysis based on the non-GAAP earnings numbers provided by Zacks or First Call can be performed because of possible differences in the estimates provided by the analyst estimate clearinghouse services (Bradshaw and Sloan, 2002). Furthermore, further studies might benefit from including control variables to the regressions I have used to achieve a higher R-squared.

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Appendix: Variable Definitions

Table 3

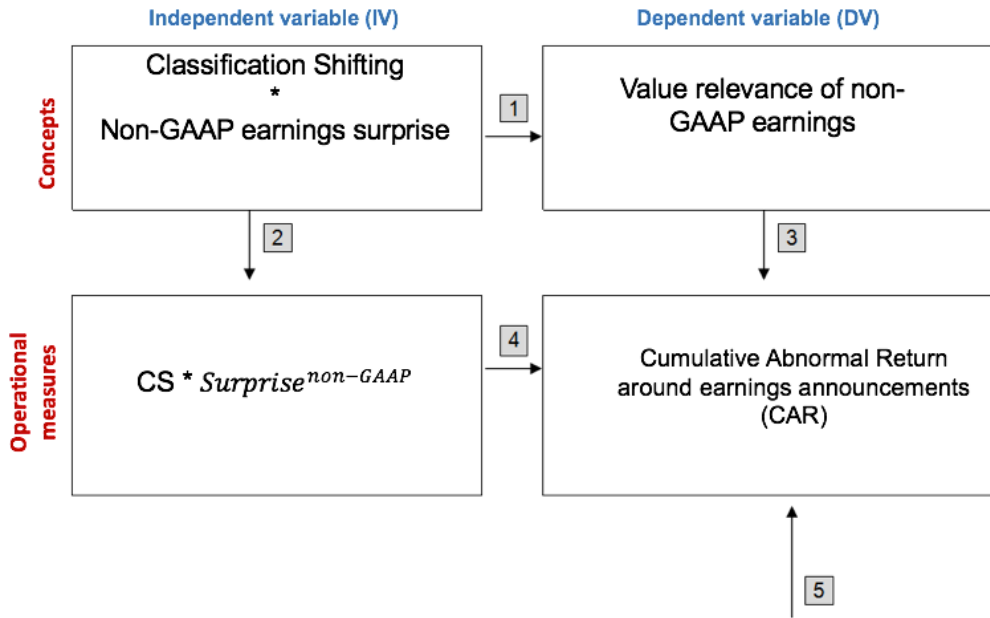*Variable Definitions with Corresponding Compustat Data Item Numbers*

Variable	Definition
	Core Earnings (before Special Items and Depreciation), calculated as (Sales – Cost of Goods Sold – Selling, General, and Administrative Expenses) (#13)/Sales (#12), where Cost of Goods Sold and Selling, General, and Administrative Expenses exclude Depreciation and Amortization, as determined by Compustat.
	Unexpected Core Earnings is the difference between reported and predicted Core Earnings, where the predicted value is calculated using the coefficients from the following model, estimated by fiscal year and year and industry and excluding firm :
	Percent Change in Sales, calculated as ((#12) -)/.
	Percent Change in Sales () if is less than 0, and 0 otherwise.
	Operating Accruals, calculated as [Net Income before Extraordinary Items (#123) – Cash From Operations (#308 - #124)]/Sales (#12).
	Asset Turnover Ratio, defined as (#12)/(()/2), where NOA, or Net Operating Assets, is equal to the difference between Operating Assets – Operating Liabilities. Operating Assets is calculated as Total Assets (#6) less Cash (#1) and Short-Term Investments (#32). Operating liabilities is calculated as Total Assets (#6) less Total Debt (#9 and #34), less Book Value of Common and Preferred Equity (#60 and #130), less Minority Interests (#38). Average net operating assets is required to be positive.
	Core Earnings (before Special Items and Depreciation), calculated as (Sales – Cost of Goods Sold – Selling, General, and Administrative Expenses) (#13)/Sales (#12), where Cost of Goods Sold and Selling, General, and Administrative Expenses exclude Depreciation and Amortization, as determined by Compustat.
	Following Athanasakou et al. (2011), I classify firms into classification-shifting firms if its unexpected core earnings () is positive and I/B/E/S earnings per share is greater than GAAP net income per share, and 0 otherwise. Creating this dummy variable allows me to examine how classification shifting affects the value relevance of non-GAAP and GAAP earnings.
	The surprise on non-GAAP earnings per share equals the forecast error that results after subtracting actual non-GAAP earnings per share () from the median consensus earnings per share forecast by financial analysts of non-GAAP earnings, which is called the "Street" earnings (),

	scaled by stock price. The stock price is obtained from Compustat (variable name "prccq").
	The surprise on GAAP earnings per share equals the forecast error that results after subtracting actual GAAP earnings per share () from the median consensus earnings per share forecast by financial analysts of core earnings (), which is called the "Street" earnings, scaled by stock price. The stock price is obtained from Compustat (variable name "prccq").
	This is the actual non-GAAP earnings per share value on a quarterly basis as reported by the I/B/E/S database. However, to obtain the per share value of GAAP earnings, I divided income before extraordinary items (variable name "iby") by the common shares outstanding (variable name "cshoq").
	This is the actual value on a quarterly basis as reported by the I/B/E/S database of the GAAP earnings per share. The name of the variable in the I/B/E/S database is called "actual".
	This is the median consensus earnings per share forecast of core earnings, or also called "Street" earnings as reported by the financial analysts. The name of the variable in the I/B/E/S database is called "estimate". This variable is used in calculating the surprises on non-GAAP and GAAP earnings per share.
	This variable represents the interaction effect of the classification-shifting firms and the surprise on the non-GAAP earnings per share. This variable is generated to examine, in hypothesis one, whether classification shifting mediates the relation between the Cumulative Abnormal Returns (CARs) and the surprise on the non-GAAP earnings per share.
	This is the book-to-market ratio variable calculated by taking the difference between total assets (variable name "atq" and total liabilities (variable name "ltq") and dividing by the market value of common equity (variable name "mkvaltq"). I used this variable as a control variable (McVay, 2006; Doyle et al., 2003).
	This is a size variable calculated by taking the logarithm of the market value of common equity (variable name "mkvaltq"). I used this variable as a control variable to control for the size of the firms (McVay, 2006; Doyle et al., 2003).
	This is the accruals variable calculated by taking the difference between GAAP earnings and cash from operations and scaling it by total assets at the end of the quarterly earnings report (Sloan, 1996).
	The Cumulative Abnormal Returns (CARs) for each earnings announcements of the firms in the full sample are calculated based on the market-model with an event-window of 7 days (-3, 3) and an estimation-window of -30 and -15 before the earnings announcement of a firm. This variable is used as a dependent variable in performing hypothesis one and calculating the ERC's for the difference in value relevance to perform hypothesis two.

	This is the absolute difference in value relevance of GAAP and non-GAAP earnings calculated by taking the absolute difference in ERCs of GAAP and non-GAAP earnings as obtained from the firm-specific regressions.
	The surprise on GAAP earnings per share equals the forecast error that results after subtracting actual GAAP earnings per share () from the median consensus earnings per share forecast by financial analysts of core earnings (), scaled by stock price. The stock price is obtained from Compustat (variable name "prccq"). This variable represents the absolute value of the variable .
	The surprise on non-GAAP earnings per share equals the forecast error that results after subtracting actual non-GAAP earnings per share () from the median consensus earnings per share forecast by financial analysts of core earnings (), scaled by stock price. The stock price is obtained from Compustat (variable name "prccq"). This variable represents the absolute value of the variable .
	This is the dependent variable used in operationalizing hypothesis two and represents the ratio of classification shifting used, , between 2003-2014 and is calculated by dividing the periods of a firm that meet the classification shifting criteria, , by the total number of both classification-shifting and non-classification-shifting periods, .
	This variable represents the periods of a firm that meet the classification shifting criteria over the period 2003-2014. When a firm has in a particular period (1) positive unexpected core earnings and (2) I/B/E/S earnings per share greater than GAAP net income per share, the firm is considered to be using classification shifting in that particular period (Athanasakou et al., 2011). The variable, , sums up the total of periods that a firm has used classification shifting according to the above-mentioned criteria. This is done for each firm in the full sample.
	This variable indicates the total number of periods with available observations for each firm to operationalize the hypotheses. In other words, it equals the total number of both classification-shifting, if any, and non-classification-shifting periods for each firm.
	This variable represents the coefficient estimate as a result of running firm-specific regressions over the period 2003-2014. The firm-specific regression is . This variable is used to calculate the absolute difference in value relevance in GAAP and non-GAAP earnings. The coefficient is the Earnings Response Coefficient (ERC) based on the GAAP earnings surprise.
	This variable represents the coefficient estimate as a result of running firm-specific regressions over the period 2003-2014. The firm-specific regression is . This variable is used to calculate the absolute difference in value relevance in GAAP and non-GAAP earnings. The coefficient is the Earnings Response Coefficient (ERC) based on the non-GAAP earnings surprise.

Appendix: Libby Boxes H1 and H2

Libby Boxes for H1

Independent variable (IV)   **Dependent variable (DV)**

Concepts

| Classification Shifting * Non-GAAP earnings surprise | 1 → | Value relevance of non-GAAP earnings |

2 ↓   3 ↓

Operational measures

| CS * $Surprise^{non-GAAP}$ | 4 → | Cumulative Abnormal Return around earnings announcements (CAR) |

5 ↑

Libby Boxes for H2

Independent variable (IV)   **Dependent variable (DV)**

Concepts

| The difference in value relevance in GAAP and non-GAAP earnings | 1 → | The use of classification shifting expressed as a ratio |

2 ↓   3 ↓

Operational measures

$$AR - DIFF_{t,i} = \left|ERC_{t,i}^{GAAP}\right| - \left|ERC_{t,i}^{non-GAAP}\right|$$

4 →

$$ratioCS_{t,i} = \frac{usedCS_{t,i}}{periodsNR_{t,i}}$$

5 ↑