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"Financial indications behind earnings management practices in Europe"

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Abstract

The study examines the association between earnings management and particular firms' financial indications that reflect growth, profitability, leverage and liquidity conditions. Moreover, two corporate financial events, namely the debt covenant violation and new capital issue are implied and their association with earnings management activity is further investigated. The sample consists of 619 public listed firms from eleven European countries and the time period examined is 2006-2008. Overall, the study provides significant evidence that leveraged and larger firms are highly associated with discretionary accruals. Moreover, the study demonstrates support to the debt covenant violation scenario and indicates that firms that raise debt or equity are likely to apply the discretion provided in the reported earnings figures. The current findings add to a growing body of literature on earnings management.

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Chapter 1 Introduction

1.1 Introduction to the subject

Earnings management is regarded to be a substantial aspect of the contemporary accounting research, especially after the detection of vast accounting scandals that came to light during the last decade, precedent to the global financial debt crisis.

As a consequence, various studies had been further focused on this subject in order to investigate its origins, the motives behind applying those practices and the consequences on the firms' financial reporting quality. Most of them though, are primarily focused on managerial level and explicitly investigate earnings management in combination with particular executives' incentives.

Besides significant management motives, firms' encompassed earnings management practices could be strongly affiliated with relative financial numbers. In order to provide a favorable image to the market, management may use the discretion provided in the corresponding accounting numbers. This could also be the case on their attempt to maximize profits and increase stock value. Additionally, it may occur in order to avoid disadvantageous consequences regarding among others future prospects.

It can be therefore considered crucial that financial conditions play a significant role on the level of the firms' earnings management policies. This study is primarily focused on examining specific financial figures that could be strongly associated with earnings management practices. Additionally, it is examined whether particular corporate financial events like debt covenants violation and capital issue are related with earnings management.

1.2 Main Research question

A great amount of literature examines earnings management by concurrently implying specific firms' financial characteristics. Besides the fact that most of these studies include particular financial figures and indications relative to the firms' financial condition, only a few already exist in directly capturing the precedent

relation. In order therefore to examine the aforementioned association the following research question is generated:

"Is there an association between earnings management activities and particular financial characteristics applied by European firms?"

In order to effectively capture and to provide consistent and robust answers concerning this primary research question, three different sub-questions will be formulated in the lines that follow.

First of all, it may be assumed that firms with unfavorable financial measures are more likely to get involved in earnings management activities. When particular growth, profitability or leverage financial figures tend to deteriorate, that could partially motivate firms to manage their earnings outcomes so that they can improve the firms' picture on behalf of the associated parties. Firms with deteriorating financial figures may be inclined to exercise the discretion provided in the accounting numbers so to present a more favorable picture in the market and avoid corresponding costly effects. Hence, the following sub-question may be stated:

1.) **Is there an association between earnings management and European firm's financial characteristics such as firms' size, leverage, profitability, growth, liquidity?**

In addition, distinct financial corporate events could provide a solid basis for earnings management research. First and foremost, according to the debt covenant violation hypothesis, firms may apply earnings management practices in cases of highly distressed situations in order to avoid the unfavorable corresponding effects. This seems to be rational considering the fact that in these cases firms may face an increased bankruptcy risk (Sweeney, 1994). This could additionally generate concerns about the firms' accounting figures and corporate performance and lead to detrimental effects on the firms' stock price and management reputation (Holthausen et al., 1995). The firm may therefore manage the corresponding accounting outcomes in order to avoid the debt covenant violation (Lambert, 2001). In order to provide an answer concerning the earnings management association with

the debt covenant violation scenario, the following research sub-question should be stated:

2.) **Is there an association between earnings management and European firm's close to a debt covenant violation?**

Moreover, firms might engage in earnings management activities in cases of new capital issues. The flexibility provided by the relative accounting numbers could be applied in order to impress the potential capital providers and attract more investors. Moreover, it could lead to more apparent and effortless capital access (Hirshleifer *et al.*, 2004). Additionally, Healy and Wahlen (1999) confirm an increased use of discretionary accruals around equity and debt issues (Healy and Wahlen, 1999). Firms in such cases engage in earnings management practices to achieve a lower cost of capital, as mentioned by Hirshleifer *et al.* (2004). Other studies provide evidence concerning the better financing terms that firms' with better earnings outcomes may achieve. In order therefore to capture a consistent answer concerning this particular subject, the following sub-question is generated:

3.) **Is there an association between earnings management and European firm's that issue debt or equity?**

1.3 Motivation/Relevance

As mentioned in the former introductory part, the study examines firms' particular financial figures and the extent to which are associated with the corresponding earnings management activities. It may be considered exceptional due to its essentiality in directly capturing earnings management indications with specific factors relative to the firms' corporate finance figures. The study is additionally significant to the existing body of research as the first conducted within Europe, at least according to the author's knowledge. Focused primarily in European context, provides significant implications concerning earnings management behavior and the relative financial characteristics. It can be therefore widely applicable to many concerned. Management, investors, shareholders and in a lesser extent firms'

external parties are primarily concerned to the association examined. It is also substantial for auditors in order to achieve and further enhance the level of financial disclosures reporting quality.

1.4 Methodology

In order to empirically investigate the association examined many different statistical regression models are applied. The dependent variable is the amount of discretionary accruals as regarded the most reliable indicator of earnings management. Discretionary accruals are measured following the modified Jones model (Dechow et al., 1995). The independent variables examined initially are proxies that capture the firms' financial condition, such as profitability, growth and leverage. Moreover, the interest coverage ratio is applied as the most representative indicator to examine the levels of earnings management practices for firms that are close to a debt covenant violation. Finally, firms that raised their debt or equity capital during the sample period are captured in order to examine their association with earnings management policies. The empirical analysis is conducted by achieving relevant data from European public firms, listed in the main European stock exchanges. The sample period is focused on the period between 2006 and 2008. The rational stems from the fact that this particular period captures significant implications of the post-IFRS period, as additionally that the corresponding effects from the financial crisis of 2009 might be excluded, factors that could partially influence the outcomes while both fall out of the scope of the present study.

1.5 Limitations

One of the main factors extensively investigated in this particular research field is the managerial motives and their association with the relative earnings management practices. Managerial compensation is highly related with the firms' reporting numbers and outcomes, since managements' performance is often based on certain accounting numbers. The study may be regarded as limited because of excluding the above mentioned factors. Besides both substantial in reflecting the magnitude of earnings management activities, it is implausible to control and beyond the purposes of the current study. Firms' choices are also usually determined by a

multidimensional set of variables like general economic conditions and legislation among different countries European countries. That kind of factors cannot be implied in this study and are therefore considered as limitations.

1.6 Structure

The structure of the rest paper is as follows. The second chapter presents the theoretical framework of this study. A comprehensive overview of the earnings management subject is provided, implications concerning the different types of earnings management that may be applied, as also the incentives and conditions that could lead on that kind of practices. Moreover, a presentation of the basic earnings management detection models is included as also different ways to measure the level of discretionary accruals.

The third chapter provides an extensive review based on prior literature that is coherent with the subject of this study. All conclusions from the relative previous studies will be summarized and compared to each other. Furthermore, the chapter that follows presents basic assumptions based on the literature review that would lead to the development of the hypotheses that will be subsequently tested on a quantitative basis.

Chapter five extensively presents the earnings management estimation method that will be applied and the methodology that will be used in this particular study in order to measure the level of discretionary accruals, as regarded the most reliable indicator among different earnings management measures. The regression models that will be used are presented and also a description of the basic models' variables. It also includes the sample selection methodology and descriptive statistics concerning the major statistical data applied.

 The chapter that follows presents the results of the regression models and the consistency of those with the relevant hypotheses and the research question examined. Finally, the last chapter concludes the findings of this research, presents some basic limitations and recommends topics on this subject that could be further researched.

1.7 Summary

This first chapter presents the subject of this study and an overview of the main aspects relative with the association between earnings management and specific financial characteristics and corporate events in European listed firms. Furthermore, the main research question and the relative sub-questions that will be further examined are included. Additionally, the contribution of the study in the existing earnings management literature and the main subjects that will be extensively investigated throughout the research are presented. Finally, the methodology applied is briefly discussed; corresponding limitations and the structure of the rest study that follows in the subsequent chapters are described.

Chapter 2 Theoretical Framework

2.1 Introduction

This chapter contains the theoretical framework of this study. A presentation of the Positive Accounting Theory (PAT) will be initially committed. Moreover, a comprehensive overview of the main earnings management definitions as observed from various previous studies is presented. Furthermore, theories concerning incentives and forms of earnings management will be described. Lastly, the basic accrual based earnings management estimation methods are presented. The chapter ends with a small summary of the main topics discussed.

2.2 Positive Accounting Theory

First of all the underlying theory on which the current study is based should be presented. Positive accounting theory (PAT), as first introduced by Watts and Zimmerman (1986), attempts to explain and predict particular actions concerning firms' choices on accounting policies. Watts and Zimmerman (1986, 7) state: "Positive Accounting Theory (PAT) is concerned with explaining accounting practice. It has designed to explain and predict which firms will and which firms will not use a particular method (…) but it explains nothing as to which method a firm should use." Based on the aforementioned definition, positive accounting theory describes empirical observations and comes in contrast with the normative research approach, which suggests what ought to have be done. Therefore, in an earnings management scenario, Positive Accounting Theory (PAT) may be applied in order to access and explain the rationale behind particular accounting choices.

These choices could be further examined and conceived by applying three key hypotheses that, according to the Positive Accounting Theory (PAT), can explain the firms' decision on accounting policies.

1. **Bonus plan hypothesis**: "The bonus plan hypothesis states that managers of firms with bonus plans are more likely to use accounting methods that increase or maximizes current period reported income. Such selection will presumably increase the present value of bonuses if the compensation

committee of the board of directors does not adjust for the method chosen" (Watts and Zimmerman, 1990, 138).

This first hypothesis refers to the management compensation and its association with the applied accounting choices, since managements performance is often based on certain accounting numbers. Therefore, managers have incentives to select accounting methods and exercise discretion over accounting estimates to improve their compensation (Xiong, 2006).

2. **Debt/Equity Hypothesis**: "The debt/equity hypothesis predicts the higher the firm's debt/equity ratio, the more likely managers' use accounting methods that increase income. The higher the debt/equity ratio, the closer (i.e., „tighter") the firm is to the constraints in the debt covenants. The tighter the covenant constraint, the greater the probability of a covenant violation and of incurring costs from technical default. Managers exercising discretion by choosing income increasing accounting methods, relax debt constraints and reduce the costs of technical default" (Watts and Zimmerman, 1990, 139).

Hence, in order to avoid unfavorable results and increased constrains arising from debt covenant violation firms may apply earnings management practices to increase the reported income. This hypothesis will be empirically examined for the purposes of the current study.

3. **Political Cost Hypothesis**: "The political cost hypothesis predicts that large firms rather than small firms are more likely to use accounting choices that reduce reported profits. Size is a proxy variable for political attention. Underlying this hypothesis is the assumption that it is costly for individuals to be informed about whether accounting profits really represent monopoly profits and to contract with others in the political process to enact laws and regulations that enhance their welfare. Consequently, rational individuals are less than fully informed. The political process is no different from the market process in that respect. Given the cost of information and monitoring, managers have incentive to exercise discretion over accounting profits and

the parties in the political process settle for a rational amount of ex post opportunism" (Watts and Zimmerman, 1990, 139).

Under the political cost hypothesis, large firms would apply earnings management practices to reduce the reported profit due to increased public attention. This hypothesis first introduces the size criterion in the earnings management theory.

The Positive Accounting Theory therefore attributes an opportunistic behavior of managers regarding the maximization of their benefits and subsequently the firms' performance, as reflected on the corresponding financial statements. This behavior can be additionally reflected on earnings management practices, since these particular choices would be assigned based also on private gains. This is additionally consistent with the agency theory. According to the agency theory, managers can gain more personal benefits due to the information asymmetry that exists between them and the firms' external environment. Hence, Positive Accounting Theory (PAT), as also the agency theory, provide a solid foundation for the earnings management research that follows.

2.3 Earnings management definition

Before proceeding in the study, it is substantial to determine the term "earnings management". A considerable amount of literature attempts to define and present a consistent definition that would be entirely applied. William Paton, the founder of the American Accounting Association, in his book "Accounting Theory with special reference to the Corporate Enterprise" (1922, pg 3) states: "It is always difficult to frame a useful definition for a broad subject. Precise definitions are likely to be inadequate at best, and often positively misleading." Therefore, some of the most common definitions following a chronological order are presented below.

Schipper (1989) defines earnings management as "...a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral operation of the process)" Schipper (1989, 92). Schipper (1989) therefore spotlights particular intention in applying that kind of practices, partially resulting from an opportunistic behavior.

According to Healy and Wahlen (1999): "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999, 368). This definition implies a negative meaning on the term and is primarily focused on the managerial discretion used to reach a desirable outcome that would additionally mislead the financial statement users.

Dechow and Skinner (2000) determine earnings management as "the intentional, deliberate, misstatement or omission of material facts, or accounting data, which is misleading and, when considered with all the information made available, would cause the reader to change or alter his or her judgment or decision" (Dechow and Skinner,2000,238). This definition additionally refers to the intervention during the financial reporting process that could have significant implications on the users' decision.

Besides differences on the aforementioned definitions, it is entirely implied that the main cause in earnings management practices engagement are the private benefits on a firm and/or managerial level, mainly by applying the discretion provided. This can be concluded by all different definitions. Earnings management therefore can be defined as a purposeful intervention in a firms' financial reporting process in order to influence the reported outcomes and gain advantage for the organization or for the firms' management.

Considering the content of the current study, the first definition as given by Schipper (1989) is regarded as the most representative. Besides widely applied, it can efficiently reflect the most important aspects concerning the "earnings management" term, as applied for the scope of this research. Therefore, the main incentive for earnings management activity is to attain significant advantages and gains for the firm as entity or particularly for management, besides the latter not a primary concern of the present study.

2.4 Earnings management incentives

In order to achieve a better insight on the earnings management applications within a firm it is essential to outline the main incentives that may lead in those practices. Three main incentives exist according to Healy and Wahlen (1999).

The first one, the capital market expectation and valuation, is about achieving favorable outcomes regarding the firms' stock price. Under this scenario, a firm may employ earnings management activity in order to avoid extreme fluctuations in the stock market price, especially in case the firms' performance is far beyond of that predicted by analysts. In order therefore to meet these benchmarks and prevent troublesome effects management may engage on earnings management practices.

The second group consists of the contracting incentives. According to Healy and Wahlen(1999, pg 18) "accounting data is used to help monitor and regulate the contractual relations between many of the firm's stakeholders. Explicit and implicit management compensation contracts are used to align the incentives of management and external stakeholders. Lending contracts are written to limit managers' actions that benefit the firm's stockholders at the expense of its creditors". These contracts are therefore primary focused on the interests' alignment between the company and the firms' main stakeholders. This contractual relationship between the company and the different parties leads to earnings management activities. Among various different contracts within an organization, Watts and Zimmerman (1986) refer to compensation contracts and loan terms as the most common cases applied in firms indicating additionally the increased motivation for earnings management practices that they may create.

The last class of incentives according to Healy and Wahlen (1999) refers to the regulatory incentives. Several regulatory mechanisms such as accounting setters and monitoring bodies have been established in order to reduce the use and impact of earnings management and improve financial information available to stakeholders. These regulations usually affect specific industries without though excluding the possibilities of entire economy effects. Concerning the industry-specific regulations, Healy and Wahlen (1999) point out particular industries for which the regulatory

monitoring is entirely based on accounting data, factor that significantly increases the possibility of earnings management engagement. Prominent examples of industry related constraints are regulatory capital requirements in the banking industry, solvency requirements in the insurance industry, and rate regulation in the utilities sector (Healy and Wahlen, 1999). As for the wide economy effects, these include among others particular tax reforms and anti-trust rules.

Another type of incentives regarding the earnings management practices applied are those regarding signaling reasons, as introduced by Subramanyam (1996). According to this view, earnings management may be applied in order to provide a better insight of the firms' financial performance and achieve a better position in the market compared to their competitors.

2.5 Earnings management methods

According to the existing theory, two broad categories of earnings management methods exist, namely the real and accrual based earnings management. Both methods include particular techniques used to manage earnings, but differ substantially on the ways used in order to achieve this. It is also important to be mentioned that both methods are widely applied, but accounting research is primarily focused on the accrual part of earnings management, besides though that during the last years a large and growing amount of research is concerned with real earnings management (Zang, 2012) **.**

Real earnings management refers to particular economic activities taken to affect the firms' reported earnings. Roychowdhury (2006) defines real earnings management as "management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds" (Roychowdhury,2006, 336). These practices disregard accounting choices and the corresponding judgment on the application of the accounting methods and are primarily focused on specific operational practices that could improve reported earnings.

"Real activities manipulation is a purposeful action to alter reported earnings in a particular direction, which is achieved by changing the timing or structuring of an operation, investment, or financing transaction, and which has suboptimal business consequences" (Zang,2012). These types of earnings management practices therefore affect significantly other financial performance results, like firms' cash flows. Moreover, they drive substantial implications concerning the firms' long term value and are therefore regarded as more costly. Finally, a basic assumption that has to be mentioned is that these practices should have been unavoidably applied before the end of the fiscal year.

For example, a common real earnings management technique applied is to increase the reported income by reducing discretionary expenditures like promoting and advertising expenditures or selling, general and administrative expenditures (usually referred as SG&A costs). Another one widely applied is to increasing reported earnings by offering products at an unreasonable discount close to the end of the fiscal year. Inventory related items could additionally promote real earnings management behavior. Firms' may apply policies to increase production volume and the level of inventory over normal levels, which would significantly decrease the COGS and will therefore increase earnings, without though considering the subsequent increased storage costs. Finally, firms' may decide to sell fixed assets with market value exceeding the corresponding book value.

Besides significant and extensively researched, especially during the last years, this study is applying the second earnings management category which is regarded the most profound, namely accrual based earnings management.

"The extensive literature on earnings management largely focuses on accrual-based earnings management" (Zang, 2012). This method focuses on the accounting discretion provided in order to influence the reported income. As Zang notes "Unlike real activities manipulation, which alters the execution of a real transaction taking place during the fiscal year, accrual-based earnings management is achieved by changing the accounting methods or estimates used when presenting a given transaction in the financial statements" (Zang, 2012).

As prescribed, accruals based earnings management refers to the management discretion applied during the process of evaluating different accounting methods and the corresponding accounting estimates. "This discretion can be used by management to signal their private information or to opportunistically manipulate earnings." (Dechow 1994, 5).

Discretion referring to accrual based earnings management may arise from changes in the assets recognition and valuation methods, like impairment and depreciation. Additionally, it can be related with the managerial discretion over the recognized levels of accounts receivables. Concerning the inventory amounts, discretion could be reflected upon inventories initial recognition and also on the different methods applied to evaluate the level of inventories. These include, among many others, potential areas of accrual based earnings management practices.

When the accrual based earnings management research method is applied, a separation of discretionary and non-discretionary proportion of total accruals should be committed. The rationale arises from the level of managerial discretion implied in both accrual components. Non-discretionary accruals can be regarded as expected accruals that arise from normal economic activity and are therefore alleviated from managerial discretion. On the other hand, management's accounting choices could be reflected in the discretionary part of the total accruals, indicating an earnings management behavior. The amount of the discretionary accruals could be either a positive or a negative number, indicating the direction of earnings management. That means that in case of earnings overvalue, consistent with the bonus plan hypothesis, a positive amount of discretionary accruals can be observed. On the other case, for example the political cost hypothesis, discretionary accruals would be a negative amount indicating earnings undervalue.

2.6 Earnings management estimation models

Discretionary accruals provide an accurate estimation of the level of earnings management. In order to measure the discretionary accruals, existing literature provides several different models. These models range "from simple models in which discretionary accruals are measured as total accruals, to more sophisticated models that attempt to separate total accruals into discretionary and nondiscretionary components" (Dechow *et al*., 1995). Following a chronological order, the main models are presented below as mentioned in the study "Detecting earnings management" (Dechow et *al*., 1995).

The Healy model (1985)

The first model found on literature that attempts to measure discretionary accruals is provided by Healy (1985). According to this study, the mean total accruals from an estimation period is a representation of the measure of the nondiscretionary accruals in the event period (Dechow *et al*. 1995, p. 197). Therefore the model is as follows:

$$NDA_{(\tau)} = \sum_{t=1}^{T} TA_{(t)} \ / \ T$$

Where: NDA =estimated non-discretionary accruals
TA = total accruals scaled by lagged total assets
t = time period e.g. 1,2,…T according to the estimation period
τ = one year of the event period

This model is based on the assumption that during a particular period the level of earnings management based on discretionary accruals should be zero on average, primarily because of the different earnings management directions each and every year. Hence, the mean total accruals reflect the non-discretionary proportion of total accruals, which are assumed to be constant in this specific period. One of the many

disadvantages concerning this model is that the event period is not clearly defined by the authors.

The DeAngelo Model (1986)

The second model provided is by DeAngelo (1986). In order to measure the non-discretionary accruals, the model uses the last period's total accruals (scaled by lagged total assets) (Dechow *et al.*, 1995).

Therefore, the formula for measuring non-discretionary accruals is :

$$\textbf{NDA}_{(\tau)} = \textbf{TA}_{(\tau-1)}$$

Where: NDA = non-discretionary accruals
TA = total accruals scaled by lagged total assets
τ = one year of the event period

According to this model, there is no earnings management in the year before the one examined and thus an estimation of the non-discretionary accruals can be achieved. The only difference with the Healy model is that DeAngelo takes into consideration only the last year's total accruals instead of an average based on the event period.

Another important implication for both the models of Healy and DeAngelo is that they assume the nondiscretionary accruals are constant over time and the discretionary accruals are around zero on average in the estimation period. (Dechow *et al.*, 1995, 198). Therefore, both models may implicate significant estimation errors and the outcomes potentially lack of validity.

Jones Model (1991)

"Jones (1991) proposes a model that relaxes the assumptions that non-discretionary accruals are constant. Her model attempts to control for the effects of changes in a firm's economic circumstances on discretionary accruals" (Dechow *et al.*, 1995). Concerning the existing models, Jones introduces specific accrual accounts to

estimate the non-discretionary level, in contrast with Healy and DeAngelo who simply applied total accruals. Therefore, the model attempts to cover potential changes in the firm's economic performance that could influence non-discretionary accruals. The procedure in estimating discretionary accruals, according to Jones(1991), is presented below.

First, the total accruals should be estimated following the subsequent formula.

$$TA (i,t) = [\Delta CA (i,t) - \Delta CL (i,t) - \Delta CASH (i,t) + \Delta STD (i,t) - Dep (i,t)] / A (i,t-1)]$$

Where: ΔCA = change in current assets

   ΔCL = change in current liabilities

   $\Delta CASH$ = change in cash and cash equivalents

   ΔSTD = change in debt included in current liabilities

   Dep = depreciation and amortisation

   A = total assets

   t = year index

   i = firm index

After measuring total accruals, the firm-specific parameters $\alpha_1, \alpha_2, \alpha_3$ should be estimated following the formula below, in order to measure afterwards the amount of non-discretionary accruals:

$$TA (i,t) / A (i, \tau-1) = \alpha_1[1/A (i, t-1)] + \alpha_2 [\Delta REV (i,t) / A (i, t-1)] + \alpha_3 [PPE (i,t)/A (i, t-1)] + \varepsilon$$

Where: TA = total accruals for firm i in year t

   ΔREV = change in revenues between t and t-1

   PPE = gross property, plant and equipment for firm i in year t

   A = total assets

   ε = error term

Therefore the amount of non-discretionary accruals can be estimated by applying the coefficient regression estimates $\alpha_1, \alpha_2, \alpha_3$ in the following formula:

$$NDA (i,t) = \alpha_1 [1/A (i,t-1)] + \alpha_2 [\Delta REV (i,t) / A (i,t-1)] + \alpha_3 [PPE (i,t)/A (i,t-1)]$$

Where: NDA = nondiscretionary accruals

A = total assets at t-1

ΔREV = change in revenue between t and t-1

PPE = gross property, plant and equipment

a1, a2, a3 = regression coefficients from OLS calculation

i = firm index

t = year index

Now that the amounts of both total and non-discretionary accruals are measured, the discretionary accruals can be easily estimated simply by subtracting the outcomes for non-discretionary from the total accruals, as estimated for each firm from the first equation. One significant limitation of the Jones (1991) model is that the revenues are supposed to be not-discretionary.

<u>Modified Jones model (1995)</u>

In order to correct the limitation of the Jones model, Dechow *et al.* (1995) introduce the Modified Jones model by applying some adjustments. The modification *"is designed to eliminate the conjecture tendency of the Jones Model to measure discretionary accruals with error when discretion is exercised over revenues"* (Dechow *et al.*, 1995, 199).

According to the modified Jones model, non-discretionary accruals are estimated following the formula below.

$$NDA\ (i,t) = \alpha_1\ [1/A\ (i,t\text{-}1)] + \alpha_2\ [\Delta REV\ (i,t) - \Delta REC(i,t)\ /\ A\ (i,t\text{-}1)] + \alpha_3\ [PPE\ (i,t)/A\ (i,t\text{-}1)]$$

Where: ΔREC (i,t)=change in net receivables between t and t-1

Besides the introduction of the variable that reflects the change in net receivables, the modified model is exactly the same as the first model. "The only adjustment relative to the original Jones model is that the change in revenues is adjusted for the change in receivables in the event period" (Dechow *et al.*, 1995, 199). Therefore the modified version controls additionally for earnings management through revenues.

Many other models (the Industry model (1991), Leuz et al. model (2003), Kothari et al. model (2005)) that provide different methods to estimate discretionary accruals

appear in earnings management literature. Following prior literature, discretionary accruals might be regarded as the most reliable indicator in reflecting managerial discretion over accounting choices. Consistent with the empirical research of Dechow et al. (1995) over the examination of the different methods applied in measuring earnings management practices, this study is following the modified Jones as regarded the most effective one. Besides that, it is the most common method used in relevant previous studies and the one that is considered to be adequately effective in estimating earnings management.

2.7 Summary

The chapter provides a comprehensive overview of the earnings management theory. It begins with a description of the Positive Accounting Theory (PAT), which provides the foundation on which the earnings management is based. According to this theory, an opportunistic behavior can be observed on managements' choices concerning their decisions relevant with the firms' performance or the maximization of their personal gain. That can be additionally reflected on earnings management practices. After providing several different definitions on earnings management, it is suggested that the definition given by Schipper (1989) is the most representative regarding the scopes of this study. Consistent with this definition and the PAT, earnings management activity is strongly associated with significant advantages and gains for the firm as an entity as also concerning relevant managerial issues. The chapter proceeds with the main earnings management incentives. The study of Healy and Wahlen (1999) concerning the three main earnings management incentives is afterwards presented. According to this, earnings management activity arises from capital market expectation and valuation, contracting and regulatory incentives. Moreover, the different earnings methods and a description of each one of them are included. The study is primarily focused on accrual based earnings management, because of their ability to effectively reflect managerial discretion related with specific accounting choices. Lastly, different estimation methods as found on earnings management literature are provided. All of them propose different estimation models in order to measure discretionary accruals. The study though will imply the modified Jones model as presented by Dechow *et al*. (1995).

This is one of the basic models applied in order to estimate discretionary accruals and is widely applied in the existing literature. A more extensive presentation of this model will be provided on chapter 5, which includes the methodology of the study.

Chapter 3 Literature review

3.1 Introduction

The main purpose of this chapter is to provide a comprehensive overview of the main studies, as found on prior literature that examines the association between earnings management and firms' financial characteristics. Moreover, prior evidence relative with the debt covenant violation and the capital issue scenario will be presented. By this way, a more broaden view of the association examined is achieved, which can reveal substantial contributions as also weaknesses relative with the scopes of this study.

As noted in the introductory part, a large and growing body of literature has implied particular firms' characteristics in their earnings management research. Besides that, only a few of them attempt to capture directly the association between earnings management and firms' financial attributes.

The chapter therefore begins with a description of the main studies related to this issue. It subsequently proceeds with a comprehensive overview of the main studies that examine two particular corporate events, the debt covenant violation and the debt/equity issue, regarding always their association with earnings management activity. Finally, it presents a table that overviews the major prior studies applied in this research and a conclusion summarizing the main points as found on the discussed literature and can be therefore considered crucial for the scopes of the current study.

3.2 Earnings management and firms' characteristics

A considerable amount of literature has examined particular financial characteristics and their potential association with earnings management practices. It is likely that firms with unfavorable financial characteristics may resort to earnings management activities in order to improve their image in the market. Moreover, significant financial measures such as profitability and growth may provide substantial evidence concerning earnings management activity. Sun and Rath (2008) conclude that "firms that adjust earnings are smaller, less profitable, higher levered; lower growth compared with their industry counterparts" (Sun and Rath, 2008).

In order to improve transparency in the evidence provided, the literature review that follows is divided in a way so that each of the financial characteristics examined can be individually presented. It can be therefore more unambiguously demonstrated what previous studies indicate concerning the relation between earnings management and the particular financial characteristics investigated.

<u>Growth</u>

There is a large volume of published studies providing evidence concerning the association between earnings management activity and firms' growth indications. Sun and Rath (2009) demonstrate that firms with high growth prospects are significantly associated with increased level of discretionary accruals. That can be partially reinforced by the volatile environment in which growth firms operate.

Consistent with Beaver *et al*. (1968), high growth firms are more vulnerable to increased risk and cost of capital consequently, factors that could lead to earnings management activity. Additionally, these firms seem more susceptible in meeting earnings benchmarks provided by the financial analysts' forecasts in order to facilitate their growth prospects (Bartov *et al*., 2002). Consistent with this approach, Matsumoto (2002) provides strong evidence that firms with high growth prospects are more likely to use accounting choices that increase reported income, primarily guided by the forecasts provided.

On a relevant study, Madhogarhia *et al*. (2009) mention that growth firms stock prices will severely suffer in case of earnings deterioration, significantly higher than their counterparts. That provides additional motivation for growth firms to imply earnings management practices. They conclude that "growth firms manage their earnings upward and downward more aggressively relative to value firms based on discretionary current accruals, discretionary long-term accruals, and total discretionary accruals" (Madhogarhia et al., 2009, 1777).

As prescribed, prior literature indicates that environment plays a significant role on the level of earnings management applied by high growth firms. As stated by Firth *et al*. (2007) "It is easier for fast growing firms to engage in earnings manipulation than it is for mature firms since it is difficult to observe the business activities of fast growing firms." (Firth *et al*., 2007, pg 479). It is therefore naturally more apparent for that kind of firms to resort on earnings management practices, especially after considering their continuously attempt to facilitate growth.

This can be additionally reinforced by Doyle *et al*. (2007), who showed that fast growing firms have generally weaker internal controls, factor that leaves considerable space for earnings management activities. Finally, consistent with Firth *et al*. (2007), fast growing firms require higher amounts of funding in order to support their activities, which can also lead in increasing earnings management.

Profitability

Profitability also seems to be strongly associated with the level of the earnings management applied. Iatridis and Kadorinis (2009) point out an increased possibility of earnings management activities in cases of firms' decreased profitability so to improve their financial picture. Additionally, Sun and Rath (2008) demonstrate that profitability along with firm size are the primary determinants of the earnings management policies. They suggest that lower profitable firms are more likely to be involved in earnings management practices, both income increasing and decreasing (Sun and Rath, 2008).

Moreover, as indicated by Burgstahler and Dichev (1997), firms may be inclined to manage earnings in cases of earnings decreases and losses. In order to avoid reporting losses, they exploit the accounting discretion provided in order to influence the outcomes and to achieve instead reporting of small profits (Burgstahler and Dichev, 1997). "The evidence suggests that 8% to 12% of the firms with small pre-managed earnings decreases exercise discretion to report earnings increases. Similarly, 30% to 44% of the firms with slightly negative pre-managed earnings exercise discretion to report positive earnings" (Burgstahler and Dichev, 1997, 124).

As suggested by their study, firms are likely to avoid reporting losses and therefore eliminate the corresponding costs imposed by investors and affiliated parties (Burgstahler and Dichev, 1997). Consistent with this approach, Degeorge *et al.* (1999) point out positive profits as one of the firms' main threshold, primarily achieved by applying earnings management activities.

On the other hand, as prescribed before, political cost hypothesis (Watts and Zimmerman, 1990) implies that larger firms have strong incentives to report income decreasing earnings. In that case, firms prefer to sacrifice reported profitability in order to avoid unfavorable political consequences and increased monitoring. On the same direction, according to Healy (1985), in cases of poor reported profitability figures, firms may be inclined to employ "big bath" strategy. As suggested by this technique, they prefer to decrease even more the reported earnings so that they can achieve more easily the future years' earnings benchmarks and improve the firms' financial figures. Mainly driven by forward-looking incentives, they are exploiting one year's unfavorable earnings, so that they can substantially improve the firms' financial condition over the years following.

<u>Leverage</u>

Moreover, earnings management seems also to be significantly associated with the level of debt applied by a firm in order to finance its operations. A considerable amount of existing literature has investigated the association between leverage and earnings management. It is difficult though to generalize the findings of prior studies since they appear to be inconsistent and contradictory. However, financial distressed firms are more likely to present increased absolute discretionary accruals in order to avoid destructive aftermaths.

First of all, as the debt/equity hypothesis of the Positive Accounting theory (Watts and Zimmerman, 1990) implies, financial distressed firms are more likely to apply income increasing accounting choices in order to eliminate the constraints affected by the high debt level. Moreover, they would apply earnings management to avoid a potential technical default (Sweeney, 1994). DeFond and Jiambalvo (1994)

investigated firms with high debt/equity ratio focusing though on the year of the firms' debt covenant violation, which as prescribed, will be extensively examined in the next chapter. They point out a positive relationship between leverage and the level of earnings management applied in the year prior to the covenant violation (DeFond and Jiambalvo, 1994). Consistent with the debt/equity hypothesis, Dichev and Skinner (2002) provide evidence that financial distressed firms are more likely to meet or beat covenant thresholds by exercising managerial discretion over the reported numbers.

Several other studies though have reached different conclusions on the association between leverage and earnings management. DeAngelo *et al*. (1994) examine this association in a sample of 76 NYSE listed firms that face serious financial difficulties. They present strong evidence that these firms prefer accounting choices that decrease reported income (DeAngelo *et al*., 1994). As mentioned in their paper: "Closer inspection indicates that 87% of sample firms renegotiate contracts with lenders or labor unions, have management changes, and/or lobby for government assistance, all of which plausibly motivate managers to reduce reported earnings" (DeAngelo et al., 1994, 141). Hence, income-decreased reported numbers may be preferred in order to achieve more desirable financial terms.

Additionally, Becker at al. (1998) demonstrate a negative association between discretionary accruals and leverage in financial distressed firms. Finally, Jelinek (2007) investigates the effects of leverage increases on the magnitude of discretionary accruals applied. Her findings suggest that increased leverage is significantly associated with negative accruals, indicating that as a beneficial consequence for the firm (Jelinek, 2007).

Liquidity

Besides not widely applied in the existing earnings management literature, liquidity undoubtedly elaborates as an indication of high importance when considering a firms' financial health. Consistent with Iatridis and Kadorinis (2009),"firms with unfavorable financial measures are likely to display high discretionary accruals and

thus resort to earnings management" (Iatridis and Kadorinis, 2009, pg 171). Liquidity may be regarded as a measurement of the firms' efficiency concerning the cash generating process. It reflects the ability of the firm to meet its short term obligations as also to adequately finance its business operations.

After examining the level of discretionary accruals in association with the cash flow margin applied as proxy for liquidity, Iatridis and Kadorinis (2009) point out a negative association which implies that firms are more likely to resort on earnings management activities when they face liquidity constraints (Iatridis and Kadorinis, 2009).

Additionally, La Fond *et al*. (2007) examine the relation between discretionary accruals and liquidity by applying three different measures of liquidity. All these measures suggest a negative association between the variables examined. It is concluded that firms that face liquidity issues are more likely to engage in earnings management activity (La Fond *et al*., 2007). Lastly, consistent with Ascioglu *et al*. (2012), earnings management behavior can be significantly associated with liquidity. By applying a large sample of NYSE firms from 1996 to 2001, they provide strong evidence of a positive correlation between firms with increased level of discretionary accruals and illiquidity (Ascioglu *et al*., 2012).

Size

Firms' size is additionally an attribute that is well established in the earnings management research. Besides not directly associated with the scope of this study, it is a proxy that should be implied in the statistical analysis so to avoid potential empirical errors. As suggested by Sun and Rath (2008) in their earning management study on Australian listed firms between 2000 and 2006, size appears to be a primary determinant of earnings management practices. Their findings provide evidence that larger firms prefer income decreasing accounting choices while no consensus exists regarding the smaller firms (Sun and Rath, 2008). It seems therefore that smaller firms are applying both income increasing as also decreasing earnings management practices (Sun and Rath , 2008).

Firm size is also implied in the Positive Accounting Theory by Watts and Zimmerman (1990). As mentioned in the former chapter, larger firms are more likely to manage earnings downwards. Consistent with the political cost hypothesis, larger firms try to avoid political exposure and increased monitoring and are therefore more familiar with income decreasing accounting choices (Watts and Zimmerman, 1990). The costs therefore from engaging in earnings management activities could be significantly higher for a large company, especially in terms of credibility as also concerning those relative with the firms' reputation.

Another stream of literature though provides a different view regarding the association between firm size and the corresponding earnings management magnitude. Rusmin (2010), after examining earnings management in relation with audit quality, reveals that the level of earnings management applied on firms audited by a Big 4 auditing company is significantly lower compared to others audited by other auditing firm. Hence, larger firms are more likely to avoid manage earnings due to increased scrutiny. Additionally, they are more concerned with the litigation risks that have to deal with in cases of earnings management engagement. This can be additionally confirmed by Becker *et al*. (1998), who investigate the effects of audit quality on earnings management. Their study suggests that firms audited by a Big-4 company are more likely to report lower levels of discretionary accruals (Becker *et al*., 2008).

3.3 Earnings management and particular corporate events

3.3.1 The debt covenant violation

A considerable amount of accounting research applies debt covenant violation as a substantial corporate event in examining earnings management activity. The subject, as mentioned before, was initially introduced by the Watts and Zimmerman's (1986) Positive Accounting Theory (PAT). According to PAT's debt covenant hypothesis, firms may apply income increasing accounting methods in cases of high debt/equity ratio (Watts and Zimmerman, 1986). In order to avoid covenant constraints and costs regarding a potential technical default, managers are likely to exercise the

flexibility provided in reported accounting numbers (Watts and Zimmerman, 1986). Subsequently, many empirical studies have been published that attempt to provide robust explanations concerning the accounting choices around debt covenant violations.

Among the first studies that investigate the debt covenant scenario, DeFond and Jiambalvo (1994) capture firms with covenant restrictions, as reported in their annual reports, and examine the level of abnormal accruals. As suggested by their findings, in the year prior to violation abnormal accruals are significantly positive (DeFond and Jiambalvo, 1994). The same additionally counts on the year of violation, after controlling for auditors going concern qualifications and management changes (DeFond and Jiambalvo, 1994).

Furthermore, according to Sweeney (1994), firms that are close to debt covenant violation are more likely to apply income increasing accounting choices. Compared with a sample of control firms, it is demonstrated that firms which approach technical default report significantly higher earnings by applying upward earnings management techniques (Sweeney, 1994). As the author points out "One interpretation is that managers make accounting changes to offset increases in the tightness of accounting-based restrictions as their firms approach technical default. Another is that managers of default firms switch to the most efficient set of accounting choices for their financially distressed firms" (Sweeney, 1994, 282).

Besides a well-established subject in the accounting research, some studies though provide evidence that does not support the debt covenant hypothesis. Healy and Palepu (1990) examine firms with increased dividend constraints and suggest that in this case, firms prefer to decrease dividends rather than applying particular accounting methods to eliminate the effects relevant with the debt covenant restrictions.

Accordingly, DeAngelo et al. (1994) suggest that management is primarily concerned of the firms' financial distressed condition, a factor that can be reflected on the

selected accounting practices applied. After examining 76 firms that report persistent losses and dividend reductions, their findings suggest that no particular attempt to manage earnings can be observed. Additionally, firms do not apply specific accounting choices that reflect a better financial image in order to avoid the debt covenant violations (DeAngelo *et al.*, 1994).

More recent evidence though, as provided by Dichev and Skinner (2002), suggests that firms response in debt covenant violation threats by applying earnings management practices. They use a large sample of firms with private lending agreements and demonstrate that the majority of them just meet or beat covenant thresholds, suggesting an earnings management behavior (Dichev and Skinner, 2002). This can be more profoundly observed in cases where firms have not yet any restrictions, confirming the increased costs relevant to the initial debt covenant violation (Dichev and Skinner, 2002).The findings of the study, as mentioned by the authors, are consistent and offer strong and clear support for the debt covenant hypothesis (Dichev and Skinner, 2002).

Overall, empirical evidence concerning the debt covenant violation issue may be regarded as inconclusive. Besides existing inconsistencies, after summarizing the aforementioned studies, it can be undoubtedly concluded that firms close to debt covenant violation are more likely to resort on earnings management practices that increase income in order to avoid reluctant effects and costs associated with technical default.

3.3.2 The debt/equity issue

Companies have to periodically obtain funds from the capital market in order to finance their business operations. Raising capital is a significantly important issue in the corporate environment as firms consistently attempt to augment their activity and reinforce expanding investments and growth. This can be achieved by either issuing equity or debt capital. A considerable amount of literature has already examined the effects of equity and debt issuance in correspondence with earnings management. As Healy and Wahlen (1999) demonstrate, earnings management

practices could be observed in times of capital raise. Iatridis and Kadorinis (2009) conclude that firms in capital need are likely to display increased discretionary accruals on their attempt to assist the procedure of issuing new debt or equity. They can therefore appeal potential investors and achieve a lower cost of capital, as suggested by Hirshleifer *et al.* (2004).

Considering the equity issuance/earnings management literature, a large body of research has been focused and extensively examined whether firms manage earnings around initial public offerings (IPOs) (Friedlan, 1994; Teoh *et al.*, 1998a, among others). The current study though as mentioned in the introductory part particularly investigates already publicly listed firms; the focal point therefore of equity issuance literature has to be concentrated on seasoned equity offerings (SEOs).

Among the first studies that examine the association between seasoned equity offerings (SEOs) and earnings management Rangan (1998) reports that around the equity issuance year, firms overstate earnings by managing them upwards in order to achieve a higher price for the stock. Additionally, Teoh *et al.* (1998b) suggest an income increasing earnings management behavior before seasoned equity offerings. Both these studies also suggest that firms after SEOs are followed by both decreased stock returns and poor performance, factor that confirms the increased level of reported earnings prior to the SEO (Rangan, 1998; Teoh *et al.*, 1998b).

Moreover, Shivakumar(2000) examines the level of abnormal accruals in the quarters around an equity offering in order to capture the magnitude of earnings management. His findings suggest that in times of an equity offering, firms are more inclined in earnings management practices and that earnings are significantly overstated, as a consequence of the managerial discretion applied in the reported earnings figures (Shivakumar, 2000). Besides the aforementioned studies, Cohen and Zarowin (2010) investigate both real and accrual based earnings management around seasoned equity offerings and the interaction between the two different methods. Their results, regarding accrual based earnings management, suggest

significantly higher discretionary abnormal accruals in the year of the SEO (Cohen and Zarowin, 2010).

Hence, consistent with the consensus as indicated from prior literature, it can be apparently concluded that   seasoned equity offerings provide a strong setting for earnings management engagement. Besides equally substantial, previous literature presents less evidence relative with the association between debt capital issue and earnings management. In recent years though, there has been an increased amount of literature that attempts to provide evidence consistent with this particular issue.

Sercu *et al*. (2006) examine the association between earnings management and debt and suggest that in the years prior to bonds issue or new bank loans it is more likely that earnings management practices can be observed. As they point out: "earnings management serves to fool gullible "outside" shareholders and lenders into subscribing at terms they would not have accepted otherwise" (Sercu *et al*., 2006, 17). In order therefore to achieve better financing terms, they may provide an opportunistic perception concerning the firms' earnings.

In another recent study, relevant with the association examined, Liu *et al*. (2010) investigate whether firms that issue new bonds manage earnings to achieve a lower cost of borrowing. Their findings are consistent with those achieved from the equity issuance studies, indicating that firms prior to new bond issuance report income increasing earnings management (Liu *et al*., 2010). They observe an increased level of discretionary accruals in the year prior to issuing debt, significantly higher compared with previous years (Liu *et al*., 2010). Finally, it is additionally demonstrated that in cases that firms manage earnings can achieve lower cost of debt (Liu *et al*., 2010).

Moreover, consistent with He and Guan (2012), there is a direct relation between the equity and debt issuance. They examine whether Japanese firms that issue convertible debt, which features both equity and debt attributes, are applying earnings management practices to provide a more favorable picture in the market

(He and Guan, 2012). The empirical results of their study confirm that in times of convertible debt issuance, firms are significantly motivated to exercise managerial discretion over the reported earnings in order to achieve more favorable financing terms (He and Guan, 2012).

3.4 Summary

The purpose of the current chapter was to present a comprehensive overview of prior studies that imply evidence relative with the issues examined in the study. Previous literature has extensively researched earnings management and a large proportion of these studies include particular financial characteristics when investigating earning management behavior.

According to the aforementioned studies, corporate financial attributes seems to play a significant role on the level of earnings management applied. A substantial association can be observed between particular financial characteristics and the accounting discretion, as reflected in firms' reported earnings.

Growth prospects seem to positively affect the level of earnings management. According to prior literature, it is the environment in which these firms operate that provides substantial space for earnings management practices (Firth *et al.*, 2007; Sun and Rath, 2008). Regarding profitability, previous studies provide inconsistent and mixed evidence. A large amount of literature indicates a strong and positive association (Sun and Rath, 2008; Burgstahler and Dichev, 1997; Degeorge *et al.*, 1999), while older studies provide different implications (Healy, 1985; Watts and Zimmerman, 1990). The next financial attribute investigated is leverage, which seems to be extensively investigated in the earnings management research. Most of the relevant studies (DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002; Jelinek, 2007) suggest that financial distressed firms are more likely to engage in earnings management practices. The opposite though counts for liquidity, according to many different studies found on relative literature (Iatridis and Kadorinis, 2009; La Fond *et al.*, 2007; Ascioglu *et al.*, 2012). Finally, firms' size provides consistent evidence concerning the magnitude of earnings management. Besides many different views

on this subject, it is generally accepted in prior literature that firms' size is negatively associated with earnings management.

Moreover, significant evidence is presented concerning the corporate events examined in this study. Many different studies, as provided by prior literature, examine earnings management in association with the debt and equity issue. Most studies relative with the seasoned equity offerings case suggest an increased level of discretionary accruals prior to the offering (Hirshleifer *et al*., 2004; Shivakumar, 2000; Cohen and Zarowin, 2010). The same can be additionally concluded from studies that examine earnings management behavior of firms that issue new bonds or bank loans (Sercu *et al*., 2006; Liu *et al*, 2010). Finally, consistent with the debt covenant hypothesis of Watts and Zimmerman (1990), prior research suggests that firms close to debt covenant violation are more likely to report increased earnings in order to avoid destructive effects regarding their vitality(DeFond and Jiambalvo, 1994; Sweeney, 1994; Dichev and Skinner, 2002).

All these evidence that prior literature indicates set the ground in order to proceed in the next part of the study, the hypotheses formulation. Summarizing all coherent evidence provides important contributions and reveals significant guidance in developing the hypotheses that will be empirically examined in the chapters that follow.

3.5 Schematic overview of basic studies applied

Study	Title	Sample	Methodology	Outcomes
Bartov *et al*. (2002)	"The rewards to meeting or beating earnings expectations"	64872 US firm-quarter observations from the I/B/E/S database of the period between 1983 and 1997.	Tests for the existence of a premium to MBE (Meeting or beating analyst expectations) by measuring the incremental quarterly abnormal return of cases where expectations are met or beaten.	Firms that manage to meet or beat their earnings expectations enjoy a higher return, higher growth in sales and earnings and a higher ROA and ROE compared with others that they do not.
Burgstahler & Dichev (1997)	"Earnings management to avoid earnings decreases and losses"	64466 observations of US firms that report change in earnings from 1977 to 1994	Statistical test where earnings changes and earnings levels are pooled and cross-sectionally distributed	Firms manage reported earnings to avoid earnings decreases and losses
Cohen & Zarowin (2010)	"Accrual-based and real earnings management activities around seasoned equity offerings"	1511 SEO of US firms between 1987 to 2006 as reported in the Securities Data Company(SDC) New Issue database	Cross-sectional model based on Kasznik (1999) to measure discretionary accruals. The level of real earnings management is measured following Roychowdhury(2006)	SEO firms engage in both real and accrual based earnings management.The effects of real earnings management in the post-SEO underperformance are more profound.
DeAngelo *et al*. (1994)	"Accounting choice in troubled companies"	76 NYSE listed firms that reported multiple losses and reduced dividends in the period 1980-1985	Time-series analysis of annual accruals. Accruals are calculated as net income minus operating cash flow (Bowen,Burgstahler and Daley, 1986)	Managerial accounting choices reflect a recognition of the financial distressed condition, rather than efforts to increase income
DeFond & Jiambalvo (1994)	"Debt covenant violation and manipulation of accruals"	94 US firms that report debt covenant violation in their annual reports between fiscal years 1985-1988	Two different acccruals tests. The first one applies a time-series approach while the other one examines abnormal accruals cross-sectionally , based on the Jones(1991) model	Both tests indicate manipulation of accruals in the year prior to violation, same in the year of violation after controlling for management cchanges and going concern

				qualifications
Dichev & Skinner (2002)	"Large sample evidence on the debt covenant hypothesis"	34786 private lending agreements agreements of US based firms as achieved from Dealscan for period between 1989 and 1999	Statistical distributional test to calculate the correlation between leverage and covenant slack (actual realization minus covenant threshold)(e.g. Spearman rank correlations among others)	Small number of firms just below covenant thresholds/Unusually high that meets or beats the covenant threshold. Leverage is a relatively poor proxy for examining closeness to covenants.
Hirshleifer *et al.*, (2004)	"Do investors overvalue firms with bloated balance sheets"	1.625.570 firm-month observations for NYSE/AMEX and NASDAQ firms from July 1964 through December 2002 and 141254 from 1963 to 2000	Measure stock returns subsequent to the reporting of NOA (net operatiing assets) to test for investors misperceptions. Multiple regression to examine future returns according to NOA	Balance sheet contains information beyond and above that contained in the income statement that is useful for eavaluating the financial prospects of the firm
Iatridis & kadorinis (2009)	"Earnings management and firm financial motives: A financial investigation of UK listed firms"	Data of 239 UK-listed firms from January to December 2007.	Linear and binary logistic regression analysis to examine earnings management including many relevant control variables.	Negative relation between voluntary disclosure and earnings management.Positive for bigger, more leveraged firms that are close to debt covenant violation as additionally for management compensation and firms' performance issues.
Matsumoto (2002**)**	"Management's incentives to avoid negative earnings surprises"	Sample of 29460 US firm-quarter observations from 1985 to 1997 that earnings meets or exceeds consensus analysts forecasts	Logit regression to examine the probability that a firm meets or exceeds analysts forecasts. Abnormal accruals measured by the modified Jones model (Dechow *et al*. 1995).Univariate analysis to examine	Firms with higher institutional ownership, higher value relevance of earnings and growth prospects are more likely to apply earnings management to avoid negative earnings.

			forecast guidance and negative earnings avoidance.	
Shivakumar (2000)	"Do firms mislead investors by overstating earnings before seasoned equity offerings?"	1222 underwritten seasoned offerings by industrial US firms over the period 1983 through 1992	Jones model (Jones,1991) to estimate accruals. Separate regression analysis for each of the hypothesis tested. Sensitivity analysis for the results of the regression analysis	SEO issuers overstate earnings before equity offerings. However, investors implicate this on their estimates and respond accordingly.
Sun & Rath (2008)	"An empirical analysis of earnings management in Australia"	4844 Australian firm year observations between 2000 and 2006	Cross sectional analysis of Jones(1991)-based cash flow model. Logit regression analysis to observe earnings management behaviour. Additional analysis using modified Jones model.	The study reveals specific Australian industries with earnings management behaviour. Also, smaller and less profitable firms are more likely to engage in earnings management.
Sweeney (1994)	"Debt covenant violations and managers accounting responses"	130 US based firms that violate their debt agreements according to their annual reports in the period between 1980-1989	Time series and cross sectional analysis of accounting changes before and after the debt covenant violation. Case analysis.	Firms are more likely to apply income increasing accounting changes in the years around the debt covenant violation.

Chapter 4 Hypotheses Development

4.1 Introduction

Based on the literature review formerly discussed this part summarizes basic evidence in order to formulate the hypotheses that will be empirically tested on the chapters that follow. By this way, it sets the ground for the quantitative and statistical analysis that will be afterwards conducted in order to provide evidence coherent with the association examined.

Consistent therefore with the discussed theoretical framework, many different hypotheses can be formulated regarding the association of earnings management with each and every of the firms' particular financial characteristics examined. Previous literature, as indicated in the coherent literature review, provides fruitful evidence concerning earnings management behavior and firms financial attributes.

Moreover, in order to provide robust evidence regarding the second and the third research sub-questions, as mentioned in the introductory part, the relevant hypotheses will be subsequently formulated. As indicated in the previous chapter, many different studies have been conducted that provide evidence coherent with the debt covenant violation, the debt or equity issue and their association with earnings management policies. Following all the above mentioned, two particular hypotheses will be formulated that will be subsequently empirically examined.

Directly related to the relative theory, all these hypotheses, stated in a testable statement, provide the base for the empirical analysis. They can therefore be regarded as the link between the conceptual framework and the operational measures that will be applied in the statistical analysis. This will be depicted in the corresponding Libby boxes, included in the last part of the chapter. Widely applied in the experimental accounting research, Libby boxes are undoubtedly helpful in setting up the research study and providing the base for the empirical analysis that follows.

4.2 Hypotheses relevant with firms' financial characteristics

According to the literature review, earnings management practices may be highly associated with the firms' corresponding financial figures. It can be therefore expected that European firms additionally, may exercise the accounting discretion provided in the accounting numbers to manage earnings accordingly and present a more favorable picture relative with the firms' financial health.

In order to capture the aforementioned association, it is important to develop different hypotheses so to individually examine each one of the firms' financial characteristics and its association with earnings management.

Starting with the firms' growth prospects, several different studies provide consensus regarding a positive association between earnings management practices in high growth firms (Firth *et al.*, 2007; Rath and Sun, 2009). This may be additionally the case when considering the European business environment and in order to effectively examine this, the following hypothesis should be generated:

H1: European firms with high growth prospects are more likely to engage in earnings management practices.

The issue of profitability though has been a controversial and much disputed subject within the earnings management literature. As suggested by the first studies (Healy, 1985; Watts and Zimmerman, 1990) found on prior literature that it can be used to obtain evidence concerning this association, many firms may apply income decreasing earnings management practices. On the other hand, more recent studies (Burgstahler and Dichev, 1997; Degeorge *et al.*, 1999) indicate a strong and positive association. It is therefore expected that European firms are more likely to engage in earnings management practices when profitability figures seem to deteriorate:

H2: European firms with decreased profitability are more likely to apply earnings management practices.

Regarding financial distressed cases, much more information has become available during the last years. The general conclusion of much published research indicates a

positive relation between leverage and earnings management practices (DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002; Jelinek, 2007). Consistent with these studies, it can be expected that high leveraged firms are probably applying earnings management activity, as the hypothesis that follows indicate:

H3: European financial distressed firms are more likely to engage in earnings management practices.

Considering the liquidity factor in the contemporary business environment, besides a subject not extensively examined, various studies exist (Iatridis and Kadorinis, 2009; La Fond *et al*., 2007; Ascioglu *et al*., 2012) that have conclusively suggested a negative association with earnings management. In addition, this must be also the case when examining firms in the main European economies. The relevant hypothesis therefore should be formulated like this:

H4: European firms with low liquidity features are more likely to engage in earnings management practices.

Finally, firms' size seems to be an attribute widely examined in the existing earnings management research. The subject, as mentioned before, was emerged during the 1980s with the Positive Accounting Theory (PAT) (Watts and Zimmerman, 1986). As suggested by PAT, larger firms avoid aggressive reporting due to increased political costs (Watts and Zimmerman, 1986). Many different studies have been therefore carried out; the demonstrated evidence though seems to be inconsistent. Nonetheless, there is a large volume of published studies that provide implications consistent with PAT, and that is expected to be the case additionally for the European firms examined in the current study:

H5: European larger firms are less likely to apply earnings management practices.

All the above stated hypotheses coherent with firms' financial characteristics will be empirically tested in the chapters that follow.

4.3 Hypotheses relevant with the financial corporate events

As observed from the precedent literature review, both financial corporate events that will be extensively examined throughout this study may influence the corresponding earnings management activity. In order to empirically investigate this causal relationship and provide consistent answers in the research sub-questions, two separate hypotheses must be developed.

Regarding the debt covenant violation scenario and its association with earnings management, it could be expected that in cases of firms close to debt constraints, it is more likely that they will resort on earnings management practices. This is additionally the case when considering what most of previous literature indicates (DeFond and Jiambalvo, 1994; Sweeney, 1994; Dichev and Skinner, 2002). The corresponding hypothesis therefore should be:

H6: European firms that are close to debt covenant violation are more likely to apply earnings management.

The second corporate financial event examined is the capital issue, whether is debt or equity, and how an action like this can influence the reported earnings. As conclusively suggested by previous studies (Hirshleifer *et al.*, 2004; Shivakumar, 2000; Cohen and Zarowin, 2010), firms prior to a seasoned equity offering prefer managing earnings accordingly, in order for example to attract more potential investors. The same additionally counts in cases of a new bank loan/bond issue (Sercu *et al.*, 2006; Liu *et al.*, 2010). A consensus can therefore be observed when considering what can be expected regarding the European market which is examined in the present study:

H7: European firms that issue new debt or equity are more likely to apply earnings management.

Both these last two hypotheses will form as the path for empirically testing the association of earnings management with particular events in the firm's corporate environment.

After completing the hypotheses development in order to proceed in the empirical part of the research, it is substantial to provide the corresponding Libby boxes of the present research. Widely applied in the accounting research, they depict in an efficiently way the association between the theoretical framework and the different operational measures applied in the empirical part. By this way, they achieve to present a more transparent image of the issues investigated.

Accordingly, the first figure depicts the five first hypotheses of the test that examine the relation between earnings management and firms' particular characteristics while the two following (fig. 2 and 3) present the corporate events that will be empirically tested in the next chapters.
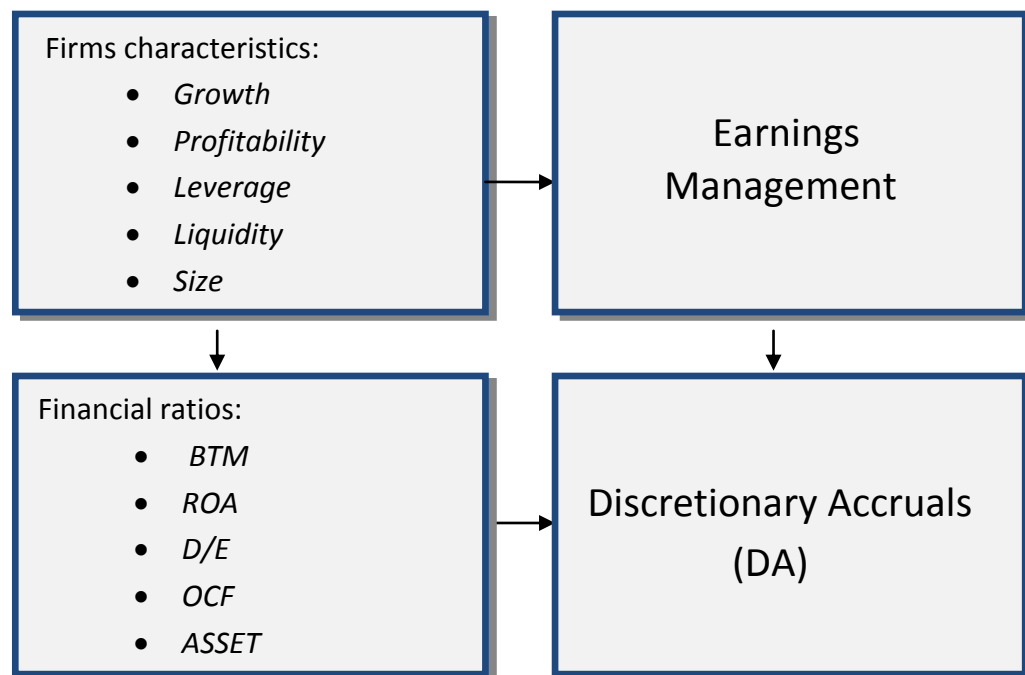
Figure 1. Libby boxes for the hypotheses relevant with the firms' financial characterists
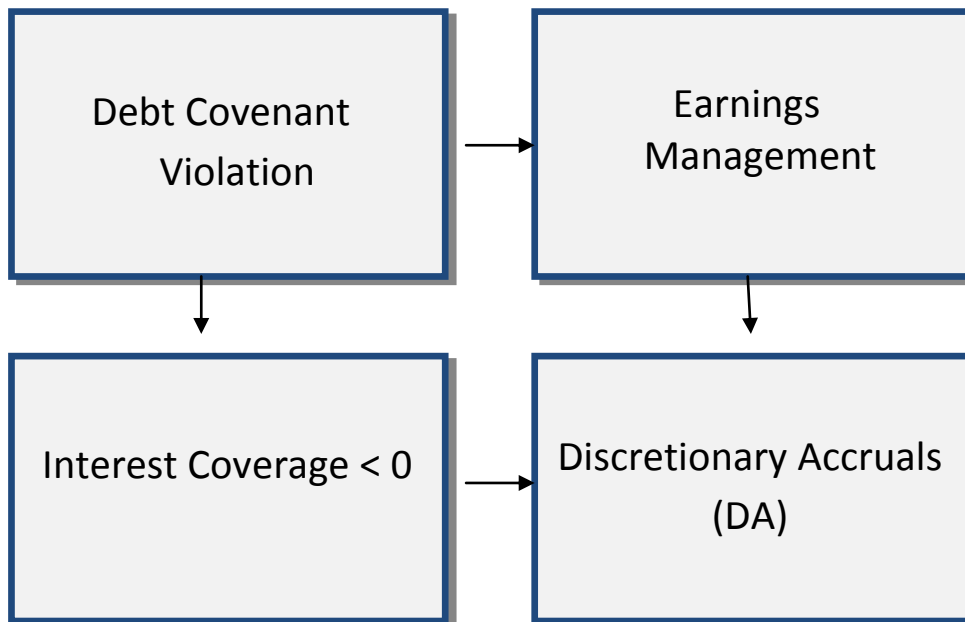
Figure 2. Libby boxes for the debt covenant violation hypothesis
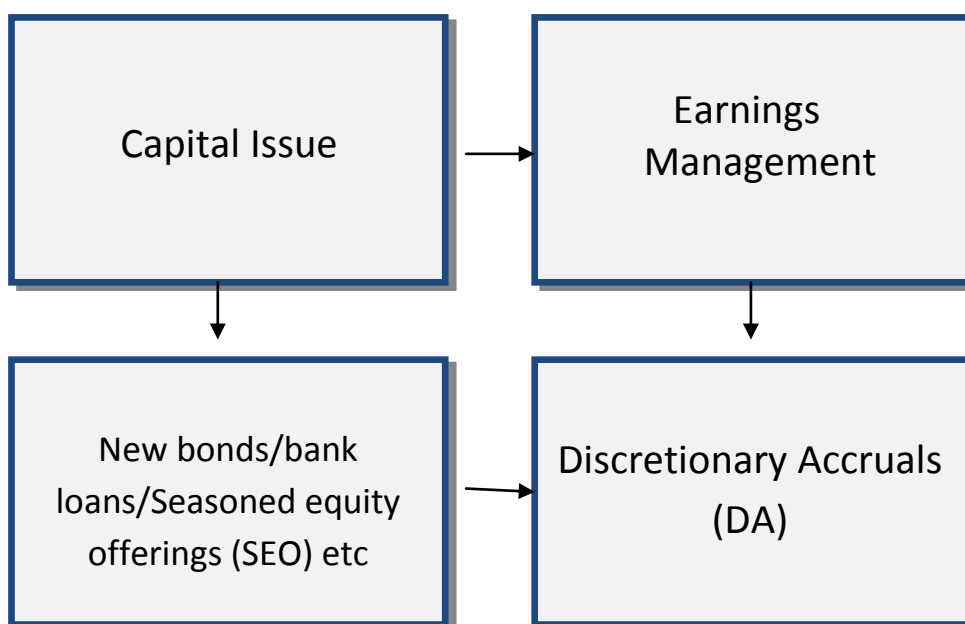
Figure 3.Libby boxes for the capital issue hypothesis

4.5 Summary

The scope of this chapter is to conclude prior evidence, as found on the prior literature part of the study, in order to formulate the corresponding hypotheses. By this way the study follows a path from theory to empirical research, and the developed hypotheses play a crucial role regarding this procedure.

Five separate hypotheses have been formulated considering the association between financial characteristics and earnings management policies. Each one of the different firms' financial characteristics should be exclusively examined. The rational stems from the fact that the association of earnings management seems unique for each of the firms' financial characteristics investigated. Hence, different assumptions exist for each one of them and will be exclusively examined in the empirical part.

Moreover, two hypotheses are additionally formulated that state the association of earnings management with both financial corporate events investigated. It is expected, according to the developed hypotheses, that both events imply an increased level of discretionary accruals. This could be attributed to many different reasons as previous literature indicates, such as to attract more investors or otherwise to achieve better financing terms for the new capital, among many others.

Overall, it is expected that the empirical part that follows would provide consistent answers to the research questions of the study as additionally a deeper knowledge on the earnings management behavior among European firms.

Chapter 5 Research design

5.1 Introduction

After concluding with the theoretical part of the research, the developed hypotheses should be empirically tested to provide evidence concerning with the association examined. This chapter therefore presents the empirical research design and the methodology that will be applied in the study.

The chapter begins with an extensive presentation of the Modified Jones model (1995) which is applied to measure the level of discretionary accruals. Consistent with a large body of existing literature, this model is endorsed for indicating earnings management behavior. Moreover; the different statistical models used to test the hypotheses of the study will be committed. Besides the multiple variables implied, the chapter includes the process followed so that the empirical research models could provide answers regarding the hypotheses tested. Finally, the chapter includes the sample selection process as also the basic characteristics of the final sample that will be used in each test of the study.

5.2 Measuring discretionary accruals

Discretionary accruals have the ability to capture the managerial discretion included in the reported accounting figures, as has already been mentioned. Earnings may be adjusted and managed accordingly in order to improve the firms' financial numbers. As additionally stated in the second chapter, the study implies the modified Jones model as introduced by Dechow et al. (1995) to measure the amount of discretionary accruals. The model is widely applied in the existing earnings management literature and is regarded as one of the most effective in capturing earnings management behaviour. This is additionally expected here regarding earnings management practises within the European market that the present study attempts to capture.

Following the assumption of constant non-discretionary accruals within the period examined, the model captures the level of discretionary accruals simply by subtracting the non-discretionary component from total accruals.

The original model though (Jones, 1991) includes only the changes in revenues and the amount of gross property, plant and equipment to control for potential changes in the proportion of the non-discretionary accruals. Dechow et al. (1995) however enhance the existent model by encompassing the change in the reported revenues. Managers have the ability to exercise discretion over the reported revenues. This can be more easily observed considering the way the reported credit sales are estimated, factor that can undoubtedly lead to earnings management practises (Dechow et al., 1995).

Following Jones (1991), the total accruals should be initially estimated:

TA (i,t) = [ΔCA (i,t) -ΔCL (i,t) - ΔCASH (i,t) + ΔSTD (i,t) - Dep (i,t)] / A (i,t-1)]

Where: ΔCA=change in current assets

ΔCL = change in current liabilities

ΔCASH = change in cash and cash equivalents

ΔSTD = change in debt included in current liabilities

Dep = depreciation and amortisation

A = total assets

t = year index

i = firm index

After estimating the total accruals, the following formula will be applied to achieve an estimation of the relevant regression coefficients.

TA (i,t) / A (i, τ-1) = α_1[1/A (i, t-1)] + α_2 [ΔREV (i,t) / A (i, t-1)] + α_3 [PPE (i,t)/A (i, t-1)] + ε

Where: TA = total accruals for firm i in year t

ΔREV = change in revenues between t and t-1

PPE = gross property, plant and equipment for firm i in year t

A = total assets

ε = error term

The coefficients are estimated cross-sectional for every industry group. Following this approach, the estimation is achieved for each year and two-digit SIC code. Another method regularly applied is the time-series approach which captures the

changes between two different time periods. Consistent with Kasznik (1999) the cross sectional approach controls for great changes of accruals among different industries, factor that significantly improves the outcomes of the estimation procedure.

These coefficients will be afterwards used to measure the amount of the discretionary accruals. Following the modified Jones model of Dechow et al. (1995), the change in the net receivables will be included here so to control for potential influences on earning management from the reported receivables.

$$NDA\ (i,t) = \alpha_1\ [1/A\ (i,t\text{-}1)] + \alpha_2\ [\Delta REV\ (i,t) - \Delta REC(i,t)\ /\ A\ (i,t\text{-}1)] + \alpha_3\ [PPE\ (i,t)/A\ (i,t\text{-}1)]$$

Where: $\Delta REC\ (i,t)$=change in net receivables between t and t-1

Therefore, it is possible to achieve the amount of discretionary accruals, the indication and measurement of earnings management, simply by following the formula below, which subtracts the amount of the non-discretionary accruals from the total accruals.

$$DA(i,t)\ =\ TA\ (i,t) - NDA\ (i,t)$$

It is important to be mentioned here that during the process of estimating the amount of discretionary accruals, each variable have been scaled by lagged total accruals in order to reduce heteroscedasticity. This could additionally improve the outcomes of the regression because controls for firm size differences among the companies examined.

5.3 Main research models and variables

In order to empirically examine earnings management practices within European firms and their association with firms financial figures and corporate events three different multiple regressions will be implied.

The dependent variable of all different regressions is discretionary accruals, the indication of earnings management activity as measured following the modified Jones model (1995). Furthermore, the first regression incorporates all different financial indications and their association with earnings management. Additionally,

the second and the third regressions that will be presented below will provide evidence regarding the association of earnings management in cases where firms issue capital or are highly distressed and close to a debt covenant violation.

Therefore, the first multivariate regression will be as follows:

$$DA_{i,t}=b_0+b_1*GROWTH_{i,t}+b_2*PROFIT_{i,t}+b_3*LEVERAGE_{i,t}+b_4*LIQUID_{i,t}+b_5*SIZE_{i,t}+e$$

Where: $DA_{i,t}$= Discretionary Accruals

$GROWTH_{i,t}$= Earnings per share growth (EPSG) for firm i in year t

$PROFIT_{i,t}$= Return on Assets (ROA) for firm i in year t

$LEVERAGE_{i,t}$= Percentage of total debt to Common equity for firm i in year t

$LIQUID_{i,t}$= Current Ratio for firm i in year t

$SIZE_{i,t}$= Total Assets for firm i in year t

i= firm index (N=618 public European firms)

t=time range (2006-2008)

e=error term

The first independent variable included in the multivariate regression model is $GROWTH_{i,t}$, which is applied as the firms' earnings per share growth (EPSG). Several studies, as also suggested by prior literature, provide a positive association between growth and earnings management and this is expected to be the case considering earnings management behavior in high growth European firms.

Consistent with the second hypothesis, profitability should be additionally implied in the regression in order to provide evidence regarding its association with discretionary accruals. The independent variable PROFITi,t is reflected by the firms Return on Assets (ROA) ratio. ROA indicates the firms' profitability considering its asset base and it's measured as the firms' net income divided by total assets. Besides controversial in the existing literature, it is expected that is negatively associated with earnings management activity.

The third variable incorporated in the test is LEVERAGE$_{i,t}$ which is used in this case as the percentage of firms' total debt to common equity. A vast amount of prior studies (DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002) indicate that highly distressed firms are more likely to be engaged in earnings management practices. This should be additionally the case when considering the European business environment.

Moreover, liquidity is a crucial factor when considering the firms' financial conditions. The current ratio, also referred to as cash ratio, is applied to reflect liquidity and it's measured as the firms current assets divided by the corresponding liabilities. Following prior literature (La Fond et al. 2007) it is expected that firms that face liquidity concerns are more likely to resort on earnings management practices, as also suggested by the fourth hypothesis of the study.

Finally, besides not directly associated with the subject of the present study, size seems to be a well-established factor in the earnings management research field. Although widely applied, existing literature provides inconsistent evidence concerning the association of firms' size with earnings management. The variable implied in the regression is SIZE$_{i,t}$ and its measured following Burgstahler et al. (2006) as firms' reported total assets included in its' financial statements. Consistent with the Positive Accounting Theory and other studies (e.g. Becker et al., 1998) it can be expected that European larger firms are negatively associated with earnings management because of the corresponding political costs as also because the reported numbers are in general subject to greater analysis.

Considering the corporate financial events examined, the primary multivariate regression should be adjusted in order to be effective and provide the study with the expected outcomes. Following the debt covenant violation hypothesis, which is the sixth hypothesis tested in the study, the financial distressed firms should be isolated from the entire sample. A proxy that could be highly indicative regarding the debt covenant scenario is the firms' interest coverage ratio. This ratio is measured as the firms EBIT (Earnings before Interest and Taxes) divided by the relevant interest expenses and it can effectively capture whether the firm has the ability to cover its

interest expenses. Otherwise it would be extremely difficult for the firm to satisfy debtors and banks, factor that would unavoidably lead to debt covenant violation. The multivariate regression should therefore be like this:

$$DA_{i,t}=b_0+b_1*IC_{i,t}+b2*GROWTH_{i,t}+b_3*PROFIT_{i,t}+b_4*LEVERAGE_{i,t}+b_5*LIQUID_{i,t}+b_6*SIZE_{i,t}+e$$

Where: $IC_{i,t}$= dummy variable that takes 1 if the firms' i coverage ratio is below 1 in year t

The only change therefore with the first regression is the introduction of the $IC_{i,t}$ variable which reflects and controls for cases where firms are close to the debt covenant violation. All other variables remain exactly the same and are included in the test as control variables.

Consistent with the debt covenant violation hypothesis, firms that are close to debt constraints are likely to engage in earnings management activity. Hence, a positive association is expected between the dependent variable DA and the independent $IC_{i,t}$.

Considering the final hypothesis, another additional independent variable should be included in the basic multivariate regression model in order to test earnings management in cases when firms issue debt or equity. For that reason, firms that raised capital during the time period examined are explicitly captured. Previous literature as additionally mentioned in the literature review part consistently suggests that firms in order to attract more investors or debtors, or simply to achieve better financing terms in cases of new bank loans may provide an opportunistic image regarding the reported earnings. It is therefore more likely to apply earnings management practices and in order to empirically examine this; the following multivariate regression should be estimated:

$$DA_{i,t}=b_0+b_1*DEI_{i,t}+b2*GROWTH_{i,t}+b_3*PROFIT_{i,t}+b_4*LEVERAGE_{i,t}+b_5*LIQUID_{i,t}+b_6*SIZE_{i,t}+e$$

Where: $DEI_{i,t}$= dummy variable that takes 1 if the firm i issues debt/equity in year t

Again the dependent variable of the regression is the discretionary accruals while all other variables remain as control. The independent variable that is basically examined is $DEI_{i,t}$ which is a dummy variable that indicates whether the firms' issued debt or equity as reflected in its financial estimates. The coefficient of interest in that case is b_1 and should be positive in order to be consistent with the assumption of the last hypothesis of the study, which indicates that European firms that issue new debt or equity are more likely to apply earnings management practices. In that case, the outcomes could be also compared with the rest of the sample which consists of firms that have not issued debt or equity in the year examined.

5.4 Sample selection

The study, as mentioned in the introductory part, is primarily focused on firms within European Union. Besides many discrepancies among countries within Europe because of the regulatory and institutional differences, the research attempts to provide evidence that covers the European business market entirely. The sample consists of firms that are publicly listed in the following eleven European countries; Austria, Belgium, Finland, France, Germany, Greece, Italy, Luxemburg, Netherlands, Portugal, Spain. United Kingdom is excluded from the sample because of the relatively increased number of listed companies compared with the rest of the countries of the sample. Additionally, countries like Norway and Ireland could not be implied in the test because of the lack of sufficient data. Overall, it is expected that the selected   countries of the sample may adequately represent the European market and can additionally provide consistent evidence regarding earnings management behavior in Europe.

The time range selected is 2006 to 2008. The research is performed in this particular period because it is among two important events that can have significant influence in the reported figures of European firms. First of all, it is on 2005 that all European listed companies were obliged to prepare and present their financial statements in accordance with IFRS. The introduction of IFRS in Europe and this switch from domestic accounting standards should have significant implications in the reported financial data. Additionally, the European market during 2009 seems to start being

affected by the global debt crisis that was initiated in 2007 with the bursting of the U.S. real estate bubbles. Therefore, the selected time period attempts to control for both these factors that can significantly influence the outcomes of the study.

All financial data are retrieved from the Thomson One Database. The initial sample contains all publicly listed companies in these EU countries, both active and in-active, consists of 2854 firms with 34248 observations. From this initial sample, financial institutions, banks and relative financial firms that match to SIC codes between 6000-6799 are excluded from the sample, as also firms with SIC codes above 9000, because they respond to public services and firms with national orientation. No other sampling criteria are established in order to achieve a relatively big sample.

Considering earnings management estimation, all relevant data could be adequately obtained from Thomson One database. That is not though the case regarding the data required for the statistical models that were presented before. This factor eliminates significantly the sample of the study. Moreover, in order to avoid outliers that could individually alter the outcomes of the test, extreme observations of discretionary accruals are winsorized at the first and 99th percentile of the data set. The same additionally exists with all other data obtained for the test. The final sample regarding the main hypothesis therefore consists of 618 public firm-year observations across eleven European countries in the fiscal years 2006-2008. Descriptive statistics of the main variables that be applied in the first multivariate regression which tests for the association between earnings management and firms financial indications are presented in table 1 that follows.

Descriptive Statistics (Main sample/N=618 European Firms)		Min.	Max.	Median	Str.Dev.
2006	Total Accruals	-1260.37	12516	9.31	1043.04
	Sales	6.01	132689	528.42	12405.48
	Power, Plant & Equipment (PP&E)	0.01	83657	92.92	7833.6
	Net Account Receivables	0.15	60857.1	109.31	3524.34
	Return on Assets (ROA)	0.82	25.32	6.3	4.39
	EPS Growth (EPSG)	-38.31	207.96	21.9	38.27
	Current Ratio	0.24	6.57	1.41	0.77
	Total Debt/Common Equity	0.11	331.76	56.09	66.94
2007	Total Accruals	-2569	13145	9.46	1061.34
	Sales	6.19	136824	621.12	13087.44
	Power, Plant & Equipment (PP&E)	0.01	103889	81.4	8130.13
	Net Account Receivables	0.32	35912	131.7	3004.92
	Return on Assets (ROA)	0.42	26.8	6.8	4.34
	EPS Growth (EPSG)	-42.74	198.13	18.93	31.29
	Current Ratio	0.29	8.22	1.38	0.83
	Total Debt/ Common Equity	0.19	345.68	57.38	67.47
2008	Total Accruals	-1840	13885	12.37	1191.49
	Sales	4.54	160331	671.8	14544.64
	Power ,Plant & Equipment (PP&E)	1.46	120415	333.39	13667.68
	Net Account Receivables	0.2	40060	137.04	3440.41
	Return on Assets (ROA)	0.24	24.18	6.2	4.28
	EPS Growth (EPSG)	-44.7	197.19	19.01	34.28
	Current Ratio	0.24	7.25	1.37	0.78
	Total Debt/ Common Equity	0.09	374.56	70.48	77.16

Table1. Descriptive Statistics of the main final sample

Besides significantly decreased due to lack of data availability the final sample might sufficiently represent the European market and provide the study with all evidence required concerning the association between earnings management and corresponding financial figures in European firms. This can be more apparently observed in figure 2 which displays the percentage of firms per country included in the final sample.
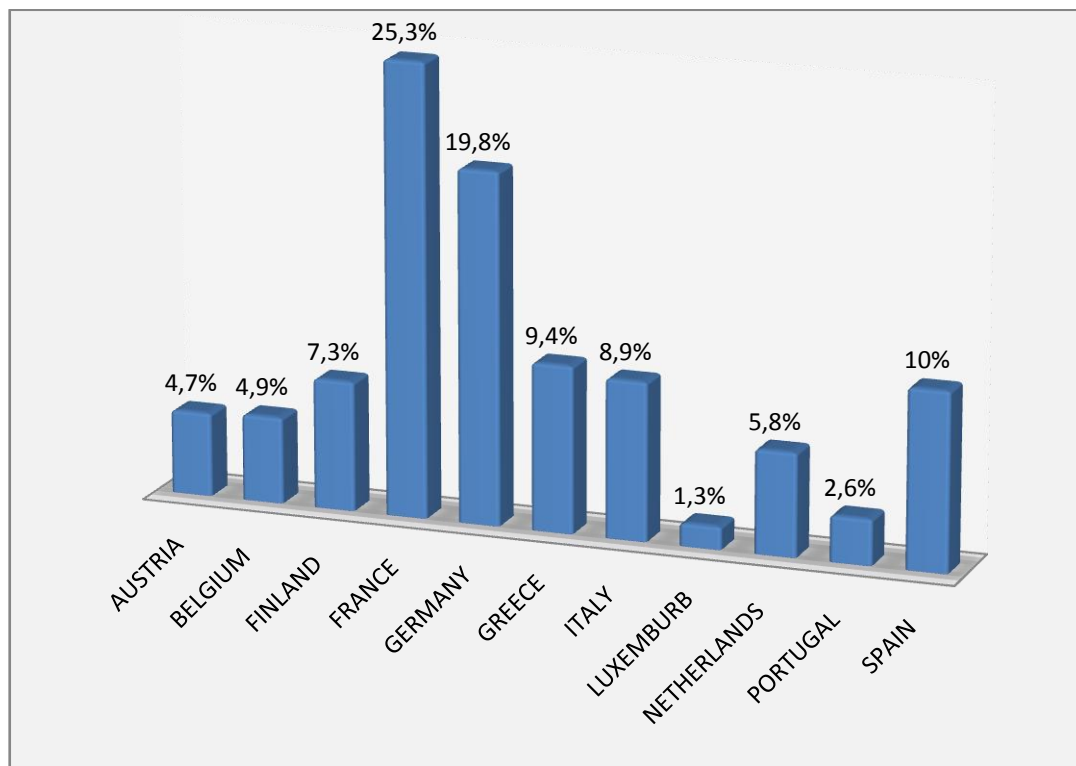
Figure 4. Percentage of firms/country of the sample

Moreover, the initial sample should be adequately divided in order to examine the last two hypotheses that capture the association between both corporate financial events investigated in the study. Considering that the second regression model applied examines the debt covenant violation scenario, the interest coverage ratio should be additionally implied in order to utilize as a proxy for separating the initial sample in two parts; the first one which includes firms that are highly distressed and

relatively more close to a debt covenant violation and the second one that includes all the remaining ones. The sample, as also depicted in Table 2 which presents the corresponding descriptive statistics, consists of 164 and 162 firm observations for years 2006 and 2007 while an increase can be observed for year 2008. The corresponding amount of firms close to debt covenant violation for that year is 205, which is substantially increased compared with the former years examined.

Descriptive Statistics (Debt Covenant Sample)			Min.	Max.	Median	St.Dev.
2006	Return on Assets (ROA)	N1=164	0.97	20.18	5.57	3.79
		N2=454	0.82	25.32	6.86	4.56
	EPS Growth (EPSG)	N1=164	-37.28	207.96	21.99	44.14
		N2=454	-38.31	207.23	21.9	40.67
	Current Ratio	N1=164	0.24	4.23	1.14	0.54
		N2=454	0.3	6.57	1.52	0.81
	Debt/Equity	N1=164	101.38	331.76	142.04	59.57
		N2=454	0.11	99.61	40.09	28.39
2007	Return on Assets (ROA)	N1=162	0.2	26.07	5.88	4.06
		N2=456	1.08	26.8	8.04	4.30
	EPS Growth (EPSG)	N1=162	-40.55	198.13	18.56	33.92
		N2=456	-42.74	174.79	19.11	29.20
	Current Ratio	N1=162	0.29	3.9	1.13	0.56
		N2=456	0.38	8.22	1.51	0.83
	Debt/Equity	N1=162	101.2	345.68	148.63	62.45
		N2=456	0.19	101	42.12	28.34
2008	Return on Assets (ROA)	N1=205	0.34	20.2	5.04	3.38
		N2=413	0.24	24	6.45	4.54
	EPS Growth (EPSG)	N1=205	-44.7	197.19	2.98	39.63
		N2=413	-44.52	157.75	8.52	28.44
	Current Ratio	N1=205	0.26	3.68	1.11	0.46
		N2=413	0.29	7.25	1.51	0.85
	Debt/Equity	N1=205	100.14	374.56	150.7	70.46
		N2=413	0.09	99.41	42.25	29.30

Table 2. Descriptive statistics of the debt covenant sample (N1 reflects the proportion of firms closer to the debt covenant violation while N2 the remaining one from the initial sample for each year examined)

Finally, consistent with the last regression model of the study, firms that issued capital during the years examined should be isolated and included in the test. The DEI$_{i,t}$ is a dummy variable that indicates earnings management activity during periods of debt (equity) issue. The initial sample is extensively investigated and firms that reported increased debt (equity) capital during 2006-2008 are separately investigated as opposed to the rest of the firms included in the primary sample. Table 3 presents the proportion of firms for each category and descriptive statistics of this particular data set.

Descriptive Statistics (Capital Issue Sample)						
			Min.	Max.	Median	St.Dev.
2006	Return on Assets (ROA)	N1=178	0.82	21.32	6.52	4.31
		N2=440	0.46	25.32	6.34	4.43
	EPS Growth (EPSG)	N1=178	-38.31	207.23	23.63	41.14
		N2=440	-37.28	201.34	21.54	41.84
	Current Ratio	N1=178	0.45	4.19	1.35	0.64
		N2=440	0.24	6.57	1.43	0.81
	Debt/Equity	N1=178	0.23	321.47	61.27	81.59
		N2=440	0.11	296.78	54.29	70.1
2007	Return on Assets (ROA)	N1=194	0.48	26.8	6.85	4.25
		N2=424	0.2	25.03	7.57	4.37
	EPS Growth (EPSG)	N1=194	-42.74	198.13	20	34.63
		N2=424	-37.9	185.07	18.56	28.43
	Current Ratio	N1=194	0.38	4.17	1.41	0.67
		N2=424	0.29	8.22	1.37	0.89
	Debt/Equity	N1=194	0.19	311.89	61.38	76.78
		N2=424	0.28	302.31	56.61	72.53
2008	Return on Assets (ROA)	N1=186	0.5	23.76	5.35	4.27
		N2=432	0.24	24	6.23	4.25
	EPS Growth (EPSG)	N1=186	-44.51	197.19	7.08	34.20
		N2=432	-44.7	179.42	5.81	34.35
	Current Ratio	N1=186	0.26	4.89	1.37	0.72
		N2=432	0.29	7.25	1.34	0.81
	Debt/Equity	N1=186	0.11	298.45	62.23	74.28
		N2=432	0.09	302.46	60.45	70.34

Table 3. Descriptive Statistics of the debt/equity issue sample

This chapter provides the empirical research model that will be followed by the study for empirical testing. After concluding with the theoretical framework, the models applied that measure the associations examined should be presented. The chapter therefore begins with an extensive overview of the Modified Jones model, which was first introduced by Dechow et al.(1995). Besides widely criticized, it remains one of the basic models and is considered to be the one most widely applied in the existing earnings management literature. This model will be additionally used in the present study to measure discretionary accruals that can effectively capture and indicate earnings management activity.

Afterwards the different multivariate regressions models that will be tested are presented. The first one attempts to capture the association between earnings management practices and firms' financial characteristics. Many different independent variables are included that reflect firms financial conditions like profitability, growth, leverage and liquidity as measured by the corresponding ratios. Additionally, the regressions that will be used to examine the association between earnings management and the particular corporate financial events applied in the study are presented. All independent variables included in the first regression model are again incorporated, this time though as control variables.

Finally, the sample selection process is committed. The study initially obtains data for all public, still active and not, European firms included in the Thomson One database. This leads to a relatively increased data set that has unavoidably to be eliminated due to lots of missing data. The final sample therefore consists of 618 firms listed in eleven European countries namely Austria, Belgium, Finland, France, Germany, Greece, Italy, Luxemburg, Netherlands, Portugal and Spain. The time range selected is the period 2006-2008. Overall, the sample might be regarded as representative for the European market and that could also provide significant evidence on the association between earnings management and firms' financial conditions in Europe.

Chapter 6 Empirical Results

6.1 Introduction

The chapter presents the results of the empirical research that was extensively described in the former chapter. It provides the main outcomes of the different statistical models applied and examines their consistency with the already developed hypotheses.

It therefore begins with a description of the outcome variables as obtained from the modified Jones model (Dechow, 1995). A summary of the main statistical indications of the model will be committed as also relevant implications regarding the measurement of discretionary accruals.

Moreover, the results of all multivariate statistical models will be displayed. Regarding the first model, the corresponding outcomes will provide evidence on the association between earnings management and financial indications within European firms. Hence, after achieving these outcomes the study may provide evidence on the first five hypotheses. The same additionally counts for the outcomes of the second and third model that reflect correlation between earnings management and the debt covenant violation and capital issue scenarios respectively. These models should provide evidence regarding the sixth and seventh hypotheses examined. Overall, it is expected that the findings of these tests will be consistent and significant with the relevant hypotheses that were formerly developed. It is additionally expected that the study will achieve to provide valid and reliable answers regarding the research questions formulated in the introductory part.

6.2 Outcomes from the modified Jones model

The first step concerning the outcomes of the study should be focused in the estimation of discretionary accruals, the proxy applied to reflect earnings management activity. The modified Jones model (Dechow et al., 1995) besides

frequently criticized in earnings management literature, is the one most widely applied and considered to be the most efficient in measuring earnings management.

The study, as mentioned in former chapter, uses the cross sectional form of the modified Jones model to measure the amount of discretionary accruals. This means that the coefficients should be measured separately for each industry-year combination. According to the two-digit SIC code industry classification and the particular year examined, these coefficients are therefore implemented in the estimation of non discretionary accruals. Table 1 of the appendix presents an overview of the samples' distribution according to the different two digit industry classification groups.

Therefore, after achieving the corresponding coefficients and estimating the amount of non discretionary accruals for each firm/year observation, the amount of discretionary accruals are estimated simply by subtracting the level of non discretionary from total accruals.

The findings of the afore-mentioned procedure are displayed in table 4 that follows, which contains the medians and the standard deviations of the total, non discretionary and discretionary accruals for each of the year examined. Considering the amount of discretionary accruals, which is in direct interest of the present study, a significant decrease can be observed regarding the samples' median. This indicates a relatively lower application of earnings management during the period investigated and a decreasing trend which cannot be directly attributed to a particular factor.

It is important to be mentioned that the outcomes obtained from the modified Jones model are controlled for size effects that could potentially influence the findings, as all variables are scaled by lagged total assets. Additionally, the cross sectional estimation of the coefficients controls for substantial changes among different industries, factor that improves the outcomes and ensures the validity of the corresponding findings.

Year	Total Accruals		Non-discretionary accruals		Discretionary Accruals	
	Median	Standard Deviation	Median	Standard Deviation	Median	Standard Deviation
2006	0.03063	0.07784	0.01183	0.05234	0.02520	0.08636
2007	0.02910	0.07322	0.01001	0.01801	0.01163	0.06511
2008	0.03298	0.06907	0.03785	0.02770	-0.01242	0.06833

Table 4. Mean and standard deviation of estimated accruals

6.3 Main regression outcomes

After estimating the amount of discretionary accruals for each firm-year, the results of the primary multivariate regression applied that estimates the association between earnings management and firms' financial characteristics should be demonstrated.

The statistical analysis of the results begins with a presentation of the models' summary, as displayed in the following table (Table 5). These estimates provide evidence concerning the effectiveness of the different independent variables applied to explain the variance of the dependent variable, in that case the level of discretionary accruals.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.1342	0.018	0.015	0.6154

Table 5 . Summary of the first regression model

This summary is the first output that should be considered as it indicates the overall fit of the variables in the model. The R^2 reflects the proportion of the total variance that can be assumed for this particular regression equation. Therefore, in that case

the assigned value of 0.018 means that 1,8% of the variation in the dependent variable discretionary accruals can be explained by the combined effects of all independent variables included in the test. This value ranges between zero and one; in case of R^2 equal to one the different variables assigned fit perfectly to the model applied. Certainly not impressive, the value of 0.018 which is achieved for the first regression model of the study might be highly objective regarding its ability to represent the correlation between discretionary accruals and financial ratios investigated.

In order to examine the overall significance of the model, an ANOVA analysis should be conducted. This analysis indicates whether the entire regression model is useful and appropriate for concluding the findings that were achieved by running the corresponding regression.

The excel output for the ANOVA test is displayed on table 6.

ANOVA					
Model 1	df	Sum of Squares	Mean Square	F	Sig.
Regression	5	12.8589	2.5717	6.7929	.000
Residual	1850	700.4087	0.3785		
Total	1855	713.2677			

Table 6. ANOVA test of the first regression

As mentioned before, the ANOVA test indicates the significance of the regression model and whether the independent variables applied may explain and predict the dependent variable.

The degrees of freedom (df) of the regression indicate the number of the independent variables applied while the total df reflects the total observations investigated, which in that case equals 618 firms multiplied by three years of the time range examined (2006-2008) minus one. Besides that, the ANOVA table provides information regarding the sum of squares and mean square of the regression and residuals as also the value of the F-test, which is in direct interest

concerning the significance of the model. In that case, consistent with the findings of the ANOVA test, the model has significant explanatory power. This can be reinforced by the p-value which is assigned zero and rejects the null hypothesis of no association between earnings management and firms' financial characteristics. Moreover, this finding confirms that the association examined cannot be accidentally occurred, since p-value is statistically significant and the probability of being fault is less than 1%. Hence, in consideration of $p < 0.01$, the model can be certainly applied and provide the study with the corresponding findings related with the association between earnings management and financial indications in European firms, that will be further more extensively discussed.

It can be therefore considered the significance of each one of the independent variables assigned and their association with earnings management activity. The next able (Table 7) presents the results of the coefficients for each one of the independent variables included in the multivariate regression.

Regression Coefficients (Sample N=618)					
	Expected sign coefficient	Coefficient	Std. Error	t-Statistic	P-value
(Constant)		-0.1586	0.0495	-3.2044	0.0013
$GROWTH_{i,t}$	(+)	-0.0002	0.0004	-0.5580	0.5768
$PROFIT_{i,t}$	(-)	-0.0037	0.0034	-1.0720	0.2838
$LEVERAGE_{i,t}$	(+)	0.0007	0.0002	3.3395	0.0008
$LIQUID_{i,t}$	(-)	-0.01531	0.0194	-0.7882	0.4306
$SIZE_{i,t}$	(-)	-0.0002	0.0000	-2.6238	0.0008

Table 7. Regression results for the primary regression model that examines the association between earnings management and financial indications.

The displayed coefficients indicate the association between each one of the independent variables examined and discretionary accruals. That means they can demonstrate the change in the dependent variable that can be individually attributed to each independent variable. Additionally, the significance of each one of

the independent variables should be investigated before implementing any corresponding conclusions.

Considering the first independent variable, $GROWTH_{i,t,}$ the outcome coefficient cannot provide significant evidence concerning earnings management engagement in high growth firms. This finding is somehow unexpected and inconsistent with the consensus provided by prior literature that demonstrates a strong positive relation between earnings management and firms that intimate high growth prospects.

The same additionally counts for the second independent variable implied in the regression model. Profitability, which is measured by the corresponding ROA ratio, is not statistically significant. Besides demonstrating a negative value, as expected from the study, no substantial conclusions can be realized since the relevant coefficient lacks significance. The variable therefore may be potentially omitted from the model in order to improve the corresponding outcomes.

The results of the regression though provide significant evidence concerning earnings management practices in leveraged firms. The coefficient is highly significant and indicates a positive relation between discretionary accruals and the $LEVERAGE_{i,t}$ variable. This finding is consistent with previous studies (DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002) and supports the hypothesis of earnings management activity by European leveraged firms.

Another unanticipated finding is the insignificant association between earnings management and firms' liquidity. As hypothesized, firms with lower liquidity features are more likely to resort on earnings management activities. The corresponding coefficient though is statistically insignificant and this discrepancy may be due to the fact that no direct benefits can be observed by firms that face liquidity constraints to manage their reported earnings respectively.

Finally, the last independent variable examined is $SIZE_{i,t}$. The relevant coefficient indicates a negative association between discretionary accruals and firms' size, which is statistically significant (p-value 0.0008 < 0.01). This finding corroborates the ideas of Watts and Zimmerman (1986), which, as demonstrated by the Positive

Accounting Theory, indicate that larger firms avoid that kind of activities due to increased political costs. This is additionally consistent with more recent studies. Rusmin (2010) demonstrate larger firms are more likely to avoid manage their earnings on the grounds of the corresponding increased scrutiny.

Besides not in accordance with all expected outcomes, the findings of the regression model demonstrate significant evidence concerning earnings management behavior of leveraged and larger firms. Overall, the explanatory power of the model might be regarded sufficient while the variables implied that cannot provide significant evidence should be subsequently reconsidered and maybe omitted from the model.

6.4 Outcomes from the models relevant with the financial events examined

After concluding with the main regression model, the outcomes from the supplementary models that examine the association between earnings management around the two corporate events investigated in the study should be presented. Following the order as precedently provided, the findings concerning the association between earnings management and the debt covenant violation will be initially demonstrated.

Recall from the previous chapter that in order to measure the correlation between earnings management activity in firms close to a debt covenant violation, the dummy variable $IC_{i,t}$ is implied in the main regression model. It is therefore expected that this categorical variable would be positively associated with the dependent variable discretionary accruals. This would indicate that firms close to a debt covenant violation are more inclined to earnings management activities, which additionally provides support to the sixth hypothesis of the study.

The model seems again overall significant and the R^2 is relatively increased compared with the outcomes from the main regression model. The models' summary as also the corresponding ANOVA outcomes are presented table 2 of Appendix.

Concerning the coefficients and the significance of all different independent variables included in the model, the results are presented in table 8 that follows. The main variable of interest though is $IC_{i,t}$. According therefore to the outcomes of the regression, the independent variable applied to capture the magnitude of discretionary accruals in firms close to a debt covenant violation is positive and significant ($p<0.01$). Moreover, the corresponding coefficient is relatively high (0.1387) and indicates a strong association of earnings management practices with highly leveraged firms that are about to face covenant restrictions. Besides the direct variable of interest though, no other outcome apart from size seems to be able to provide supplementary evidence on the debt covenant violation case. The variable $SIZE_{it}$ though, like the results from the main regression, is significant (p-value=0.0059) and indicates that it is possible for larger firms which are close to a debt covenant violation may resort to earnings management.

Regression Coefficients for the Debt Covenant model					
	Expected sign coefficient	Coefficient	Std. Error	t-Statistic	P-value
(Constant)		-0.099	0.0457	-2.1661	0.0304
$IC_{i,t}$	(+)	0.1387	0.0383	3.6207	0.0003
$GROWTH_{i,t}$	(+)	-0.0037	0.0035	-1.0656	0.2867
$PROFIT_{i,t}$	(-)	-0.0009	0.0004	-0.2191	0.8265
$LEVERAGE_{i,t}$	(+)	-0.0362	0.0198	-1.8311	0.0672
$LIQUID_{i,t}$	(-)	-0.0002	0.0002	-1.2722	0.2034
$SIZE_{i,t}$	(-)	-0.0002	0.0008	- 2.7518	0.0059

Table 8. Regression results from the debt covenant violation model

The findings of the current model are consistent with many prior studies that investigate the debt covenant violation scenario. Among many others, DeFond and Jiambalvo (1994) , Sweeney (1994) as additionally more recent studies like Dichev and Skinner (2002) provide fruitful evidence to support the debt covenant violation hypothesis that was initially introduced by the Positive Accounting Theory (Watts

and Zimmerman, 1986).As the findings of the current study indicate, this could be additionally the case considering the contemporary European business environment.

Finally, the results of the second corporate event examined, namely the debt or equity issue and the corresponding earnings management practices are demonstrated. The models' summary as also the ANOVA test results from the regression can be found in table 3 of the appendix. The R^2 of the model is the highest (R^2 =0.0284) among all other models applied and the model is once more significant.

Considering the results of the regression, as depicted in table 9, the categorical variable DEI $_{i,t}$ is positive and significant. Hence, it could conceivably be hypothesized that firms that issue debt (equity) may apply earnings management practices. This finding supports previous research, like Hirshleifer et al. (2004) and Cohen and Zarowin (2010) that demonstrate earnings management activity by firms close to seasoned equity offerings (SEOs) or in cases of new loans (Sercu et al., 2006). These findings provide additionally support to the final hypothesis of the study that firms which issue new debt (equity) are more likely to apply earnings management practices.

Regression Coefficients from the Capital issue model					
	Expected sign coefficient	Coefficient	Std. Error	t-Statistic	P-value
(Constant)		0.1570	0.0496	3.1612	0.0015
DEI $_{i,t}$	(+)	0.1497	0.0310	4.8178	0.000
GROWTH$_{i,t}$	(+)	-0.0002	0.0004	-0.6156	0.5382
PROFIT$_{i,t}$	(-)	0.0058	0.0033	1.7304	0.0837
LEVERAGE$_{i,t}$	(+)	-0.0007	0.0002	-3.4803	0.0005
LIQUID$_{i,t}$	(-)	0.0111	0.0189	0.5885	0.5562
SIZE$_{i,t}$	(-)	-0.0001	0.0008	-0.03381	0.0338

Table 9. Regression results from the debt equity issue model

Moreover, important considerations can be witnessed from the corresponding results of the test due to the significance of   size variable. Concerning this finding, it

could be additionally indicated that larger firms are likely to manage their earnings in times of new capital issue in order for example to achieve better financing terms.

6.5 Summary

The chapter concludes the empirical research by presenting the outcomes of the different regression models applied. It therefore provides evidence around the issues examined and defines whether they can be statistically confirmed.

First of all, implications around the measurement of discretionary accruals as also the outcomes of that procedure are demonstrated. After achieving the proxy for estimating earnings management, the outcomes from the main regression model are presented. The model is significant and the fit of the variables adequate to support an empirical test. Regarding the coefficients observed, leverage and size seem to be highly associated with earnings management. The empirical results therefore support the corresponding hypothesis, which are the third and fifth hypotheses of the study respectively. That is not though the case for the other independent variable applied and examined according to their association with earnings management.

This study has been unable to demonstrate a positive significant association between discretionary accruals and growth and therefore support the first hypothesis. This may be partially attributed to the complex and highly competitive business environment that these firms operate. Consistent with Firth et al. (2007), it is difficult to capture particular business activities within high growth firms, primarily because of the conglomerate nature of their operations. The results additionally differ substantially concerning the profitability variable examined which demonstrates an insignificant outcome that cannot provide support to the second hypothesis of the study. Finally, the results concerning the liquidity variable applied do not provide significant evidence on the association between earnings management and firms' liquidity. Besides inconsistent with prior literature, that may be moderately ascribed to the indirect benefits of earnings management activity on liquidity concerns. Hence, the fourth hypothesis of the study cannot be statistically confirmed.

Moreover, the results of the models that examine the association between earnings management and corporate financial events are provided. Both models may provide safe results concerning the issues that investigate. Both regression outcomes provide strong support to the developed sixth and seventh hypotheses. It seems therefore that European firms close to debt covenant violation or others that may issue debt or equity are likely to apply earnings management activities. Regarding all other independent variables implied in these particular models, size is the only variable that is statistically significant in both occasions, indicating that is more likely for larger firms to engage in earnings management activity in cases when close to a debt covenant or in times of a new capital raise.

7.1 General conclusions

The scope of the present study was to provide evidence on the association between earnings management and firms' financial characteristics. Moreover, two particular corporate events, namely the debt covenant violation and new capital issue and their corresponding effects on the magnitude of earnings management are investigated. The purpose therefore of the study was to determine and evaluate the direct association between earnings management and firms' financial indications in Europe.

A relatively increased sample of 618 public listed European firms was achieved for empirical testing. The time range of the study is the period 2006-2008. The event period selected attempts to capture the corresponding effects of the IFRS introduction in Europe, launched in 2005 as additionally to avoid the unfavorable consequences of the debt crisis that seems to influence the European business environment since 2009.

Concerning the empirical research, three multivariate regression models are used to capture the association between the different subjects investigated. Consistent with the majority of relevant previous studies, discretionary accruals, as measured following the modified Jones Model (Dechow et al., 1995) are applied to reflect earnings management behavior. The first model, which is the primary model of the study, examines the direct association between discretionary accruals and firms' financial characteristics like growth, profitability, leverage and liquidity. The factor size is additionally implied in the model, as regarded a factor widely applied in the existing earnings management literature.

The empirical findings suggest that highly distressed European firms may exercise the discretion provided in the corresponding earnings figures, which is consistent with the general conclusion of much published research. Additionally, the results of this research provide significant evidence on the association between discretionary accruals and firms size. It seems therefore, consistent with the Positive Accounting Theory (PAT) of Watts and Zimmerman (1986) that larger firms generally avoid to

apply earnings management practices because they are highly aware of the increased corresponding political costs and scrutiny. Taken together, these results add to a growing body of literature that focuses in the European market and investigate earnings management behavior of European firms.

Moreover, as mentioned before, the debt covenant violation and the new debt (equity) issue are used as particular corporate events that may be significantly associated with earnings management activity. Adjustments on the primary regression model are applied in order to investigate the corresponding correlations.

Both multiple regression analyses revealed that discretionary accruals are highly associated with cases where firms are substantially close to a debt covenant violation or otherwise about to issue new debt (equity) in order to finance their operations. Concerning the first scenario, consistent with prior literature (DeFond and Jiambalvo, 1994; Sweeney, 1994; Dichev and Skinner, 1994) , highly distressed firms that are about to face covenant constraints may manage the corresponding earnings in order to avoid reluctant effects and costs associated with technical default. Regarding the new capital issue, following a great amount of existing literature (Healy and Wahlen, 1999; Hirshleifer et al., 2004, Sercu et al., 2006), it can demonstrated that European firms may apply earnings management practices in times of a new capital raise in order to appeal potential investors or achieve better financing terms.

Therefore, the research has given an account on the direct association between earnings management and financial indications in European firms. Recall from the first chapter that the main research question of the study examines whether an association exists between earnings management activities and particular financial characteristics of European firms. The corresponding findings may adequately support the main research question and provide a positive answer. European firms seem to be highly concerned of their corresponding financial indications and may therefore apply earnings management practices in cases they want to achieve more favorable financial figures.

Moreover, as demonstrated by the corresponding findings, a significant association exists between earnings management and debt covenant violation or capital issue by public firms that operate in the European market, which can support and provide consistent and positive answers to the last research sub-questions posed in the introductory part of the study.

7.2 Limitations

A number of caveats need to be acknowledged regarding the present study. The most important limitation lies in the fact that managerial motives are widely applied and considered to be highly associated with earnings management behavior. As demonstrated according to the bonus plan hypothesis of Positive Accounting Theory (Watts and Zimmerman, 1986), accounting choices concerning the reported earnings numbers may be additionally influenced by incentives associated with managerial performance and other compensation criteria. This element though comes in stark contrast with the scopes of the present study, making it implausible to control and far beyond the subject investigated. Moreover, considering the wide geographical range of the study, firms accounting choices might be regarded as the result of a multidimensional set of variables. Besides partially harmonized due to the IFRS introduction of 2005, financial data across different European countries might be influenced by the domestic institutional and legislation environment. Additionally, the study cannot control for these factors and are therefore considered as limitations.

7.3 Future Research

Earnings management is a research field widely applied in the existing empirical accounting literature. Most of the studies though are primarily focused in particular subjects relevant with earnings management activity. The present study attempts to cover a wide range of financial indications and corporate events around the discretion exercised on the earnings figures as reported by a great sample of European firms. Future trials might additionally imply broader considerations that can be significantly associated with earnings management practices. Particular managerial incentives and analysts' earnings forecasts, among others, may be

concurrently included in order to provide extensive explanations on the earnings management phenomenon which seems to be increasingly concerned in the associated parties of interest.

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Appendix

Table 2.Distribution of the sample according to the SIC industry classification

Industry	Two-digit SIC codes	Frequency	%
Mining/Oil & Gas extraction	10-14	26	4
Construction	15,16	25	4
Food products	20	35	6
Furniture/Other finished products	22-25	30	5
Paper products	26	28	5
Printing & Publishing	27	14	2
Chemical & Petroleum products	28,29	48	8
Manufacturing	30-34	54	9
Machinery	35	36	6
Electronic Equipment	36	35	6
Transportation Equipment	37	22	4
Miscellaneous manufacturing	38,39	24	4
Transportation & Transit	41,42,44-48	46	7
Electric, Gas & Sanitary services	49	25	4
Retail Services	50-59	73	12
Hotel & Rooming	70	28	5
Entertainment services	78,79	29	5
Miscellaneous Services	80-87	32	5
Others		8	1
Total		618	100

Table 3. Model summary and ANOVA of the model that examines the debt covenant violation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	0.1443	0.020	0.0176	0.6286

ANOVA test					
Model 2	df	Sum of Squares	Mean Square	F	Sig.
Regression	6	15.4637	2.5772	6.5212	0.000
Residual	1849	726.4077	0.3952		

Total	1855	741.8715			

Table 4. Model summary and ANOVA of the model that examines the debt capital issue

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	0.1686	0.0284	0.0252	0.6001

ANOVA test					
Model 3	df	Sum of Squares	Mean Square	F	Sig.
Regression	6	19.5044	3.2507	9.0243	0.000
Residual	1849	666.0471	0.3602		
Total	1855	685.5515			