

THE DETERMINANTS OF DISCLOSING ALTERNATIVE PERFORMANCE MEASURES

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Master's Thesis

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Abstract:

Firms around the world have increasingly engaged in the disclosure of alternative performance measures. Prior research has found that managers can disclose such measures for informative or opportunistic reasons. However, evidence on the contextual factors that influence the likelihood of firms disclosing such measures is scarce. This thesis investigates which contextual factors influence the decision to disclose alternative performance measures. Using a worldwide sample of 926 high and mid-cap firms over the period 2013-2017, the results from a multilevel logistic regression indicate that the accounting standards followed, board independence and the legal system significantly influence the decision to disclose alternative performance measures. Moreover, it is found that the effect of board independence on alternative performance disclosure depends on the legal system. The findings contribute to the literature by providing international evidence on the context in which firms are likely to disclose alternative performance measures.

Contents

- 1. Introduction..... 4
- 2. Literature review and hypotheses development..... 7
 - 2.1 Agency theory..... 7
 - 2.2 Theories on voluntary disclosure..... 7
 - 2.3 Contextual factors..... 8
 - 2.3.1 Firms-level factors..... 8
 - 2.3.2 Industry-level factors..... 10
 - 2.3.3 Country-level factors..... 11
- 3. Research method..... 17
 - 3.1 Data sample 17
 - 3.2 Variables..... 17
 - 3.2.1 Dependent variable..... 17
 - 3.2.2 Independent variables..... 20
 - 3.2.3 Control variables 22
 - 3.3 Statistical model 23
- 4. Results..... 24
 - 4.1 Descriptive statistics 24
 - 4.2 Empirical results 26
 - 4.3 Robustness check..... 28
- 5. Conclusion and discussion..... 30
 - 5.1 Conclusion..... 30
 - 5.2 Discussion..... 30
- 6. References..... 32

1. Introduction

Firms around the world have increasingly engaged in the disclosure of alternative performance measures (Black et al., 2018; Marques, 2017). Firms are subject to accounting standards when providing information about their financial performance. This performance is often evaluated by various financial statement users based on the earnings reported by firms. The reported earnings are usually in compliance with those accounting standards. In situations where earnings based on the accounting standards do not accurately reflect the financial performance or when managers want to depict a more favourable picture of the financial performance, firms often opt for the disclosure of alternative performance measures. These measures usually exclude certain types of expenses that are included in the International Financial Reporting Standards (IFRS) or United States Generally Accepted Accounting Principles (U.S. GAAP) measures. This type of disclosure has both its benefits and problems according to the literature (Young, 2014; Black et al., 2018; Marques, 2017). It can provide improved information about the future cash flows and firm value. In some cases, alternative performance measures are perceived as even more important than IFRS or U.S. GAAP measures as they provide important information that goes beyond the information provided by the standard performance measures (Bhattacharya et al., 2003; Marques, 2017). In contrast, these measures can also be used for opportunistic reasons to mislead investors by disclosing selective or incomplete information (Bhattacharya et al., 2003; Frankel et al., 2011). However, it is not evident under what conditions firms tend to disclose alternative performance measures.

Nowadays, both the IFRS and the U.S. GAAP provide some kind of guidelines on the use of alternative performance measures¹. The IASB chairman, Hans Hoogervorst (2016), noted that the flexibility of the accounting standards allowed the possibility for firms to disclose alternative performance measures. While this type of disclosure is still mainly unregulated and voluntary, the SEC, FASB, IASB and others have shown interest in these alternative performance measures (Hoogervorst, 2016; Kolev et al, 2008). However, the increase in the disclosure of those measures raised concerns among those standard setters and regulators. The main concern of those standard setters and regulators is that the disclosure of alternative performance measures can possibly mislead investors.

¹ Other key terms for alternative performance measures in the literature are non-GAAP, non-IFRS, pro forma or street earnings. Moreover, non-U.S. firms applying IFRS instead of U.S. GAAP also frequently use the term non-GAAP measures in their earnings reports. Therefore, in this thesis these different terms will be used interchangeably.

Due to the concern of the possibility to mislead investors and the proposed value adding properties of alternative performance measures, studies have been investigating the incentives for disclosing alternative performance measures. Frankel et al. (2011) found that firms with less independent board have a higher probability to disclose non-GAAP earnings. Moreover, they suggest that the reason for this stems from opportunistic motives rather than providing value adding information about the firm's performance. In general, board independence is positively related to the quality of non-GAAP earnings (Frankel et al., 2011). Jennings & Marques (2011) find similar results for board independence and also investigate the effects of ownership concentration on non-GAAP disclosure. In particular, the presence of institutional investors seems to negatively affect non-GAAP disclosure due to their increased access to firm information. Another incentive for non-GAAP disclosure is the compensation of managers. While the compensation pay of managers is rarely based on non-GAAP earnings, disclosing these earnings can still indirectly influence the compensation. This is because compensation contracts are often linked to the firm's market performance (Isidro & Marques, 2013). Overall, the studies that focus on the compensation of managers find that there is a positive relationship between non-GAAP disclosure and compensation contracts (Black et al., 2018; Bansal et al., 2013; Isidro & Marques, 2013). Other reasons for non-GAAP disclosure is to meet or beat analyst expectations (Doyle et al., 2013) and the increased informativeness of non-GAAP earnings in loss firms (Leung & Veenman, 2018).

Whereas the focus in the literature has mostly been on the motives for disclosing alternative performance measures in the literature, the focus on the effects of the contextual factors of firms on alternative performance measures disclosure has been rather limited. Most countries have adopted IFRS fully or to a large extent over time for financial reporting. This adoption of a common set of accounting standards has, however, not led to similar financial reporting outcomes. The reason for this is that cross-country differences exist in the institutional environment (Holthausen, 2009). There are international differences in the demand for accounting information due to differences in the institutional environment. Features of the institutional environment that have an effect on this are for example the legal system, regulations, stakeholder/shareholder oriented countries (Ball et al., 2000; Holthausen, 2009). Thus, there is a possibility that country-level factors have an impact on alternative performance measures disclosure. The paper by Isidro & Marques (2015) provides some evidence on country level factors by examining the role of institutional and economic factors in European countries that affect the reporting of non-GAAP measures. Moreover, Entwistle et al. (2005) find distinct differences in the reporting of pro forma earnings between the U.S.

and Canada. These studies therefore confirm that there are indeed cross-country contextual factors that affect the disclosure of non-GAAP earnings, though the evidence is fairly limited. Marques (2017) and Black et al. (2018) both suggest that there is significant room for additional international evidence on the effects of country-level characteristics on the non-GAAP disclosure.

The aim of this thesis is to investigate under what conditions firms will be more likely to disclose alternative performance measures in their annual reports. To do this, an international sample of publicly listed firms is collected and, based on the literature, a few important firm-level, industry-level and country-level factors are identified.

The theoretical contribution of this thesis is that it adds to the literature on non-GAAP disclosure by investigating its determinants in an international context to explain variation in this type of disclosure among firms. In the literature the focus has been mainly on the motivation of managers for disclosing alternative performance metrics in earnings reports. In contrast, the potentially important country, industry and firm level factors are somewhat neglected. Therefore, this study will try to bridge the gap in the literature by taking possible overlooked contextual factors into consideration. It adds to the findings of Isidro & Marques (2015) and Entwistle et al. (2005) by investigating the variation between countries in the disclosing alternative performance measures in an international context. Furthermore, it extends the findings of the more general voluntary disclosure studies (Garcia-Meca & Sanchez-Ballesta, 2010; Webb et al., 2008) to a particular form of voluntary disclosure. The practical relevance of this thesis is that it might provide some insights for standard setters and regulators regarding the influence of possible contextual factors on the disclosure of alternative performance measures.

The remainder of the thesis is structured as follows. The second chapter examines the existing theories and literature regarding non-GAAP disclosure. Based on these theories and literature, several hypotheses are developed. The third chapter describes the data sample, variables and the model used to conduct the analysis. The fourth section shows the results of the statistical tests. The final chapter discusses draws conclusions from the results as well as discussing its implications and limitations.

2. Literature review and hypotheses development

2.1 Agency theory

The main theories that are mostly used in the non-GAAP literature are the agency theory and signalling theory. The agency theory is often used in the studies that focus on the incentives of managers to disclose alternative performance measures. The general idea of the agency theory is that there is a principal-agent problem in which there is a conflict of interest between the principal and the agent. The agent is said to have more information than the principal, resulting in information asymmetry. As the agent is assumed to be self-interested, he can use this information advantage opportunistically to achieve his own goals (Eisenhardt, 1989). In the accounting field, the principal-agent relation is often viewed as the relationship between managers and users of financial statements when there is a separation between ownership and control. Since managers have more information about the performance of a firm, they can use this information to their advantage and thereby influencing the perception of the firm's performance to outsiders. Therefore, the disclosure of certain information may be opportunistically motivated. The disclosure of alternative performance measures are sometimes indeed found to be driven by manager's opportunistic motives in the literature (Young, 2014; Solsma & Wilder, 2015; Frankel et al. 2011). These measures might be used to mislead investors as they can convey incomplete and selective information. On the other hand, the disclosure of alternative performance measures might provide additional information to the IFRS or U.S. GAAP earnings. This is a way to increase the transparency of a firm's financial performance. Along with legal protection, transparency about a firm's performance can serve as a mean to reduce agency costs (La Porta et al., 1998). Managers themselves often reason that the disclosure of alternative performance measures provides a more accurate picture of a firm's performance and are better indicators of future performance (Frankel et al., 2011).

2.2 Theories on voluntary disclosure

The disclosure of alternative performance measures is a form of voluntary disclosure. The more general literature on voluntary disclosure states that managers have several incentives to disclose voluntary information. One of the main incentives of disclosing voluntary information is that it reduces the information asymmetry and that this could lead to a decline

in the cost of capital (Verrecchia, 2001). The incentives for voluntary disclosure can be due to both internal and external factors. There are two important voluntary disclosure theories that aim to explain the reason why managers of firms choose to disclose voluntary information.

The first one is the signalling theory which is mainly based on the agency theory. This signalling theory assumes that there is a problem of information asymmetry between firms and investors. To diminish this problem, firms can signal certain information that goes beyond the mandatory information to enhance the perception of the firm by investors. By doing this, firms also attempt to distinguish themselves from other firms that they are better with the purpose of attracting capital from investors (Verrecchia, 1983). Providing alternative performance measures by a firm is one possible way for a firm to signal more information towards investors. In line with this are findings of some studies that alternative performance measures are more informative than the performance measures required by the accounting standards, thereby decreasing the problem of information asymmetry (Bhattacharya et al., 2003; Lougee & Marquadt, 2004; Leung & Veenman, 2018).

The legitimacy theory is an alternative theory that is often used in the voluntary disclosure literature, though it is not discussed in the non-GAAP literature. This theory is based on the idea that a firm will act in a way that is acceptable to the society. Both the disclosure of mandatory and voluntary information in financial statements could change society's perception about the firm. In particular, voluntary information is often disclosed to change the perception of various financial statement users (Shehata, 2014). This theory therefore supports the findings of the papers that alternative performance measures are disclosed for opportunistic reasons (Young, 2014; Solsma & Wilder, 2015; Frankel et al., 2011).

2.3 Contextual factors

2.3.1 Firms-level factors

There are several firm-level factors to be found in the literature that influence the decision to disclose alternative performance measures. Corporate governance is argued to exert a strong influence on a firm's voluntary disclosure decisions (Jennings & Marques, 2011). As corporate governance is a broad term, it can be divided in internal and external mechanisms to the firm. The percentage of independent board members in a firm's board and the percentage of shares held in a firm by institutional investors are two measures that represent the internal

and external mechanisms, respectively (Gillan, 2006).

Frankel et al. (2011) study how corporate governance is related to the nature of non-GAAP earnings. More specifically, they want to investigate how opportunistic use of non-GAAP earnings varies with board independence. Using a sample of U.S. firms' non GAAP disclosure over the period 1998-2005, their results suggest that the quality non-GAAP earnings are positively related to board independence. Thus, when a board is less independent, the quality of non-GAAP earnings are more likely to be lower as well. The conclusion that the authors draw from this is that the disclosure of non-GAAP earnings is more likely based on opportunistic motives when the board independence is low.

Jennings & Marques (2011) study the relationship of institutional ownership and board independence with non-GAAP disclosure after the introduction of Regulation G. This regulation formally established rules for disclosing non-GAAP measures by U.S. firms. They find that firms with strong corporate governance mechanisms are less likely to disclose non-GAAP earnings than firms with weak corporate governance mechanisms which indicates that investors do rely less on those earnings. More specifically, they find a negative relationship between institutional ownership and non-GAAP disclosure and a positive relationship between board independence and non-GAAP disclosure. Furthermore, firms with a higher board independence have been found to be associated with more voluntary and high quality disclosure of information (Garcia-Meca & Sanchez-Ballesta, 2011; Frankel et al., 2011).

H1: Firms with a more independent board are more likely to disclose alternative performance measures than firms with a less independent board.

Institutional ownership is an important measure of external corporate governance mechanisms. Institutional ownership means the presence of institutional investors in firms who are perceived as sophisticated investors. Guillamon-Saorin et al. (2017) suggest that when investors' sophistication is low, managers tend to disclose non-GAAP measures more frequently. In markets with sophisticated investors, managers disclosing non-GAAP measures along with high levels of impression management are penalized. As such, there is an implicit suggestion that institutional investors can see through the attempts of managers try to changing the perception of a firm's performance. Moreover, institutional investors have an increased access to firm-specific information and they are associated with greater monitoring (Piotroski & Roulstone, 2004). This reduces the need for the voluntary disclosure of alternative information. Therefore, the following hypothesis is formulated:

H2: Firms with more institutional ownership are less likely to disclose alternative performance measures than firms with less institutional ownership.

Leung & Veenman (2018) study loss firms in particular. When a firm is not profitable, there is uncertainty about the future performance. This increases the demand for additional information, because many factors can lead to losses. Nonrecurring items and strategic investments are common factors that lead to losses as these are included in IFRS or U.S. GAAP earnings. By disclosing non-GAAP earnings, managers can provide additional information about the reasons for the losses of firms. The authors conclude that the disclosure of non-GAAP earnings are particularly informative for loss firms.

Lougee & Marquadt (2004) study the firm characteristics of firms that do disclose pro forma earnings. The firm characteristics that are found to have an effect on the pro forma earnings quality are tangibility, profitability, growth and leverage. Tangibility is positively related to pro forma disclosure. That is, when a firm has more intangible assets, it is more likely to disclose pro forma earnings than firms with less intangible assets. When a firm has a poor performance as indicated by a low profitability rate, it is more likely to have more exclusions than firms with a higher profitability. Thus, a firm's profitability is negatively related to the disclosure of pro forma earnings which is in line with the findings by Leung & Veenman (2018). In high growth firms, the usefulness of GAAP earnings is found to be less value relevant. These firms may profit from disclosing pro forma numbers that portray a more clear picture of the firm's performance. Finally, they find that firms with high leverage are more likely to disclose pro forma earnings. These firm characteristics will be controlled for in this thesis.

2.3.2 Industry-level factors

Next to the firm-level factors, industry level factors can possibly influence the voluntary disclosure decisions. It is argued that "financial statements for firms in the high-tech industry fail to recognize certain items whose expected future cash flows are relevant to investors" (Francis & Schipper, 2009). As such, disclosing only measures in compliance with accounting standards might not be enough. Disclosing alternative performance measures might provide additional information and thereby improving the transparency a firm's financial performance and decreasing the problem of information asymmetry.

The reason why firms in the high-tech industry are believed to be frequently disclosing alternative performance measures is because they are characterized by a large proportion of intangible assets. Research & Development costs and intangible amortization are examples that can be distorting the IFRS or GAAP earnings. These items are common exclusions when managers disclose alternative performance measures (Heflin & Hsu, 2008; Lougee & Marquadt, 2004). Thus, these intangible-intensive firms are expected to be more likely to disclose alternative performance measures than other firms.

Studies have found evidence that variation in non-GAAP disclosure can be attributed to the industry in which a firm operates. Zhang & Zheng (2011) find that high-technology firms and other intangible-intensive firms such as services are the most frequent reporters of non-GAAP measures. Lougee & Marquadt (2004) find similar results that high technology firms are more likely to disclose non-GAAP earnings. They argue that high technology firms tend to invest a large proportion in intangible assets, such as research and development. Therefore, high technology firms can benefit from non-GAAP disclosures by emphasizing the effects that these investments in intangible assets have on their bottom line earnings. Similarly, Bhattacharya et al. (2003) find that pro forma earnings are most frequently reported by firms in the service and high-tech industries.

Coulton et al. (2016) perform a study on non-GAAP disclosure by Australian firms. Based on a large sample over a time span of 15 years, they find that firms in the utilities sector are the most frequent in disclosing non-GAAP measures. Though this paper does not provide any possible reason why firms in the utilities sector are the most likely to disclose non-GAAP earnings. Also, there are no other papers that are in line with the findings of this paper with regards to the utilities industry.

Based on the theory and evidence in the literature, it is likely that firms classified as high tech industry are more likely to disclose alternative performance metrics. Therefore, the followed hypothesis is formulated.

H3: Firms in the high tech industry are more likely to disclose alternative performance measures than firms in other industries.

2.3.3 Country-level factors

Variation in country-level factors are found to be important in financial disclosure decisions (Burgstahler et al., 2006; Webb et al., 2008; Hope et al., 2003). While there is evidence in the more general voluntary disclosure theory of the effects of the country-level factors on

voluntary disclosure, specific evidence of the effects of those factors on non-GAAP disclosure is rather scarce. In the literature, international institutional factors appear to significantly influence the disclosure of accounting information, even if firms follow the same accounting standards (Ball et al., 2003; Hope, 2003; Webb et al., 2008). Ball et al. (2003) find that the institutional factors influence the demand for accounting information by considering the differing shareholder and stakeholder corporate governance models. The legal system is said to indirectly influence accounting standards and practices. The authors compare code-law and common-law countries to investigate how these law systems exert influence on the demand for the accounting information. Hope (2003) looks at how the legal origins influence disclosure, but also includes the effects of the culture on disclosure. It is found that the legal origin is an important driver of variation in disclosure, though culture is found to be less important in explaining the variations. In line with these findings, Jaggi & Low (2000) also find a relatively unimportant impact of culture on financial disclosure. Whereas the studies above look at the disclosure in general, Webb et al. (2008) look specifically at the effect of globalization and legal environment on the voluntary disclosure. They characterize common-law countries as countries with a strong legal environment and civil-law countries as those with a weak legal environment. They find that for the same level of globalization, that firms in a weak legal environment are more likely to voluntarily disclose information.

Another country-level factor is the development of financial markets. Douppnik & Salter (1995) state that the more financial markets are developed, the higher the distribution and quality of sophisticated information. Non-GAAP earnings can be viewed as sophisticated information since it can provide greater relative and incremental information over GAAP earnings (Lougee & Marquadt, 2004).

Isidro & Marques (2015) provide evidence on the role of country-level factors in an European setting. The European setting is chosen as there is no regulation on non-GAAP disclosure, but substantial variation in country-level factors. They examine the effects of some institutional and economic factors on non-GAAP disclosures. The country-level factors studied in this paper are the legal environment, investor protection, financial markets development and the communication and distribution of information. The results indicate that there are significant relationships between country-level factors and non-GAAP disclosure. The authors conclude that managers are less likely to report non-GAAP measures when there is an effective legal system, strong investor protection, developed financial markets and better communication. Based on the findings by Isidro and Marques (2015) we can hypothesize a relationship of legal environment and non-GAAP disclosure. If there is a weak legal

environment, investors have weaker investor rights which could lead to a lack of trust (Durnev and Kim, 2005). Therefore, managers will have incentives to provide more voluntary information about the firm which could be in the form on alternative performance measures. The hypothesis is as follows:

H4: The quality of legal environment is negatively related with the disclosure of alternative performance measures.

The legal environment can also influence the effects of the corporate governance mechanisms on the disclosure of alternative performance measures. The positive association between board independence and disclosure of voluntary information is not found to be the same in all countries. Garcia-Meca & Sanchez-Ballesta (2010) provide a meta-analysis of 27 empirical studies of the association of board independence and ownership concentration with voluntary disclosure. While this paper does not specifically study the association of board independence and ownership concentration with non-GAAP disclosure, it does emphasize the need to consider the legal and institutional setting when studying associations between corporate governance. The legal and institutional setting is often neglected in the non-GAAP literature, with the exception of the paper by Isidro & Marques (2015). Furthermore, it is found that there is a positive association between board independence and voluntary disclosure, but a negative relation between ownership concentration and voluntary disclosure. This means that there are institutional characteristics that have an effect on this association. In particular, the legal environment is often said to be an important factor in explaining country variations (Webb et al. 2008). The positive association of board independence with voluntary disclosure is mainly pronounced in countries in countries with a strong and effective legal environment (Garcia-Meca & Sanchez-Ballesta, 2010). Based on these findings, the following hypothesis is formulated:

H5: Firms with a more independent board are more likely to disclose alternative performance measures in countries with a strong legal environment than firms in countries with a weak legal environment.

The attempt to change of the perception of a firm's financial performance by disclosing non-GAAP measures is particularly evident in countries with a weak legal environment. These

countries are characterized with less investor rights and legal protection (Guillamon-Saorin et al., 2017). Institutions are generally expected to hold less shares of firms in a weak legal environment. Garcia-Meca & Sanchez-Ballesta (2010) emphasize the need to consider the legal environment when analysing effect of ownership concentration and voluntary disclosure. Thus, the following hypothesis will be tested:

H6: Firms with more institutional ownership are more likely to disclose alternative performance measures in countries with a strong legal environment than firms in countries with a weak legal environment.

Accounting Standards

There are two prominent sets of accounting standards that are adopted around the world which are IFRS and U.S. GAAP. IFRS is principles based and has been partly or fully implemented by most countries with the most important exception of the U.S.. U.S. GAAP is rules-based and employed by U.S. firms. The value in discussing the U.S. GAAP lies in the fact that regulators and standard setters have been taking a more proactive stance regarding the use of alternative performance measures than the IFRS. Also, the use of alternative performance measures differs among these two accounting standards. This section discusses both the accounting standards, regulations and the views of their related regulators and standard setters regarding alternative performance metrics.

The IASB has shown a more open attitude towards alternative performance measures compared to the SEC and the FASB (Black et al., 2018). While the IASB has generally no problems with the use of those measures by firms, it believes though that there needs to be some kind of set of rules to prevent misconduct. The chairman of the IASB, Hans Hoogervorst, stated the following in a speech in 2015:

“The IASB has no ambition to stamp out the use of non-GAAP measures. However, IFRS numbers should serve as the primary performance measures by which companies describe their financial position and performance. Alternative performance measures must not be misleading and should not be given so much prominence in financial statements that they over-shadow the IFRS numbers.” (Hoogervorst, 2015).

Thus, the IASB believes that alternative performance measures should be supplementary to the IFRS numbers. Under IFRS, however, firms are allowed to disclose alternative performance metrics on the face of their income statement under the condition that their IFRS counterparts are equally or more prominently pronounced (Young, 2014). Also, in line with U.S. GAAP, IFRS requires a reconciliation between the IFRS numbers and the alternative performance measures. The equal prominence given to alternative performance measures has the potential danger of over-shadowing the IFRS numbers.

In 2002, the International Organization of Securities Commissions (IOSCO) issued a statement on non-GAAP financial measures, similar to the statement by the SEC in 2001, in which it alerted the issuers and users of financial statements for the use of non-GAAP measures. Unlike the SEC, the IOSCO did not propose any regulations on non-GAAP measures. However, the IOSCO did examine firms' presentations of these measures and concluded that non-GAAP measures are used inconsistently over time, are often not explained adequately and the lack of any standards endangers the comparability (IOSCO, 2016). The IOSCO issued a statement in 2016 that contains a frame of reference for the disclosure of non-GAAP financial measures to provide some sort of guideline to mitigate the problems of using non-GAAP measures.

The final important regulator that has been concerned with alternative performance measures is the European Securities and Markets Authority (ESMA). The ESMA published Guidelines on Alternative Performance Measures (APMs) in 2016 for European firms. In these guidelines, the ESMA introduced the term APM as an alternative to non-GAAP performance measure. The main purpose of the guidelines were to promote the usefulness and transparency, thereby improving the comparability, reliability and comprehensibility of APMs (ESMA, 2016).

U.S. regulators and standard setters have been concerned with the disclosure of non-GAAP earnings for a few decades now as firms have been disclosing them more frequently over time. The SEC did not propose regulations until the early 2000s, although it did issue cautionary advice that firms should consider when releasing "pro forma" financial information and alerted investors of the potential dangers of "pro forma" financial information (SEC, 2001) as this information was often of an opaque nature due to a lack of standards. With the introduction of the Sarbanes-Oxley (SOX) act in 2002 the SEC responded to the concerns of non-GAAP reporting by regulating pro forma figures. More specifically, SOX section 401(b) states that pro forma financial information should not be misleading and

that these pro forma figures should be reconciled to U.S. GAAP (SOX, 2002). In practice this means that firms should make the difference between a non-GAAP measure and its most directly comparable U.S. GAAP measure visible. These rules were formally registered by the SEC in Regulation G shortly after the SOX.

The effectiveness of this regulation has been studied in a few papers. Entwistle et al. (2005) find that managers of U.S. are less frequently disclosing non-GAAP numbers in earnings reports following the implementation of Regulation G. Also, Heflin and Hsu (2005) find that firms are less likely to use non-GAAP earnings to meet or beat analyst forecasts. This could suggest that the Regulation G has effectively mitigated the danger of opportunistic use of non-GAAP earnings. Furthermore, Kolev et al. (2008) find that exclusions in non-GAAP earnings are of higher quality, but that some exclusions have shifted to special items which decreased in quality. As such, an unintended consequence of the SEC scrutiny is that managers try to circumvent the regulation by shifting recurring items to special items.

To summarize, prior research found that after the introduction of Regulation G, firms were less frequently reporting non-GAAP numbers due to its conditions for the use of these numbers. Under IFRS, there has not been a regulation for the use of alternative performance measures. However, in recent years guidelines have been issued on this subject. These guidelines have been less stringent than Regulation G. Therefore the following hypothesis will be tested:

H7: Firms using IFRS are more likely to disclose alternative performance measures than firms using U.S. GAAP.

3. Research method

3.1 Data sample

To test the hypotheses, the data consists of an international sample of publicly listed firms annual earnings reports over a period of five years (2013-2017). The data is collected from various sources as there is not one database which contains all the data needed to perform the analysis. The data sources are Thomson Reuters Eikon, FactSet, Djankov et al. (2008) and Kile & Philips (2009). The constituents of the S&P Global Developed Index are selected for this analysis which are gathered from Thomson Reuters Eikon. This index consists of the large and mid-cap firms of 23 developed countries. Overall, the index comprises 1,932 firms which captures around 85% of the total market capitalization of those developed countries. Firms from Japan were excluded due to their use of local accounting standards. Thus, the sample only consists of firms following IFRS or U.S. GAAP. Other countries that were excluded from the sample are Hong Kong, Singapore and South Korea because their annual reports were not available in English. Finally, firms operating in the finance, insurance and real estate industries (SIC code 6000-6799) were excluded as they are subject to different regulations than firms in the other industries. The final sample consists of 926 firms and 4,630 firm year observations.

3.2 Variables

3.2.1 Dependent variable

The dependent variable in the thesis will be the disclosure of alternative performance measures (APM) in annual reports. In prior research, the disclosure of alternative performance measures is usually measured as a binary outcome where a firm either discloses an APM in their annual or quarterly report or it does not disclose an APM (Isidro & Marques, 2013; Heflin & Hsu, 2008; Bhattacharya et al., 2003). To gather data on APMs, it is often hand collected or by means of textual analysis. The advantage of hand collecting data is that more information can be derived from the reports. However, this is a time consuming process and therefore leads to relatively small samples (Marques, 2017). As this thesis aims to provide international evidence it is more appropriate to gather a relatively large data sample. Thus, in this thesis the data on disclosure of alternative performance measures will be retrieved from firms' annual reports in FactSet filings by using textual analysis. Studies that use textual

analysis to identify alternative performance measures disclosures do this by choosing several keywords to screen the reports. As managers use varying terms in their disclosure of alternative performance measures, the selection process of the alternative performance measures sample differs in the non-GAAP literature. The studies that use textual analysis for the selection process most commonly use “Non-GAAP”, “Pro forma earnings” or “Alternative Performance” as keywords to search for in earnings announcements (Zhang & Zheng, 2011; Lougee & Marquadt, 2004; Bowen et al., 2005; Bhattacharya et al., 2003; Barth et al., 2012). Bhattacharya et al. (2003) estimate that using “pro forma” as the only keyword in their textual analysis finds about half of the firms that disclose non-GAAP metrics. Bhattacharya et al. (2007) try to extend their previous study by including more keywords. These additional keywords, however, yield significantly less findings of earnings announcements that include non-GAAP metrics than the initial use of only “pro-forma”. Therefore, this thesis uses the three most commonly used keywords in annual reports for alternative performance metrics: “Non-GAAP”, “Pro forma earnings” and “Alternative Performance”. The APM variable is a dummy which takes the value of 1 if a firm discloses an alternative performance metric in their annual report based on the keywords and zero otherwise. Table 1 present the APM disclosure by SIC group. The highest ratio of APM disclosure can be found in the services industry which is logical as firms in this industry are generally intangible-intensive firms. These are expected to be the most frequent reporters of APMs (Bhattacharya et al. 2003). Table 2 present the APM disclosure by year. It appears that there is an increasing trend in the use of APMs. In particular, the years 2016 and 2017 show a larger increase. This could be because of the introduction of the APM guidelines by the IOSCO in 2016. Table 3 present the APM disclosure by country.

SIC group	APM		
	0	1	Total
Agriculture	10	5	15
Mining	150	175	325
Construction	38	37	75
Manufacturing	965	1025	1990
Transportation	432	463	895
Wholesale Trade	84	86	170
Retail Trade	171	169	340
Services	341	434	775
Public Administration	4	1	5

Table 1. APM disclosure by SIC group

Year	APM
2013	427
2014	434
2015	454
2016	516
2017	554

Table 2. APM disclosure by year

Country	APM		
	0	1	Total
Austria	29	21	50
Australia	174	71	245
Belgium	22	13	35
Canada	121	239	360
Denmark	65	25	90
Estonia	37	38	75
Finland	50	20	70
France	18	182	200
Germany	116	79	195
Ireland	29	6	35
Israel	43	27	70
Italy	27	88	115
Luxembourg	6	14	20
Netherlands	31	44	75
Norway	55	35	90
New Zealand	25	60	85
Portugal	20	10	30
Sweden	83	82	165
Switzerland	69	26	95
United Kingdom	129	236	365
United States	1096	1069	2165

Table 3. APM disclosure by country

3.2.2 Independent variables

The independent variables for the regression are the country, industry and firm level factors. The legal environment variable is based mainly on the studies by La Porta et al. (1998, 1999) and Djankov et al. (2008). The first independent variable is the quality of legal enforcement (LEGAL) which is measured by characteristics of a legal system created by Djankov et al. (2008). This index creates a score for a country ranging based on several characteristics of a legal system. These characteristics of the legal system are the regulatory quality, rule of law, control of corruption, government effectiveness and political stability in a country. The scores on these legal characteristics have been equally weighted to create an aggregate index for each country's legal system.

The second variable is the accounting standards followed (STANDARDS). The data on this variable was gathered from the Thomson Eikon database. Firms in the sample were using IFRS, U.S. GAAP or local standards. Firms applying local standards were from Japan and have been dropped as there is not any relevant information available regarding alternative performance measures under those local standards. The standards variable is a dummy which takes the value of 0 if U.S. GAAP is followed and 1 if IFRS is followed.

The third independent variable is the board independence (BOARDINDP) which is measured as the percentage of independent board members.

The fourth independent variable is the institutional ownership (INSTIT) which is measured as the percentage of shares owned by institutions (La Porta et al., 1999).

The fifth independent variable is the high-tech industry (HIGHTECH). Firms are classified as high tech based on the first three digits of the SIC code. This is based on the recommendations of the study by Kile & Philips (2009). They developed procedures for selecting high-tech firms based on SIC codes. Table 4 presents the optimal three-digit SIC code combination to sample high-tech firms according to Kile & Philips (2009). Based on the codes in table 4, 246 firms in the sample were classified as high-tech. The variable is a dummy which takes a value of 1 if the firm can be classified as high-tech and 0 otherwise.

SIC Code	Industry name
283	Drugs
357	Computer and Office Equipment
366	Communication Equipment
367	Electric Components and Accessories
382	Laboratory, Optic, Measure, Control Instruments
384	Surgical, Medical, Dental Instruments
481	Telephone Communications
482	Miscellaneous Communication Services
489	Communication Services, NEC
737	Computer Programming, Data Processing, etc.
873	Research, Development, Testing Services

Table 4. Optimal three-digit SIC code combination to sample high-tech firms (Kile & Philips, 2009)

3.2.3 Control variables

The control variables consists of firm-level characteristics that are commonly used in the non-GAAP literature. These are size, tangibility, profitability, growth and leverage (Lougee & Marquadt, 2004; Isidro & Marques, 2013). Size (SIZE) is measured by the natural logarithm of net sales. Tangibility (TANG) is measured by the percentage of intangible assets to total assets. Profitability (PROFIT) is measured by the gross profit margin. Growth (GROWTH) is the percentage increase in total assets. Leverage (LEV) is measured by the debt-to-equity ratio.

Table 5 presents an overview of the dependent, independent, and control variables used in the analysis.

Variable	Measurement	Data Source
APM	Dummy, 0 (no APM in report) or 1 (APM in report)	FactSet Filings
LEGAL	Index based on regulatory quality, rule of law, control of corruption, government effectiveness and political stability in a country	Djankov et al. (2008)
STANDARDS	Dummy, 0 (U.S. GAAP) or 1 (IFRS)	Eikon
BOARDINDP	Percentage of independent board members in a firm's board	Eikon
INSTIT	Percentage of a firm's shares held by institutional investors	FactSet
HIGHTECH	Dummy, 0 (non-high-tech firm) or 1 (high-tech firm) based on SIC classification	FactSet Kile & Philips (2009)
SIZE	The natural logarithm of sales	FactSet
TANG	Intangible assets / Total assets	FactSet
PROFIT	(Net sales – COGS) / Net sales	FactSet
GROWTH	Total assets ^t / Total assets ^{t-1}	FactSet
LEV	Total debt / Total equity	FactSet

Table 5. Variables, measurements and data sources.

3.3 Statistical model

To test the hypothesized relationships, a logistic multilevel regression will be conducted in STATA. The multilevel logistic regression will be used since the dependent variable is has a binary outcome (Hosmer Jr, Lemeshow & Sturdivant, 2013). The logistic regression has several advantages over the linear probability model. To test the second and fourth hypothesis, interactions will be added in the model. Based on the variables described above, the model that will be tested is as follows:

$$\begin{aligned} APM_{i,t} = & \beta_0 + \beta_1 LEGAL_i + \beta_2 STANDARDS_i + \beta_3 BOARDINDP_{i,t} + \beta_4 INSTIT_{i,t} \\ & + \beta_5 HIGHTECH_i + \beta_6 FIRM_{CONTROLS} + \beta_7 INDUSTRY_{CONTROL} \\ & + \beta_8 COUNTRY_{CONTROL} + \beta_9 YEAR_{CONTROL} + \varepsilon_{i,t} \end{aligned}$$

Where i denotes a firm in the sample, t denotes the year, β denotes the coefficient and ε the standard error.

4. Results

4.1 Descriptive statistics

Table 6 presents the descriptive statistics of the data sample. The variables have been checked in STATA to see whether they were normally distributed by means of histograms. This normal distribution is a necessary condition for the variables except for the dummies in order to use the logistic regression. From the variable leverage the natural logarithm was taken to ensure that it was normally distributed.

Variable	N	Mean	Std. dev.	Min	Max
APM	4630	0.51	0.50	0	1
LEGAL	4630	1.30	0.30	0.31	1.92
STANDARDS	4630	0.50	0.50	0	1
BOARDINDP	4620	0.64	0.25	0	100
INSTIT	4625	0.60	0.29	0.43	100
HIGHTECH	4630	0.37	0.48	0	1
SIZE	4595	8.89	1.45	0.08	13.09
TANG	4498	0.26	0.22	0	0.91
PROFIT	4559	0.36	0.22	-3.33	0.93
GROWTH	4403	0.14	1.13	-0.72	6.57
LEV	4417	4.17	1.33	-5.69	10.8

Table 6. Descriptive statistics of variables

One of the problems that could exist when performing a regression analysis is multicollinearity. This means that there is a perfect relationship between the independent variables and could make the estimates unreliable. Table 7 presents the correlation between the independent variables. Perfect relationships are said to exist when the correlation is -1 or 1. From the matrix it can be seen that the highest correlation is -0.25 between firm size and profitability. Thus, the variables are only weakly correlated with each other. In addition, the

Variance Inflation Factor (VIF) and tolerance have been estimated in table 8. As the VIF values are smaller than 5 and the tolerance value greater than 0.2, it indicates that there is no multicollinearity.

	BRDINDP	INSTIT	LEGAL	SIZE	TANG	PROFIT	GRWTH	LEV
BRDINDP	1							
INSTIT	0.048	1						
LEGAL	-0.136	-0.247	1					
SIZE	0.037	-0.034	-0.122	1				
TANG	0.012	-0.139	0.043	0.018	1			
PROFIT	0.047	0.188	-0.122	-0.250	-0.235	1		
GRWTH	0.008	0.030	-0.067	0.069	0.052	0.003	1	
LEV	0.070	0.086	-0.120	0.164	-0.100	-0.104	0.037	1

Table 7. Correlation matrix.

Variable	VIF	TOL
BOARDINDP	1.32	0.759
INSTIT	1.42	0.703
LEGAL	1.11	0.905
SIZE	1.09	0.915
TANG	1.12	0.893
PROFIT	1.17	0.854
GROWTH	1.01	0.991
LEV	1.07	0.935

Table 8. VIF and TOL.

4.2 Empirical results

Table 9 presents the outputs from the multilevel logistic regressions which were estimated in STATA. Model 1 presents the results without the interaction. Model 2 includes the legal and board independence interaction and model 3 includes the legal and institutional ownership interaction. Robust standard errors were used in all models.

	Predicted	Model 1	Model 2	Model 3
STANDARDS	+	0.473*** (4.67)	0.416*** (4.04)	0.204* (1.78)
BOARDINDP	+	0.004*** (2.63)	-0.016** (-2.35)	0.004*** (2.55)
INSTIT	-	0.004 (0.81)	0.002 (1.33)	-0.037*** (-4.70)
LEGAL	-	-0.725*** (-6.23)	-1.501*** (-5.14)	-1.692*** (-7.28)
HIGHTECH	+	0.081 (1.02)	0.089 (1.11)	0.115 (1.43)
SIZE	+	0.089*** (3.73)	0.099*** (4.08)	0.092*** (3.81)
TANGIBILITY	+	1.203*** (-7.63)	1.238*** (-7.82)	1.210*** (-7.66)
PROFITABILITY	-	-0.006*** (-3.32)	-0.005*** (-3.15)	-0.006*** (-3.42)
GROWTH	+	0.002** (2.26)	0.002** (2.27)	0.019** (2.18)
LEVERAGE	+	0.119*** (4.78)	0.116*** (1.87)	0.113*** (1.85)
LEGAL*BOARD	+		0.014*** (2.96)	
LEGAL*INSTIT	+			0.030*** (4.98)
Constant		-0.007 (-0.02)	1.054** (3.29)	1.49*** (3.04)
Year dummies		Yes	Yes	Yes
N		4615	4615	4615
Wald- χ^2		227.20***	234.20***	247.14***

Table 9. Multilevel logistic regression results with robust standard errors.

***, ** and * indicate statistical significance at $p < 0.01$, $p < 0.05$, $p < 0.1$ respectively.

Z statistics in parentheses.

To test hypothesis 1, the results indicate a statistically significant positive relationship between APM disclosure and board independence. Therefore, the null hypothesis is rejected. The results are in line with the positive relationship that was predicted. This means that firms with a larger proportion of independent board members are more likely to disclose alternative performance measures.

To test hypothesis 2, the results indicate a statistically insignificant positive relationship between institutional ownership and APM disclosure. Therefore, the null hypothesis is not rejected. This result is not in line with the predicted relationship. However, the relationship was insignificant and the coefficient quite small. A possible reason could be that institutions demand more information about a firm's financial performance which could be in the form of alternative performance measures.

To test hypothesis 3, the results indicate a statistically insignificant positive relationship between APM disclosure and high tech industry. Therefore, the null hypothesis is not rejected. Although the relationship is positive, the insignificance of the relationship is not in line with the findings in prior research (Zhang & Zheng, 2011; Lougee & Marquadt, 2004; Bhattacharya et al., 2003). One possible reason for this is that there are different ways to classify firms as being high-tech.

To test hypothesis 4, the results indicate a statistically insignificant negative relationship between APM disclosure and the legal environment. Therefore, the null hypothesis is rejected. This result is in line with the prediction and the findings by Isidro and Marques (2015) that firms in a weak legal environment are more likely to disclose alternative performance measures.

To test hypothesis 5, the interaction term in model 2 is examined. The results indicate a statistically positive relationship which is in line with the prediction. Therefore, the null hypothesis is not rejected. The interaction term indicates that the effect of board independence on APM disclosure depends on the legal environment. This finding confirms the suggestion by Garcia-Meca & Sanchez-Ballesta (2010) that the positive association between board independence and voluntary disclosure occurs in those countries with a strong legal environment.

To test hypothesis 6, the interaction term in model 3 is examined. The results indicate a statistically positive relationship which is in line with the prediction. Therefore, the null hypothesis is not rejected. The interaction term means that the effect of institutional ownership on APM disclosure depends on the legal environment. This finding confirms the suggestion by Garcia-Meca & Sanchez-Ballesta (2010) that the positive association between

institutional ownership and voluntary disclosure occurs in those countries with a strong legal environment.

To test hypothesis 7, the results indicate a statistically significant positive relationship between APM disclosure and accounting standards. Therefore, the null hypothesis is rejected. The results are in line with the positive relationship that was predicted. This means that firms that use IFRS as their accounting standards are more likely to disclose alternative performance measures than firms that use U.S. GAAP. This was expected as U.S. GAAP has more stringent rules in place regarding the use of alternative performance measures.

Furthermore, the results indicate that the control variables have statistically significant relationships with APM disclosure as predicted. The positive relationship between tangibility and the disclosure of alternative performance measures supports the general idea that intangible-intensive firms are more likely to disclose alternative performance measures than less intangible-intensive firms. The negative relationship between profitability and APM disclosure is in line with the findings by Leung & Veenman (2018).

4.3 Robustness check

To test the robustness of the model, an additional regression is performed. This regression includes a dummy variable (GUIDELINES) that controls for the years 2016 and 2017. In 2016, the IOSCO issued guidelines on the use of APMs. Since publishing dates of annual reports differ among firms and the guidelines were published mid-2016, 2017 is also included. The dummy takes a value of 1 in 2016 and 2017, and a value of 0 otherwise. It is expected to have a positive effect on APM disclosure. The results presented in table 10 indicate similar results to the models without the guidelines dummy. The guidelines dummy is positive and statistically significant, meaning that the years in which those guidelines were published had a positive impact on the likelihood of APM disclosures. These results are not surprising, as table 2 shows a substantial increase in APM disclosures in 2016 and 2017.

	Predicted	Guidelines control
STANDARDS	+	0.450*** (4.57)
BOARDINDP	+	0.004*** (2.92)
INSTIT	-	0.002 (1.03)
LEGAL	-	-0.740*** (-6.22)
HIGHTECH	+	0.086 (1.06)
SIZE	+	0.074*** (3.27)
TANGIBILITY	+	1.192*** (7.93)
PROFITABILITY	-	-0.006*** (-3.65)
GROWTH	+	0.002** (2.78)
LEVERAGE	+	0.108*** (4.23)
GUIDELINES	+	0.408*** (6.61)
Constant		0.647* (1.85)
Year dummies		Yes
N		4615
Wald- χ^2		199.63***

Table 10. Multilevel logistic regression results with guidelines control and robust standard errors. ***, ** and * indicate statistical significance at $p < 0.01$, $p < 0.05$, $p < 0.1$ respectively. Z statistics in parentheses.

5. Conclusion and discussion

5.1 Conclusion

The aim of this thesis was to investigate under what conditions firms are more likely to disclose alternative performance measures than other firms. In order to study this, several firm-level, industry-level and country-level factors were identified and hypothesized based on theory and prior research. Using a worldwide sample of large and mid-cap firms, multilevel logistic regressions were estimated to find out which factors have an effect on the likelihood of a firm disclosing alternative performance measures. The results indicate that most of the contextual factors had a significant effect. The factors that have a significant influence on the likelihood of disclosing alternative performance measures are the accounting standards, board independence and legal system. Institutional ownership and high-tech industry were found to be insignificant. Moreover, the firm controls size, tangibility, profitability, growth and leverage were significant factors as well. The results also confirmed the directions of the predicted relationships, except for institutional ownership. However, this variable did not have a significant effect on the disclosure of alternative performance measures which means that it is not an important determinant according to the results.

5.2 Discussion

This thesis is subject to several limitations. The alternative performance measures were found through textual screening of annual reports. A drawback of this method is that it does not give qualitative information about how the measures are being used. For example, the prominence given to these measures in the annual reports. Hand-collection of this information might be better, but it leads to way smaller size and period of the sample. Due to time limitations, this method would go beyond the scope of this thesis. Further research could use larger samples by including firms from more countries and a larger time period to create more reliable results. Also, including a wider range of keywords and the amount of non-GAAP measures used in the report might be useful.

Another limitation is that this thesis does not investigate the motives for disclosing alternative performance measures. It is difficult to find out whether the disclosure is opportunistically motivated or for informative reasons. However, this could be an opportunity for further research.

Finally, there are some other factors that could possibly influence the decision to disclose alternative performance measures which are not investigated in this study due to data limitations. International evidence on for example the effects of compensation contracts, loss firms or transitory gains on the disclosure of alternative performance measures is still scarce.

The findings in this thesis might be useful to standard setters and regulators as it provides insights into the contextual factors that influence the decision to disclose alternative performance measures. These factors can be taken into accounting when making regulations regarding the use of alternative performance measures.

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