The effect of accounting regulation, leverage and taxes on earnings management

Bachelor Thesis

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Abstract

There is an ongoing debate in the literature on the effects of tax-book conformity, IFRS-adoption and leverage on earnings management. This paper uses 36,081 firm-year observations from 27 EU member states over the period 2000-2019. I find that tax-book conformity and IFRS adoption are negatively associated with earnings management. Finally, I find a positive association between leverage and earnings management.

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Table of contents

1. Introduction

The priority of financial reporting is to provide both relevant and faithful represented financial information to users of financial statements. Four enhancing characteristics are utilized to assess the relevance and correctness of financial information. Specifically, comparability, verifiability, timeliness and understandability (Picker et al., 2016). Reported earnings is the most important financial information. Hence, reported earnings should be represented in a truthful manner. However, corporate executives can manage earnings by abusing the information asymmetry that exists between them and (potential) users of financial statements as stakeholders. Earnings management can have negative effects. For instance, biased earnings can reduce the public trust in financial reporting (Kelly, 2011). Additionally, earnings management can result in misallocation of capital inside the capital market (El Diri, 2017).

This paper investigates factors that can affect earnings management by exploring the connection between accrual-based earnings management and a recent major change in accounting. Specifically, the adoption of a new set of accounting standards in the European Union. In addition, this paper sheds light on the relationship between leverage and earnings management. Additionally, it also studies whether earnings management and tax-book conformity are related to each other. Therefore, this study seeks to answer the following research question:

What is the effect of accounting regulation, leverage and taxes on earnings management?

This study examines the link between accounting regulation and accrual-based earnings management in the context of IFRS-adoption. Within the European Union reporting entities have to prepare their financial statements in accordance with IFRS standards since 2005. This is often seen as the biggest change in accounting history (Kouaib, Jarboui & Mouakhar, 2018). The purpose of the introduction of IFRS is to bring benefits to the capital markets. For instance, IFRS implementation should reduce earnings management practices. Therefore, a lot of research is dedicated to the question whether IFRS-adoption effectively reduces earnings management. However, previous studies provide conflicting evidence on the effect of IFRS-adoption on earnings management. Barth, Landsman and Lang (2008) conclude that IFRS-adoption decreases earnings management practices. In contrast to this, Dye and Sunder (2001) provide evidence against the introduction of the IFRS standards. Dye and Sunder (2001) suggest that the principle-based nature of IFRS standards leave more space for subjectivity in reported earnings, which can result in more earnings management opportunities.

Previous research establishes that accrual-based earnings management and leverage are related to each other. This paper therefore examines the relationship between leverage and earnings management. Additionally, it also studies whether IFRS-adoption indirectly modifies the effect of

leverage on accrual-based earnings management. IFRS-adoption should improve a reporting entity's information environment. Therefore, it can enhance the public trust in financial reporting (Kelly, 2011). Enhanced public trust in financial reporting should drop the cost of equity on the capital market. So, IFRS-adoption can alter an entity's finance decision by modifying the cost of equity.

The current debate about the effect of tax-book conformity on earnings management is conflicting. Tax-book conformity can both encourage as well as discourage executives to practice earnings management. This paper looks to discover whether tax-book conformity incentivises or disincentivises executives to manage earnings. In other words, this study sheds light on the connection between tax-book conformity and accrual-based earnings management. Additionally, this study also investigates whether IFRS-adoption modifies the effect of tax-book conformity on earnings management. Tax-book conformity has an effect on earnings management (Blaylock, Gaertner & Shevlon, 2014). Within countries wherein taxation laws and accounting standards are conform, accounting standards are shaped by taxation laws or vice versa. However, the IFRS standards do not take taxation regulations into account (Hung & Subramanyam, 2007). So, IFRS-adoption should have implications for the level of earnings management within a country that adopts IFRS as long as the taxation regulations are not changed in accordance with IFRS standards.

This paper complements the literature because it provides additional evidence that IFRS-adoption reduces discretionary accruals. Furthermore, this paper documents a positive relationship between leverage and accrual-based earnings management. Additionally, tax-book conformity is negatively associated with earnings management in the European Union. Further, to the best of my knowledge, this paper is the first one to study whether IFRS-adoption modifies the direct effect of both leverage and tax-book conformity on accrual-based earnings management. This study can assist regulators and politicians with their decision to implement IFRS. Furthermore, the findings about the relationship between leverage and earnings management can assist financial institutions with the risk management of their borrowers. Furthermore, users of financial statements can use the evidence of this paper in their decision process whenever they want to allocate capital into the capital market.

The remainder of this paper is organized as follows. Section 2 offers a review of the theoretical framework and the literature. Furthermore, it develops the hypotheses of this paper. Section 3 discusses the methodology that is applied in this paper. Thereafter, section 4 presents the empirical results of this study. Finally, section 5 consists of the conclusion, suggestions and research limitations.

2. Theoretical framework, literature review and hypotheses development

This paper studies the determinants of accrual-based earnings management. I focus in particular on firms' capital structure, tax policies and accounting rules. I will start with a general explanation on earnings management. Subsequently, this paper elaborates the description on earnings management in the context of the agency theory. Then, the following section explores the relation between IFRS-adoption and earnings management. Furthermore, I discuss the relation between leverage and earnings management. The next section reviews the connection between tax-book conformity and earnings management. Finally, the last sections of this chapter discusses the relation between on the one hand, leverage and tax-book conformity, and on the other hand, IFRS-adoption.

2.1 Earnings management

Earnings management is a frequently discussed topic in accounting research. Nevertheless, different authors of different papers also apply different definitions of earnings management. These different definitions of earnings management share some common ground. Firstly, earnings management is described as manipulation of reported earnings. Moreover, earnings can be managed upwards or downwards. Secondly, most of the definitions put emphasis on the existence of multiple methods to manipulate earnings. In this paper, I define earnings management as: *the manipulation of reported earnings by exploiting various methods, with the purpose of misleading users of financial statements.*

As mentioned in the definition of earnings management, managers can alter reported earnings with multiple methods. Executives use these methods as a trade-off in accordance with their motives and possibilities, under the condition of their relative costs (El Diri, 2017). Some examples of earnings management activities are accrual-based earnings management, real earnings management and earnings smoothing, but yet more methods exist. The following sections explain accrual-based earnings management.

Accrual-based earnings management is managing earnings by abusing discretion in accrual-accounting. Accruals are the bridge between cash-accounting and accrual-accounting (Li, McDowell & Moore, 2009). The matching principle is the foundation of accrual accounting (Richard, 2015). The matching principle entails the matching of a company´s cashflows of both expenses and revenues even though they did not occur in the same moment of time. Therefore, people use accruals to simplify the calculation of the profitability of transactions. Using accrual accounting as intended creates non-discretionary accruals. Abusing accrual-accounting to manage earnings creates discretionary accruals. Accruals only impact the timing of the recognition of cashflows. Hence, practicing accrual-based accounting does not impact an entity's economic value. For the same reason, accruals will reverse the

subsequent period. Consequently, they put a natural constraint on the practice of accrual-based earnings management in the subsequent period. However, accrual-based earnings management does impact the distribution of capital between different stakeholders (El Diri, 2017).

2.2 Agency theory and earnings management

The agency theory involves two parties. These are the shareholders and stakeholders (also known as principles), and managers (agents). These parties are heterogeneous with respect to information access, ambitions and attitudes towards risk. This therefore creates a conflict of interest, and discrepancies in the perceived best business decisions. These consequences are referred to as agency problems. The principles and agents align their ambitions and their preferences in dealing with risk to mitigate agency problems. Agency cost refer to all costs involving the solution of agency problems.

The information asymmetry complicates the control on agents. Additionally, it introduces adverse selection and opportunities for the agent to pursue their own best interest. For example, managers potentially want to enhance their reputation as manager, optimize their pay-off or secure their position inside an entity. Besides the information problem, there also exists a problem involving risk. The problem originates from the relationship between risk and reward. The person in charge of the decision is not the one bearing the risk. As a result, risky behaviour on the manager's side, referred to as moral hazard, can negatively affect shareholders or stakeholder's wealth.

2.3 IFRS on earnings management

Since 2005, preparing financial statements in accordance with IFRS is mandatory for all publicly accountable companies in the European Union. The European Union mandated IFRS-adoption because of multiple capital market benefits. For example, IFRS-adoption would lower the cost of equity and debt capital through improved decision usefulness of information provided by financial statements (Kim et al., 2007; Daske et al., 2008). Additionally, a set of universal applicable accounting standards enhances the comparability as well as the consistency of financial information worldwide. Furthermore, the member states had some autonomy in the implementation process of IFRS. In some countries early adoption was permitted (e.g. Germany). Moreover, the introduction to IFRS is often seen as one of the biggest changes in accounting history (Kouaib, Jarboui & Mouakhar, 2018). As a result, a lot of research is dedicated to this subject, and also on the implications of the adoption of the IFRS standards on reported earnings. Prior research presents conflicting evidence about the motivations and possibilities of earnings management resulting from IFRS-adoption.

Barth, Landsman & Lang (2008), provide evidence in favour of IFRS-adoption. Their research concludes that IFRS-adoption results in an improvement of accounting quality and less earnings management in post-adoption periods. Their research suggests that IFRS standards are a set of accounting standards with a higher quality than domestic GAAP standards. This is consistent with a research conducted in Brazil, which concludes that the convergence to IFRS effectively decreases the practice of earnings management through accruals (Pelucio-Grecco et al., 2014). Furthermore, IFRS- implementation results in a more faithful representation of a firms' business operation. However, this is only the case for well-performing firms (Kao, 2014). Additionally, previous research establishes that earnings management measured by abnormal working capital accruals and small positive earnings is reduced by corporate governance mechanisms (Marra, Mazzola & Prencipe, 2009). Furthermore, a board characterized by a higher level of independence and the existence of an independent audit committee lessens earnings management possibilities (Marra, Mazzola & Prencipe, 2009). Moreover, the board of directors is even more successful in reducing the practice of earnings management whenever IFRS standards are applied (Marra, Mazzola & Prencipe, 2009).

In contrast to this, Dye and Sunder (2001) provide evidence against IFRS-adoption in context of earnings management. Their research documents that the principle-based standards of IFRS leave more space for subjectivity inside earnings, as such intensifying earnings management possibilities. This evidence is also consistent with the research of Daske, Hail, Leuz & Verdi (2008), which suggests that IFRS regulations create more flexibility during the accounting process. An accounting process which supposedly must be neutral in order to be a faithful representation of a firms operations (Daske, Hail, Leuz & Verdi, 2008). Moreover, publicly accountable companies applying IFRS who face earnings losses generally exhibit higher levels of upwards accrual-based earnings management (Kao, 2014). This suggests that firms who have an economic incentive to practice upward earnings can indeed abuse the additional managerial judgement provided by IFRS-adoption to their advantage. This paper develops the first hypothesis with regards to the adoption of IFRS on earnings management, and state as follows:

Hypothesis 1: IFRS-adoption has a positive effect on accrual-based earnings management.

2.4 Leverage on Earnings management
Firms' financing decisions and thus their capital structure should have an effect on the decision to engage in earnings management. The reason being that firms need capital to perform their operations in order to make a profit. These firms intend to attain this demanded capital at the lowest cost as possible. Listed firms could therefore engage in earnings management with aim of securing the latter (Anagnostopoulou & Tsekrekos, 2017). In other words, executives want to alter the perception of external capital-providers, both equity- as debt investors, to secure favourable terms on their funding (Rodrıguez-Perez & van Hemmen, 2010). However, there still exists an ongoing debate in literature on

the effect of leverage on earnings management. The main reason being that a firm´s level of leverage facilitates several incentives to both engage or not to engage in earnings management at the same time (Bradshaw, Richardson & Sloan, 2006; Jaggi & Lee, 2002, Lazzem & Jilani, 2018). Previous literature providing evidence for the former, is largely based on the connection between debt covenants and accrual-based earnings management (Jaggi & Lee, 2002, Lazzem & Jilani, 2018). Moreover, firms engage in upwards accrual-based earnings management in order to steer clear from costly debt-contract violations (Campa, 2019).

In contrast to the evidence supporting a positive effect of leverage on earnings management, other literature suggests a countered effect of leverage on earnings management. The main rationale behind the negative relationship between leverage and earnings management concerns the monitor efforts of equity- and debt investors. Moreover, listed entities compensate their capital providers for their funds and their risk. In general, the higher the risk, the higher the interest rate on the loan or the return on capital must be. Financial institutions and other capital providers rely heavily on published financial statements for the purpose of risk assessing. Bradshaw, Richardson & Sloan (2006) conclude that firms with high levels of leverage generally perform worse and have an increased credit risk. Therefore, it could be cost-efficient for the creditors to incur extra monitor-costs in order to assess the actual risk of debtors (Jensen, 1986). Additionally, Jelinek (2007) provides evidence in line with Jensen (1986), namely that an increase of a firms' leverage results in lower levels of earnings management. Furthermore, accrual-based earnings management is a relatively easy to detect method of managing earnings that comes with legitimate consequences whenever committed. Thus, as leverage increases external scrutiny, executives might prefer other methods to manipulate earnings than through accruals. For example, managing earnings through real transactions has real consequences for the value of company, but yet is way harder to detect for external parties. After carefully reviewing previously done research, the second hypothesis of this paper state as follows:

> *Hypothesis 2: Leverage has a negative effect on accrual-based earnings management on firms in the European Union.*

2.5 Tax-book conformity and earnings management
Whether increased tax-book conformity in the context of earnings management is favourable or unfavourable is an ongoing debate with evidence supporting both sides of the spectrum. The main rationale supporting tax-book conformity suggests it mitigates the motives of earnings management in both directions (Withaker, 2005). Manipulating earnings upwards is inconvenient because it results in higher tax costs for an entity. Simultaneously, manipulating earnings downwards is unfavourable since lower reported earnings signal an entity is less profitable (Blaylock, Gaertner & Shevlon, 2014). As a result, investors are less incentivised to invest capital in the entity, therefore increasing the costs

of capital. In addition, the proponents of tax-book conformity articulate that it diminishes managerial discretion (Blaylock, Gaertner & Shevlon, 2014). Following this argument, the taxation laws are less flexible than accounting standards. Consequently, applying taxation laws on reported income leaves less space for managerial discretion, and thus leaves less possibilities to practice earnings management (Desai, 2004). Prior research concludes that a high level of tax-book alignment deters earnings management (Tang, 2014). Additionally, Sundvik (2017) provides evidence consistent with the previously mentioned. His findings suggest that higher tax-book conformity results in less earnings management (Sundvik, 2017).

By contrast, the main argument of opponents of tax-book conformity emphasises the differences within the objective of the taxation- and accounting system. On first impression, both systems appear to calculate the bottom line, and, therefore, would have more or less the same objective. However, the main objective of the two systems, for which income is of significant importance, is different. Within the context of International Financial Reporting Standards (IFRS), the main objective is to provide relevant and faithfully represented financial information about the current financial state of an entity to capital providers and additional users of financial statements (Picker et al., 2016). Nevertheless, the main objective of the taxation system is to fund all the operations carried out by the government (Stiglitz, 2000). Hence, the differences in objectives between the accounting- and taxation system make it impossible to realise tax-book conformity (Porcano & Tran, 1998). These differences between the main objectives therefore resulted in multiple points of divergence between the taxation laws and accounting standards. The main reasons for divergence between the taxation system and the accounting system arise from two fundamental differences (Porcano & Tran, 1998). Firstly, there is a difference in the time horizon associated with certainty and uncertainty. Secondly, there are differences in the target audience and corresponding information.

Previous research concludes that entities are willing to pay extra tax costs resulting from upwards earnings management in order to signal better performance to potential investors and additional users of financial statements (Dhaliwal, 1994; Hunt, 1996). This evidence is in contrast with the main argument of proponents of tax-book conformity. Additionally, Watrin, Ebert and Thomsen (2014) conclude that downward earnings management is positively associated with tax-book conformity. After carefully reviewing the previous research, this paper will hypothesise that tax-book conformity and accrual-based earnings management are related to each other and state as follows:

Hypothesis 3: Tax-book conformity and accrual-based earnings management are related to each other.

2.6 Leverage and IFRS

Modigliani and Miller (1958) argue that no optimal capital structure exists, in a world without market imperfections. However, the European Unions' capital market includes market failures, as information asymmetry and taxes. Therefore, the broad optimal capital structure follows the pecking-order theory (Myers & Majluf, 1984; Donaldson, 2000). The pecking-order theory ranks financing types, the sequence prefers internal capital over debt issuance and declares raising equity as a financing means of last resort (Myers & Majluf, 1984). The incorporation of IFRS should have an impact on the capital market imperfections (Kim et al., 2007; Daske et al., 2008). Especially, the transition to high-quality accounting standards is expected to reduce information asymmetry (Barth, Landsman & Lang, 2008). Earnings management being one of the most important determinant of information asymmetry (Bharath, Pasquariello, and Wu, 2009). The anticipated improvements surrounding a firms' information environment drops the costs of raising equity (Li, 2011). Consequently, making an issuance of shares a more preferable alternative opposed to debt financing. Therefore, IFRS-adoption possibly alters a firms' finance decisions.

2.7 Tax-book conformity and IFRS

Tax-book conformity has a negative effect on the information quality of financial reporting (Hanlon et al., 2005). Particularly, whenever accounting standards are shaped by taxation legislation (Nakao & Gray, 2018). Moreover, conformity between taxation regulations and accounting standards also has an effect on earnings management practices (Sundvik, 2007). In addition, IFRS-adoption has an impact on tax-book conformity (Hung & Subramanyan, 2007). Furthermore, convergence to IFRS undermines the connection between taxable income and reporting income (Nakao & Gray, 2018). This is the case because IFRS standards do not take taxation considerations into account (Hung & Subramanyam, 2007). Greece is a country that was characterised by a high level of tax-book conformity pre-IFRS era (Karampinis & Hevas, 2013). Therefore, IFRS-adoption broke the link between taxation regulation and accounting standards in Greece. (Karampinis & Hevas, 2013). Hence, IFRS-adoption should have consequences for the practice of earnings management in Greece. Indeed, Karampinis and Hevas (2013) findings suggest that IFRS-adoption weakens the tax-book conformity in Greece. Therefore, it eliminates tax-motivated earnings management practices in Greece (Karampinis & Hevas, 2013).

3. Methodology

The section methodology explains which method is applied to examine the three hypotheses of this study. Section 3.1 specifies the data sample. Secondly, section 3.2 elaborates the selection of dependent, independent, control and interaction variables that are run in the multivariate regressions of this paper. Finally, section 3.3 discusses the empirical analysis of this research.

3.1 Sample selection

To shed light on the impact of accounting regulations, leverage and taxes on earnings management, this study conducts a quantitative research. In other words, the examination of this papers' hypotheses, consists of a study based on a database. I retrieve the initial sample from Wharton Data Research Data Services (WRDS) database. The data includes annual fundamentals corresponding to the reporting period from 2000 until 2019. The raw sample includes 8,223 firms that are listed in at least one of the 27 member states´ stock exchanges of the European Union. The preliminary dataset consists of 100,817 firm-year observations after duplicates are removed.

I drop publicly traded firms that operate in industries that belong in the Standard Industrial Classification (SIC) range between (6000-6799) from the initial sample. Specifically, these listed firms operate in the financial sector and must comply with different accounting standards and taxation regulation than other industries of the sample. Moreover, these corporations also differ significantly with respect to firm-specific characteristics and can therefore not be compared to corporations operating in other industries. I delete these 20,241 firm-year observation from the dataset. Subsequently, I also drop incomplete firm-year observations from the initial dataset. After I drop these 44,495 firm-year observations, the final dataset consists of 36,081 firm-year observations. Table 1 summarizes the sample selection. All firm-year observations are winsorized at the top and bottom 5% of the distribution to eliminate biasness effects of outliers.

Table 1 Sample selection

	Observations
Initial sample: *collected from WRDS*	100,817
Less:	
Financial institutions (SIC 6000-6799) 20,241	
Incomplete observations 44,495	
Final sample	36,081

Austria	741
Belgium	1,021
Bulgaria	644
Croatia	441
Czech Republic	174
Cyprus	761
Denmark	1,306
Estonia	199
Finland	1,625
France	4,160
Germany	5,665
Greece	2,386
Hungary	209
Ireland	603
Italy	2,315
Latvia	258
Lithuania	358
Luxembourg	493
Malta	187
Netherlands	1,615
Poland	3,307
Portugal	605
Romania	645
Slovakia	92
Slovenia	226
Spain	1,431
Sweden	4,614

Table 1 presents the initial data sample and the way the final sample is assembled. Table 1 also presents the number of firm-year observations ordered by each country of the European Union from 2000 until 2019.

3.2 Variables

Accrual-based earnings management measure

A model is a simplified version of reality. Therefore, models are never able to mirror the world perfectly. As a result, different models measuring accrual-based earnings management have different advantages and disadvantages. The choice between the various available models is made by selecting the test statistic with the fewest misspecifications. Specifically, the model with highest level of specification and power is chosen. Various accrual-based models detecting earnings management differ from each other on several aspects, one aspect being the scope of the model. For instance, Ronen and Sahan (1981) created a model that measures a single discretionary component of reported earnings. Other models, like the Modified Jones model estimate earnings management by the aggregate of discretionary accrual-accounting choices. The models including all discretionary components of reported earnings dominate prior research.

Dechow, Sloan and Sleeney (1995) completed a research that evaluated the relative performance of several aggregated accrual-based earnings management models. The selection of models compared consisted of the Healey model, DeAngelo Model, Jones model, Modified Jones model and Industry model. Their research concludes that all models are well specified, but the Modified Jones model is the most powerful one (Dechow, Sloan & Sleeney, 1995). This means that, the Modified Jones model displays the lowest probability of type II errors in testing. In other words, the Modified Jones model showes the lowest probability of a case wherein an entity is practicing accrual-based earnings management, that is not detected by the test statistic. Therefore, the Modified Jones model is used as the proxy for accrual-based earnings management in this paper.

The Modified Jones model is a modification of the Jones model (1991). The Jones model is a cross-sectional model that takes both time periods as well as industry divergencies into account. It also takes a large portion of variables influencing total accruals into account, though not all of them. Therefore, the Jones model suffers from omitted variables. These omitted variables cause a lower level of specificity and biased results. Specifically, excluding variables results in a higher frequency of type I errors in testing (Dechow, Sloan & Sleeney, 1995). In other words, leaving out a variable that influences both dependent as well as independent variables leads to more cases wherein earnings management is detected while it is not actually being practiced. To mitigate these problems, Dechow (1994) complemented the Jones model by adding an additional variable into the equation. Specifically, this variable models the change in account receivables when calculating the level of normal accruals.

Like most accrual-based models detecting earnings management, the Modified Jones model starts off with estimating total accruals. Regression (1) displays the computation of total accruals of entity$_t$ in year$_j$ per two-digit SIC code. This is necessary because of the different accrual-accounting standards used per industry. Additionally, the total accruals are calculated by the cashflow statement approach instead of the balance-sheet approach. I use the cashflow statement approach because the balance-sheet approach can lead to errors in the results. In other words, the cashflow statement approach is more reliable (Hribar & Collins, 2002). Furthermore, the total accruals are scaled by the one-year lagged total assets of the corresponding entity in order to compare the outcomes of the companies.

(1)

$$\frac{TACC_{t,j}}{A_{t,j-1}} = \alpha_1 \frac{1}{A_{t,j-1}} + \alpha_2 \frac{(\Delta REV_{t,j} - \Delta REC_{t,j})}{A_{t,j-1}} + \alpha_3 \frac{PPE_{t,j}}{A_{t,j-1}} + \varepsilon_{t,j}$$

- $TACC_{t,j} = total\ accruals\ of\ firm_t\ in\ year_j$
- $A_{t,j-1} = one\ year\ lagged\ total\ assets\ of\ firm_t\ in\ year_j$
- $\Delta REV_{t,j} = change\ in\ revenue\ of\ firm_t\ in\ year_j$
- $\Delta REC_{t,j} = change\ in\ accounts\ receivables\ of\ firm_t\ in\ year_j$
- $PPE_{t,j} = gross\ value\ of\ Property, Plant\ and\ Equipment\ of\ firm_t\ in\ year_j$
- $\varepsilon_{t,j} = error\ term\ of\ firm_t\ in\ year_j$

Subsequently, total accruals are decomposed into two parts: non-discretionary accruals, which arise from normal accrual accounting, and discretionary accruals, arising from accrual-based earnings management. Regression (2) displays the calculation of the estimated total non-discretionary accruals of entity$_t$ in year$_j$, scaled by the one-year lagged total assets of the corresponding entity.

(2)

$$\frac{NDACC_{t,j}}{A_{t,j-1}} = \widehat{\alpha_1} \frac{1}{A_{t,j-1}} + \widehat{\alpha_2} \frac{(\Delta REV_{t,j} - \Delta REC_{t,j})}{A_{t,j-1}} + \widehat{\alpha_3} \frac{PPE_{t,j}}{A_{t,j-1}}$$

- $NDACC_{t,j} = non-discretionary\ accruals\ of\ firm_t\ in\ year\ _j$

Finally, in formula (1) the discretionary accruals of entity$_t$ in year$_t$ are computed by subtracting the non-discretionary accruals of entity$_t$ in year$_j$ from the total accruals of entity$_t$ in year$_j$.

$$DACC_{t,j} = TACC_{t,j} - NDACC_{t,j}$$

- $DACC_t = discretionary\ accruals\ of\ firm_t\ in\ year\ _j$

In addition, isolating the error term of regression (1) is the equivalent of the discretionary accruals of entity$_t$ in year$_t$. This second method of calculating the discretionary accruals will be utilised as a robustness check of the results on the effect of IFRS-adoption, leverage and tax-book conformity on accrual-based earnings management of the multivariate regressions.

IFRS-adoption

The first hypothesis that is tested in this paper deals with the relationship between IFRS-adoption and earnings management. There is an ongoing debate on the direction of influence of the set of IFRS standards on earnings management. However, it is clear that IFRS-adoption has an impact on the level of accrual-based earnings management (Kim et al., 2007). IFRS-adoption is a dummy variable in the multivariate regression analysis which take one if $entity_t$ in $year_j$ applied the standards published by IASB and zero otherwise.

Debt-to-equity ratio

One of the three main variables of interest is the point of leverage of an entity. Hypothesis 2 examines the relationship between financial leverage and accrual-based earnings management. The proxy for leverage is the debt-to-equity ratio. The debt-to-equity ratio is calculated by dividing total debt of $entity_t$ in $year_j$ by the total shareholders' equity of $entity_t$ in $year_j$. The total debt is the sum of long- and short-term debt. The total equity of shareholders is the sum of preferred stock and common shareholders' equity.

$$debt-to-equity\ ratio_{t,j} = \frac{total\ debt_{t,j}}{total\ shareholders'equity_{t,j}}$$

Tax-book conformity

The third hypothesis of this paper deals with the relationship between tax-book conformity and accrual-based earnings management. Blaylock, Gaertner & Shevlin (2015) conclude that higher levels of tax-book conformity result in higher levels of earnings management. To test this hypothesis, tax-book conformity is proxied by the effective tax rate of $entity_t$ in $year_j$. In case, the tax regulations and accounting standards are conform, the effective tax rate will have an impact on the level of earnings management in the European Union. In such region, the coefficient of the effective tax rate will be at least significant.

$$effective\ tax\ rate_{t,j} = \frac{(\ accrued\ tax_{t,j} + income\ tax_{t,j}\ )}{EBIT_{t,j}}$$

$$EBIT_{t,j} = earnings\ before\ interest\ and\ tax\ of\ firm_t\ in\ year_{\ j}$$

The advantage of using the effective tax rate as a proxy for tax-book conformity is that there is a lot of data available about the necessary variables. The magnitude of the firm-year observations makes it a reliable source to decide whether tax-book regulations are conform in the European Union.

However, there are two disadvantages to this approach. Firstly, the variable cannot tell anything about how conform book and tax income are. Secondly, the effecting tax rate variable is based on reported numbers. For this reason, a second multivariate regression will be run including another proxy for tax-book conformity. The alternative of the effective tax rate is the percentage taxes paid of EBIT. The percentage taxes paid of EBIT variable is the real amount of taxes that is paid by a reporting company.

$$percentage\ taxes\ paid\ of\ EBIT_{t,j} = \frac{tax\ paid_{\ t,j}}{EBIT_{t,j}}$$

$$EBIT_{t,j} = earnings\ before\ interest\ and\ tax\ of\ firm_t\ in\ year_{\ j}$$

Company size

Klein (2002) argues that firm size could have an impact on accrual-based earnings management. Therefore, it is used as a control variable in the regressions of this study. The control variable firm size is computed by taking the natural logarithm of the total assets of entity$_t$ in year$_j$. The natural logarithm is chosen to make sure outliers do not bias the results and therefore making the results more robust.

$$company\ size_{t,j} = ln(total\ assets_{t,j})$$

Returns on assets

Accrual-based earnings management may be related to past or current firm performance (Dechow et al., 2005). Therefore, a firms' past or current performance could give rise to omitted variable biases in the results of this research. Hence, I control for several firm specific characteristics. Returns on assets (ROA) is a firms' performance measure that potentially influences the level of earnings management (Kothari, Leone & Wasley, 2005; Butler, 2005). This paper uses the lagged returns on assets as a control variable. The lagged returns on assets is a ratio for a firms´ profitability. The control variable is measured as the prior year income before extraordinary item scaled by total assets.

$$Returns\ on\ Assets_{t-1,j} = \frac{year\ income\ before\ exraordinary\ items_{t-1,j}}{total\ assets_{t-1,j}}$$

Firms' growth rate

Lee, Li & Yue (2006) demonstrate that firms with higher expected earnings growth tend to practice more earnings management. Specifically, high growth firms tend to manage their earnings upwards more compared to companies where the expected earnings growth rate is lower. This is in line with the findings of Hochberg (2012), who concludes a positive relationship between a firms' growth rate and accrual-based earnings management. In this paper a firms' growth rate is proxied as the one-year lagged growth in earnings as a percentage of a firms' prior year earnings.

$$growth\ rate_{t,j-1} = \frac{(earnings_{t,j} - earnings_{t,j-1})}{earnings_{t,j-1}}$$

$$Earnings_{t,j} = earnings\ before\ extraordinary\ items\ firm_t\ in\ year_j$$

Small loss avoidance

Burgstahler and Dichev (1997) researched whether executives practiced earnings management with the intention of avoiding earning decreases or small losses. In their study they examined the distribution of income. The distribution shows an unusually high frequencies of small profits and unusually low frequencies of small losses (Burgstahler & Dichev, 1997). This provides evidence that entities manage earnings in order to avoid small losses and the negative consequences such a loss could have. Therefore, the variable small loss avoidance is included in the multivariate regression analysis. The variable small loss avoidance is a dummy variable. The dummy variable takes the value one, if entity$_t$ in year$_j$ had an operational profit percentage between 0 and 0.01 of total assets of the corresponding entity, and zero otherwise.

Audit quality

Multiple evidence supports the suggestion that higher quality auditors are more effective in restraining accrual-based earnings management (Davidson & Neu, 1993; Becker et al., 1998). Generally, auditors of big four companies are seen as more competent. Therefore, it is projected that firms that are audited by one of the big four companies demonstrate less earnings management than companies that are not. In this paper, audit quality is a dummy variable that takes one if a firm is audited by one member of the big four and zero otherwise.

3.3 Empirical analysis

To test my hypotheses, I use an ordinary least squares regressions (OLS). I use country, industry and year fixed effects in all regression equations and cluster the standard errors by firm to mitigate the bias introduced by repeating firms and years. The first multivariate regression examines the IFRS-adoption variable of hypothesis one and state as follows.

1) $DACC_{t,j} = \alpha_0 + \beta_1\ IFRS - adoption_{t,j} + \beta_2\ company\ size_{t,j} +$
   $\beta_3\ returns\ on\ assets_{t,j} + \beta_4\ growth\ rate_{t,j} + \beta_5\ small\ loss\ avoidance_{t,j} +$
   $\beta_6\ audit\ quality_{t,j} + \varepsilon_{t,j}$

The second multivariate regression examines the second hypothesis of this study regarding the effect of leverage on earnings management and state as follows.

2) $DACC_{t,j} = \alpha_0 + \beta_1\ debt - to - equity\ ratio_{t,j} + \beta_2\ company\ size_{t,j} +$
   $\beta_3\ returns\ on\ assets_{t,j} + \beta_4\ growth\ rate_{t,j} + \beta_5\ small\ loss\ avoidance_{t,j} +$
   $\beta_6\ audit\ quality_{t,j} + \varepsilon_{t,j}$

The third multivariate regression intends to measure whether IFRS-adoption has any modifying effect on the direct relationship between leverage and accrual-based earnings management an state as follows.

3) $DACC_{t,j} = \alpha_0 + \beta_1\ IFRS - adoption_{t,j} + \beta_2\ debt - to - equity\ ratio_{t,j} +$
   $\beta_3\ company\ size_{t,j} + \beta_4\ returns\ on\ assets_{t,j} + \beta_5\ growth\ rate_{t,j} +$
   $\beta_6\ small\ loss\ avoidance_{t,j} + \beta_7\ audit\ quality_{t,j} + \beta_{10}\ debt - to - equity\ ratio_{t,j} \times$
   $IFRS - adoption_{t,j} + \varepsilon_{t,j}$

This paper examines the effect of tax-book conformity with help of two variables that serve as proxies for tax-book conformity. The fourth multivariate regression includes the percentage tax paid of EBIT as a proxy for tax-book conformity. The fifth multivariate regression includes effective tax rate as a proxy for tax-book conformity. The two multivariate regression to test hypothesis three state as follows.

4) $DACC_{t,j} = \alpha_0 + \beta_1\ percentage\ tax\ paid\ of\ ebit_{t,j} + \beta_2\ company\ size_{t,j} +$
   $\beta_3\ returns\ on\ assets_{t,j} + \beta_4\ growth\ rate_{t,j} + \beta_5\ small\ loss\ avoidance_{t,j} +$
   $\beta_6\ audit\ quality_{t,j} + \varepsilon_{t,j}$

5) $DACC_{t,j} = \alpha_0 + \beta_1\ effective\ tax\ rate_{t,j} + \beta_2\ company\ size_{t,j} +$
   $\beta_3\ returns\ on\ assets_{t,j} + \beta_4\ growth\ rate_{t,j} + \beta_5\ small\ loss\ avoidance_{t,j} +$
   $\beta_6\ audit\ quality_{t,j} + \varepsilon_{t,j}$

The sixth multivariate regression intends to measure whether IFRS-adoption has any modifying effect on the direct relationship between tax-book conformity and accrual-based earnings management. This multivariate regression uses the percentage tax paid of EBIT as the proxy for tax-book conformity an state as follows.

6) $DACC_{t,j} = \alpha_0 + \beta_1\ IFRS - adoption_{t,j} + \beta_2\ percentage\ tax\ paid\ of\ ebit_{t,j} + \beta_3\ company\ size_{t,j} + \beta_4\ returns\ on\ assets_{t,j} + \beta_5\ growth\ rate_{t,j} + \beta_6\ small\ loss\ avoidance_{t,j} + \beta_7\ audit\ quality_{t,j} + \beta_8\ percentage\ tax\ paid\ of\ ebit_{t,j} \times IFRS - adoption_{t,j} + \varepsilon_{t,j}$

Finally, multivariate regression one until six will be ran again. However, the second time, the regressions are ran with assistance of the second method of calculation of the dependent variable. Specifically, the absolute discretionary accruals are now calculated by ways of isolating the error term as mentioned before in the section of the dependent variable. The reran multivariate regressions serve as a robustness check of the results of this study.

4. Results

In this section of the paper, I discuss the empirical results the final data sample. The first section summarises the descriptive statistics of the final sample. The second section discusses the results of the empirical research. Finally, the last section of this chapter performs a robustness check.

4.1 Descriptive statistics and analysis

Table 2 gives a summary of the descriptive statistics of the dependent, independent and control variables of the final sample. Subsequently, table 7 provides the Pearson correlation matrix between the selection of variables. There exists a weak correlation between the variables used in the multivariate regression. The highest correlation coefficient in table 7 is 0.447, and it is between the effective tax rate and the tax paid variable. Normally, such a correlation between two variables would result in biases in the multivariate regression. However, the tax paid variable is used as a robustness check, and will therefore not be ran in the same multivariate regression as the effective tax rate variable. The next highest correlation coefficient in table 6 is 0.369 and is between the audit quality and firm size. The next biggest coefficient after that is 0.317, which exists between returns on assets and firm size. There is weak correlation between the selection of variables of the final data set. Therefore, this paper assumes no multicollinearity problems exist in the multivariate regressions.

Table 2 displays the descriptive statistics of the complete selection of variables. Table 2 shows the average of the dependent variable. Within the European Union, the average absolute discretionary accruals are 0.099. The minimum of the absolute discretionary accruals outcome is greater than zero. This indicates that within every country included in the final sample, some publicly traded companies practice earnings management. However, The values of accrual-based earnings management are absolute. Therefore, the positive direction of the mean does not indicate upwards earnings management. The member state that generally shows the highest levels of executives managing earnings by abusing accrual discretion is Poland. The average coefficient of the modified jones model is 0.130 in Poland, as seen in table 3. Slovenia demonstrates the lowest average for absolute discretionary accruals. Noticeable is that geographically seen, the relatively more south located member states of the European Union, on average exhibit less accrual-based earnings management. For example, Spain, Portugal, France, Italy, Greece, Czech Republic, Austria and Belgium display an average between the range from 0.07 until 0.09, as seen in table 3. The only exception to this is Finland, which showcases an average of 0,088 for absolute discretionary accruals, but is a relatively northern located country.

The mean of leverage is 1.916 for non-financial listed firms in the European Union. This signifies that firms in this study's sample generally rely more on debt as a means of finance than equity. A potential explanation for this observation could be that the interest rates for corporate debt have decreased

during the examination period from 2008 until 2019. This reduces the costs of debt and therefore favoured corporate debt as a method of finance. Table 4 displays that Portugal on average presents the highest debt-to-equity ratio for non-financial firms within the sample. The average debt-to-equity ratio of a Portuguese listed firm is 3.345. In other words, Portuguese listed companies on average have €3,35 worth of debt for every €1,00 of equity they own. Latvia and Romania show the lowest means of leverage. Respectively, 0.983 and 1.046, as seen in table 4. Latvia is the only country where equity finance seems to be more important than debt finance.

The third hypothesis in this study regards the impact of tax-book conformity on earnings management. the mean effective tax rate is 25,4% and the median effective tax rate is 23,7% across the European Union. Table 5 presents that Italy has the highest mean of the variable measuring the effective tax rate, respectively, 37,2%. Estonia shows on average the lowest rate of effective taxation, exactly, 10,2%. Although this means that the reporting companies on average pay less taxes in Estonia than Italy. It does not indicate that taxation regulations and accounting standards are more conform in either of the two countries yet.

To further examine the effect of tax-book conformity on earnings management, a second variable is used as a proxy for tax-book conformity. Table 6 summarizes the descriptive statistics of the variable percentage taxes paid of EBIT per country. On average firms in the European Union pay 16.7% of their EBIT to the government as taxes. Table 6 presents that the average of the ratio taxes paid of EBIT is the highest in Italy, respectively, 24.1%. The country wherein listed companies on average pay the least taxes relatively to their EBIT is Cyprus. In Cyprus entities pay about 8.3% of their earnings before interest and taxes to taxes, as seen in table 6.

As mentioned before, table 2 summarizes the descriptive statistics of the complete set of variables of the multivariate regression model. The IFRS-adoption dummy has a mean of 0.603, which indicates that around 60% of all the financial reports of the final sample are conform to IFRS standards. Moreover, the variable audit quality has a mean of 0.496. So, almost half of all the reported financial statements in the sample are audited by auditors of one of the big four companies. Note that the mean of the returns on assets variable as well as the mean of the growth rate variable are negative. Specifically, -0.007 and -0.101, as seen in table 2. Finally, on average, more or less 6.0% of all the firms included in the final sample report a net income that is in between a range from 0.0% up to 1.0% of their total assets.

Table 2 Descriptive statistics

Variable	Obs.	Mean	Median	Std. Dev.	Min.	Max.
Panel A: descriptive statistics						
Absolute discretionary accruals	56,653	0.099	0.060	0.108	0.005	0.416
Debt-to-Equity ratio	79,862	1.916	1.176	2.405	0.017	12.564
Effective tax rate	79,974	25.4%	23.7%	40.2%	-58.0%	127%
Tax	32,167	16.7%	15.7%	20.3%	-22.8%	64.3%
IFRS-adoption	80,531	0.603	1.00	0.489	0.00	1.00
Company size	80,109	5.314	5.081	2.333	1.548	10.628
Returns on assets	66,181	-0.007	0.026	0.132	-0.401	0.161
Growth rate	65,398	-0.102	-0.048	1.663	-4.133	3.956
Small loss avoidance	80,567	0.057	0.00	0.232	0.00	1.00
Audit quality	80,538	0.496	0.00	0.500	0.00	1.00

Table 2 presents a summary of the descriptive statistics of the complete set of variables between 2000 and 2019.

Table 3 Descriptive statistics

Country	Obs.	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: Absolute Discretionary Accruals						
Austria	1,048	0,078	0,050	0,082	0,005	0,416
Belgium	1,486	0,082	0,053	0,089	0,005	0,416
Bulgaria	567	0,103	0,071	0,100	0,005	0,416
Cyprus	831	0,103	0,064	0,107	0,005	0,416
Croatia	962	0,090	0,058	0,092	0,005	0,416
Czech Republic	237	0,074	0,047	0,087	0,005	0,416
Denmark	1,858	0,095	0,062	0,101	0,005	0,416
Estonia	272	0,103	0,068	0,108	0,005	0,416
Finland	2,146	0,088	0,056	0,096	0,005	0,416
France	9,857	0,086	0,050	0,097	0,005	0,416
Germany	9,307	0,103	0,062	0,110	0,005	0,416
Greece	2,907	0,085	0,058	0,088	0,005	0,416
Hungary	312	0,098	0,067	0,099	0,005	0,416
Ireland	949	0,118	0,072	0,122	0,005	0,416
Italy	3,566	0,076	0,046	0,089	0,005	0,416
Latvia	425	0,124	0,078	0,124	0,005	0,406
Lithuania	493	0,104	0,069	0,103	0,005	0,416
Luxembourg	486	0,093	0,060	0,098	0,005	0,416
Malta	186	0,113	0,065	0,122	0,005	0,416
Netherlands	2,271	0,091	0,056	0,101	0,005	0,416
Poland	6,806	0,130	0,079	0,128	0,005	0,416
Portugal	783	0,078	0,052	0,089	0,005	0,416
Romania	928	0,091	0,058	0,095	0,005	0,416
Slovakia	118	0,106	0,079	0,102	0,005	0,416
Slovenia	389	0,072	0,046	0,076	0,005	0,416
Spain	1,737	0,079	0,047	0,092	0,005	0,416
Sweden	7,600	0,120	0,072	0,123	0,005	0,416

Table 3 presents a summary of the descriptive statistics of the Absolute Distortionary Accruals per country of the European Union between 2000 and 2019.

Table 4 Descriptive statistics

Country	Obs.	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: Debt-to-Equity ratio						
Austria	1,408	2.019	1.344	2.286	0.017	12.564
Belgium	2,210	2.000	1.359	2.213	0.017	12.564
Bulgaria	782	1.685	0.754	2.662	0.017	12.564
Croatia	1,239	1.633	0.847	2.405	0.017	12.564
Cyprus	1,052	1.444	0.839	2.089	0.017	12.564
Czech Republic	353	1.126	0.710	1.271	0.017	12.564
Denmark	2,542	1.632	1.089	2.075	0.017	12.564
Estonia	320	1.066	0.854	1.135	0.017	12.564
Finland	2,682	1.607	1.249	1.699	0.017	12.564
France	12,795	2.167	1.435	2.444	0.017	12.564
Germany	12,825	2.056	1.251	2.573	0.017	12.564
Greece	3,733	2.036	1.302	2.426	0.017	12.564
Hungary	417	1.097	03753	1.381	0.017	12.564
Ireland	1,249	1.469	0.721	2.361	0.017	12.564
Italy	5,359	2.744	1.776	2.933	0.017	12.564
Latvia	484	0.983	0.489	1.421	0.017	12.564
Lithuania	606	1.365	0.928	1.706	0.017	12.564
Luxembourg	747	2.000	1,200	2.748	0.017	12.564
Malta	243	1.291	0.875	1.564	0.017	12.564
Netherlands	2,941	2.178	1,383	2.464	0.017	12.564
Poland	9,115	1.486	0.861	2.060	0.017	12.564
Portugal	1,013	3.345	2.343	3.251	0.017	12.564
Romania	1,909	1.046	0.472	1.860	0.017	12.564
Slovakia	181	1.787	0,623	3.011	0.017	12.564
Slovenia	497	1.326	0.815	1.632	0.017	12.564
Spain	2,705	2.613	1.696	2.829	0.017	12.564
Sweden	10,455	1.581	0.924	2.199	0.017	12.564

Table 4 presents a summary of the descriptive statistics of the Debt-to-Equity ratio per country of the European Union between 2000 and 2019.

Table 5 Descriptive statistics

Country	Obs.	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: Effective Tax rate						
Austria	1,404	28.9%	28.6%	41.6%	-58.3%	127.1%
Belgium	2,188	32.0%	31.1%	43.5%	-58.3%	127.1%
Bulgaria	784	12.2%	10.8%	25.5%	-58.3%	127.1%
Croatia	1,239	11.2%	5.2%	33.2%	-58.3%	127.1%
Cyprus	1,055	14.3%	10.6%	40.2%	-58.3%	127.1%
Czech Republic	349	22.9%	21.9%	30.4%	-58.3%	127.1%
Denmark	2,524	24.9%	25.8%	32.3%	-58.3%	127.1%
Estonia	320	10.2%	9.2%	19.9%	-58.3%	127.1%
Finland	2,677	23.4%	25.2%	30.8%	-58.3%	127.1%
France	12,842	30.3%	29.4%	44.6%	-58.3%	127.1%
Germany	12,918	28.7%	30.8%	42.3%	-58.3%	127.1%
Greece	3,738	32.3%	31.8%	48.0%	-58.3%	127.1%
Hungary	459	16.8%	13.0%	34.6%	-58.3%	127.1%
Ireland	1,253	16.6%	11.5%	30.7%	-58.3%	127.1%
Italy	5,332	37.2%	37.9%	46.7%	-58.3%	127.1%
Latvia	479	12.2%	10.3%	34.4%	-58.3%	127.1%
Lithuania	607	15.3%	14.4%	31.0%	-58.3%	127.1%
Luxembourg	744	24.8%	22.6%	37.6%	-58.3%	127.1%
Malta	244	26.9%	28.7%	37.8%	-58.3%	127.1%
Netherlands	2,943	27.0%	26.1%	36.7%	-58.3%	127.1%
Poland	9,167	22.2%	20.2%	41.3%	-58.3%	127.1%
Portugal	1,008	25.0%	21.8%	35.6%	-58.3%	127.1%
Romania	1,906	13.9%	11.8%	27.1%	-58.3%	127.1%
Slovakia	181	21.1%	20.3%	31.8%	-58.3%	127.1%
Slovenia	499	16.2%	13.9%	30.8%	-58.3%	127.1%
Spain	2,700	27.9%	26.2%	38.7%	-58.3%	127.1%
Sweden	10,414	16.8%	8.8%	30.9%	-58.3%	127.1%

Table 5 presents a summary of the descriptive statistics of the Effective Tax rate per country of the European Union between 2000 and 2019.

Table 6 Descriptive statistics

Country	Obs.	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: Percentage taxes paid of EBIT						
Austria	741	17.3%	16.5%	19.3%	-22.8%	64.3%
Belgium	1,021	17.9%	17.4%	18.5%	-22.8%	64.3%
Bulgaria	644	10.7%	8.2%	19.9%	-22.8%	64.3%
Croatia	441	11.6%	9.3%	19.6%	-22.8%	64.3%
Cyprus	761	8.3%	5.6%	18.3%	-22.8%	64.3%
Czech Republic	174	18.3%	17.8%	17.1%	-22.8%	64.3%
Denmark	1,306	17.0%	16.4%	19.2%	-22.8%	64.3%
Estonia	199	12.5%	10.0%	15.2%	-22.8%	64.3%
Finland	1,625	18.3%	18.6%	20.5%	-22.8%	64.3%
France	4,160	20.6%	21.4%	19.7%	-22.8%	64.3%
Germany	5,665	18.7%	18.6%	20.9%	-22.8%	64.3%
Greece	2,386	15.1%	12.3%	24.2%	-22.8%	64.3%
Hungary	209	16.4%	14.0%	19.1%	-22.8%	64.3%
Ireland	603	10.6%	9.1%	15.5%	-22.8%	64.3%
Italy	2,315	24.1%	25.0%	22.6	-22.8%	64.3%
Latvia	258	11.1%	6.5%	22.4%	-22.8%	64.3%
Lithuania	358	13.3%	9.6%	21.3%	-22.8%	64.3%
Luxembourg	493	16.9%	16.0%	18.3%	-22.8%	64.3%
Malta	187	16.2%	11.7%	19.1%	-22.8%	64.3%
Netherlands	1,615	16.0%	15.7%	18.5%	-22.8%	64.3%
Poland	3,307	13.6%	12.8%	18.6%	-22.8%	64.3%
Portugal	605	14.2%	11.6%	19.8%	-22.8%	64.3%
Romania	645	17.5%	13.9%	19.7%	-22.8%	64.3%
Slovakia	92	14.6%	8.2%	25.4%	-22.8%	64.3%
Slovenia	226	14.5%	12.6%	18.5%	-22.8%	64.3%
Spain	1,431	16.9%	15.8%	18.4%	-22.8%	64.3%
Sweden	4,614	14.0%	12.7%	19.0%	-22.8%	64.3%

Table 6 presents a summary of the descriptive statistics of the Percentage taxes paid of EBIT per country of the European Union between 2000 and 2019.

4.2 empirical results

IFRS-adoption on earnings management

Hypothesis 1: IFRS-adoption has a positive effect on accrual-based earnings management.

The coefficient of the IFRS-adoption dummy, which is used to measure the impact of a new set of accounting standards on earnings management is negative and significant on the one percent significance level. In the European Union, the IFRS-adoption coefficient is -0.014, as seen in table 8 model 1: hypothesis one. This coefficient can be interpreted as publicly traded companies practicing less earnings management after they have adopted the standards created by the IASB. A potential explanation for this finding is that the IFRS is a set of accounting standards with a higher quality than domestic GAAP standards (Barth, Landsman & Lang, 2008).

The finding of this study is consistent with the results of other studies conducted about the impact of IFRS-adoption on earnings management. For instance, Barth, Landsman & Lang (2008) conclude that there occurs less earnings management in post-adoption periods. In conclusion, hypothesis one is rejected for the following reason even though the coefficient of IFRS-adoption is statistically significant. However, it is negative instead of positive. Therefore, IFRS-adoption has a negative effect on accrual-based earnings management.

Leverage on earnings management

Hypothesis 2: Leverage has a negative effect on accrual-based earnings management.

Table 8 model 2: hypothesis two displays the second multivariate regression, which measures the impact of the debt-to-equity ratio on accrual-based earnings management. The multivariate regression excludes the other main variables of interest. The coefficient for the debt-to-equity ratio is positive (0.002) and is significant at the one percent significance level, as seen in table 8 model 2: hypothesis two. This coefficient suggests that highly leveraged reporting companies in the European Union practice more accrual-based earnings management than reporting entities in the European Union that rely less extensively on debt as a mean of finance. This relationship between the debt-to-equity ratio and earnings management is the opposite of the expected negative relationship. A possible explanation for this finding could be that practicing more accrual-based earnings management signals more optimistic financial information, which improves the bargaining power of the reporting entity. Therefore, with the aim to obtain favourable terms in contractual agreements with capital providers, reporting entities practice more earnings management through accruals (Rodrıguez-Perez & van Hemmen, 2010). Furthermore, another reason might be that highly leveraged companies manage earnings through accruals in order to steer clear from costly debt-contract violations (jaggi &lee, 2002). The result of the leverage coefficient of the European Union is in line with findings of the relationship between debt and the level of earnings management done by Chung, Firth and Kim (2005).

Table 8 also shows the results of the regression model that includes an interaction effect between IFRS-adoption and leverage. The coefficient of the leverage coefficient does not change and is still significant at the one percent significance level. Specifically, the coefficient of the debt-to-equity ratio is 0.002, as seen in table 8. Moreover, the interaction variable is equal to zero and significant at the one percent significance level. These results suggest that IFRS-adoption has no moderating effect on the relationship between leverage and accrual-based earnings management. In conclusion, hypothesis two of this study is rejected. Leverage has a positive effect on earnings management. In other words, reporting entities practice more earnings management when they get more debt.

Tax-book conformity on earnings management

Hypothesis 3: Tax-book conformity and accrual-based earnings management are related to each other.

The third hypothesis predicts that tax-book conformity and accrual-based earnings management are related to each other. In other words, a country wherein accounting income and taxable income are to a higher extent intertwined with each other, the more the tax level contributes to the decision to manage earnings. The variables in the multivariate regression model that reflect tax-book conformity are the percentage tax paid of EBIT and the effective tax rate. Table 9 displays the results of three regression analyses. The first one is a multivariate regression, which examines the effect of tax-book conformity on accrual-based earnings management with the help of the percentage tax paid of EBIT. The second multivariate regression reflects the effect of tax-book conformity on earnings management through accruals in the context of the effective tax rate. The last regression displayed in table 9 includes the percentage taxes paid of EBIT and an interaction variable between IFRS-adoption and percentage tax paid of EBIT.

Table 9 model four demonstrates that the coefficient of the percentage tax paid of EBIT is significant at the one percent level and is -0.020. This result suggests a negative effect of taxes paid on accrual-based earnings management. in other words, a reporting entity practices less earnings management whenever the percentage tax paid of EBIT increases, under the condition that everything else is constant. This relation could indicate that taxation regulation and accounting standards are relatively conform in the European Union. Furthermore, tax-book conformity diminishes the motives to manipulate earnings. Both, upwards as downwards earnings management have negative consequences, when taxation- and accounting laws are converged (Withaker, 2005). Moreover, tax-conformity also diminishes possibilities for executives to manage earnings (Blaylock, Gaertner & Shevlon, 2014). Additionally, the result also suggests that a higher tax rate does not give enough incentive to manage earnings downwards in order to decrease the tax burden, because of the negative consequence that lower earnings signals to shareholders.

Table 9 displays the coefficient of the effective tax rate. The effective tax rate is significant at the one percent level and is -0,013, as seen in table 9. The significance of the effective tax rate suggests that taxation and accountable income are intertwined inside the European Union. This suggestion is in line with the results of the previous paragraph. Additionally, it implies that taxation regulation has an effect on earnings management practices through accounting. Moreover, the direction of this coefficient also implies a negative relationship between the effective tax rate and accrual-based earnings management. In other words, the higher the effective tax rate becomes, the less earnings

management a company practices inside the European Union. A possible explanation for this studies' result on the negative relationship between tax-book conformity and accrual-based earnings management could be that taxation regulation is less flexible than accounting standards. Therefore, whenever accounting standards are conform to taxation regulation, this leaves less opportunities to manage earnings (Blaylock, Gaertner & Shevlon, 2014).

The last regression, model 6 of table 9 includes an interaction variable between IFRS-adoption and the percentage tax paid of EBIT variable. This interaction variable serves to examine whether IFRS-adoption has any implications for the relationship between tax-book conformity and accrual-based earnings management. The IFRS-adoption coefficient is still significant at the one percent level. However, it changes from -0.020 to -0.021, as seen in table 9. However, the interaction variable is not significant and is the equivalent to 0.009, as seen in table 9. Thus, the changes are not significant and IFRS-adoption only seems to have a minor effect strengthening the negative connection between tax-book conformity and earnings management. In conclusion, hypothesis 3 is accepted, because tax-book conformity has a negative effect on accrual-based earnings management. This implies that tax-book conformity and accrual-based earnings management are related to each other.

Control variables on earnings management

The control variables used in this study are the size of the reporting companies, the returns on assets of the companies, the growth of the reporting entities, a variable measuring whether a company reported a small profit and a dummy variable about the audit quality of the reporting entities. The effect of these five variables on the dependent variable are briefly analysed in the following sections.

The coefficient of the company size variable is negative and significant at the one percent level in all multivariate regressions. Specifically, the coefficient of the company size variables fluctuates between -0.008 and -0.011, as seen in table 8 and table 9. The coefficient can be interpreted as companies decreasing there level of earnings management through accruals when their total assets increase. A potential explanation for the direction of this coefficient lays in the fact that bigger companies endure more scrutiny than smaller companies (Klein, 2002).

Table 8 and table 9 display that the returns on assets coefficient swings between -0.125 and -0.140. additionally, the coefficients are statically significant at the one percent level in each of the ran regression models. The direction of the coefficient indicates a negative effect of returns on assets on accrual-based earnings management. In other words, the higher the returns on assets of a company are, the less the executives utilize earnings management through accruals. A potential explanation could be that companies that make a solid profit, do not have to manage earnings cause they already perform well.

The coefficients of the growth of the company variables are respectively between 0.001 and 0.002, as seen in table 8 and table 9. Additionally, the coefficients of the growth variable are statistically significant at the one percent level. Furthermore, the results of this study suggest that companies experiencing growth tend to practice more earnings management than companies experiencing less growth. My finding is in line with the results of Lee, Li & Yue (2006). A possible explanation could be that fast growing firms manage earnings in order to attain additional capital to further fund their growth opportunities.

The small loss avoidance dummy variable controls for companies trying to avoid reporting a loss by managing earnings upwards through accruals. In contrast to the expected, there exists a negative relationship between companies who report a small profit and accrual-based earnings management. The coefficient of the small loss avoidance dummy varies between -0.013 and -0.015, as seen in table 8 and table 9. This indicates that executives actually practice less earnings management through accruals whenever their reporting entity accounts a small profit. A potential reason for this result could be that reporting a small profit is suspicious and therefore attracts scrutiny. Hence, the executives keep well away from managing earnings through accruals and potentially exercise another method in order to manipulate earnings. Note that the coefficient of the small loss avoidance dummy is significant at the one percent level in every regression analysis except for model 2, the multivariate regression analysis that examines hypothesis two about the effect of leverage on earnings management.

Finally, the last control variable regards the audit quality of reporting companies. The coefficient of the audit quality variables fluctuates between -0.002 and -0.004, as seen in table 8 and table 9. Additionally, all coefficients of the multiple regression analysis are at least significant on the five percent level, as seen in table 8 and table 9. In other words, whenever a member of the big four audits a reporting entity, this company practices less accrual-based earnings management compared to reporting companies that are not audited by an auditor of the big four.

4.3 Robustness check
As a robustness check, the second method of calculation of the modified jones model is utilized. Instead of subtracting the non-discretionary accruals form the total accruals, the error term is separated. The outcomes of the multivariate regressions are precisely the same as the results of the discretionary accruals of the former method of calculation. So, the results of the previously ran regression analyses are robust for the second method of calculation of the modified jones model. Additionally, all the significance levels of the variables of interest, control- and interaction variables do not significantly change. In conclusion, all results of this study are robust.

Table 8 Multivariate regression results for the relationship between debt-to-equity ratio, IFRS-adoption and absolute discretionary accruals

	(Absolute) discretionary accrual		
Variable	**Model 1:** Hypothesis 1	**Model 2:** Hypothesis 2	**Model 3:** IFRS x D/E
Debt-to-equity ratio		0.002***	0.002***
		(0.000)	(0.001)
IFRS-adoption	-0.014***		-0.013***
	(0.002)		(0.002)
Company size	-0.010***	-0.011***	-0.010***
	(0. 000)	(0.000)	(0.000)
ROA	-0.140***	-0.135***	-0.135***
	(0.005)	(0.005)	(0.005)
Growth	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)
Small loss avoidance	-0.014***	-0.015	-0.015***
	(0.001)	(0.001)	(0.001)
Audit quality	-0.003***	-0.004***	-0.003***
	(0.001)	(0.001)	(0.001)
IFRS-adoption x Debt-to-equity ratio			0.000
			(0.001)
Constant	0.108***	0.192***	0.192***
	(0.008)	(0.008)	(0.009)
Observations	56,653	56,653	56,653
R^2	0.180	0.179	0.181

Table 8 presents the results of the OLS regression of the models 1-3 for hypothesis 1, hypothesis 2 and a model including an interaction variable between main variables of interest of hypothesis 1 and 2. The main variable of interest of model 1 is the IFRS-adoption variable. The main variable of interest of model 2 is leverage. The sample consists of 56,653 firm-year observations of EU non-financial companies for the period 2000-2019. Variables are defined in chapter 3. All continuous variables are winsorized at the top and bottom 5% of the distribution. Country, Industry and Year fixed effects signify FIC- and SIC dummies and year dummies.

Note. Standard errors are in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9 Multivariate regression results for the relationship between tax-book conformity, IFRS-adoption and absolute discretionary accruals

	(Absolute) discretionary accrual		
Variable	**Model 4:** hypothesis 3	**Model 5:** hypothesis 3	**Model 6:** IFRS x Tax
Effective tax rate		-0.013***	
		(0.01)	
Percentage tax paid of EBIT	-0.020***		-0.021**
	(0.003)		
IFRS-adoption			-0.021***
			(0.004)
Company size	-0.008***	-0.011***	-0.008***
	(0.000)	(0.000)	(0.000)
ROA	-0.128***	-0.130***	-0.125***
	(0.008)	(0.005)	(0.008)
Growth	0.001***	0.002***	0.001***
	(0.000)	(0.000)	(0.000)
Small loss avoidance	-0.013***	-0.013***	-0.013***
	(0.002)	(0.001)	(0.002)
Audit quality	-0.003**	-0.004***	-0.002
	(0.001)	(0.001)	(0.001)
IFRS-adoption x percentage tax paid of EBIT			0.009
			(0.012)
Constant	0.147	0.195***	0.149
	(0.019)	(0.009)	(0.004)
Observations	32,167	56,392	32,167
R^2	0.157	0.182	0.157

Table 9 presents the results of the OLS regression of the models 4-6 for hypothesis 3 and a model including an interaction variable between main variable of interest of hypothesis 1 and the main variable of interest of model 4. The main variable of interest of model 4 is the percentage tax paid of EBIT. The main variable of interest of hypothesis 1 is the IFRS-adoption variable. The sample for model 4 and 6 consists of 32,167 firm-year observations of EU non-financial companies for the period 2000-2019. The sample for model 5 consists of 56,392 firm-year observations of EU non-financial companies for the period 2000-2019. Variables are defined in chapter 3. All continuous variables are winsorized at the top and bottom 5% of the distribution. Country, Industry and Year fixed effects signify FIC- and SIC dummies and year dummies.

Note. Standard errors are in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5. Conclusion

This paper investigates the relevance of accounting standards, leverage and tax-book conformity in relation to accrual-based earnings management. Additionally, it also validates whether the adoption of IFRS standards has any moderating effects on the link between leverage, tax-book conformity and earnings management. The empirical results of this study indicate that the shift from domestic standards to IFRS standards effectively reduces the practice of earnings management through accruals. The results of this paper complements the existing evidence in favour of IFRS standards. It supports shifting to a set of higher quality accounting standards. Moreover, the discoveries provide empirical evidence about IFRS-adoption for regulators and politicians that look to adopt the set of standards by the IASB. Additionally, leverage holds a positive relationship with discretionary accruals. The finding of this paper can assist financial institutions with managing their risk profiles. Moreover, the results of this paper inform stakeholders and potential shareholders about the dangers that come with investing in highly leveraged companies. Furthermore, the evidence of this study offers empirical evidence that tax-book conformity and accrual-based earnings management relate to each other. Moreover, the relation between tax-book conformity and earnings management seems to be negative. Regulators and politicians can apply the results of this study in order to make an informed decision about whether to increase or decrease the convergence between taxable and reporting income. In addition, this paper contributes academically for multiple reasons. Firstly, it contributes evidence of the relation between accounting standards, leverage and tax-book conformity on accrual-based earnings management. Secondly, to my knowledge this is first paper that examines whether the shift to IFRS standards has implications for the direct relationship between leverage, tax-book conformity and earnings management.

This paper suffers from some inadequacies. Firstly, the measure of tax-book conformity is not the most valid measure for tax-book conformity that exists in the literature. Secondly, this paper addresses connections between variables on an international scale. However, some results of these variables could differ significantly whenever examined on a national scale. For instance, the link between IFRS-adoption and earnings management depends on numerous country specific factors. Even though this study did control for country specific developments, it is useful to further research the relation of accounting standards, leverage and tax-book conformity on earnings management on a national level. That being said, further research could also involve the same main variables of interest, but in relation to another method of earnings management. specifically, future researchers could explore the effect of IFRS-adoption, leverage and tax-book conformity on real earnings management.

6. References

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Table 7 - Pearson correlation matrix

	Absolute dicretionary accruals	Leverage	Effective Tax Rate	Tax paid	IFRS-adoption	Company size	Returns on assets	Firm growth	Small loss avoidance	Audit Quality
Absolute discretionary accruals	1.000									
Leverage	-0.007	1.000								
Effective tax rate	-0.125	0.005	1.000							
Tax paid	-0.121	-0.037	0.447	1.000						
IFRS-adoption	-0.167	-0.015	0.005	0.052	1.000					
Company Size	-0.289	0.111	0.144	0.153	0.259	1.000				
Returns on assets	-0.245	-0.057	0.243	0.250	0.125	0.317	1.000			
Firm growth	0.029	-0.036	0.008	0.023	-0.003	0.019	0.021	1.000		
Small loss avoidance	-0.054	0.055	0.055	0.054	0.055	0.028	0.012	-0.075	1.000	
Audit quality	-0.120	0.010	0.034	0.032	0.205	0.369	0.092	0.007	-0.009	1.000

Table 7 displays the results of the Pearson correlation test of the complete set of variables of the EU non-financial companies over the period of 2000-2019.