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Reporting quality at Initial Public Offerings

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Preface and acknowledgements

During the seminar Advanced Financial Accounting I became acquainted with the subject earnings management. Mr. Knoops suggested I would read an innovative article about earnings management at IPOs. From that moment on I was interested in finding out whether IPO firms are duly guilty of earnings management on a massive scale or whether the authors of the innovative article had a point. Together with a fellow student, Marie-Alien Kon, I worked on the paper for the Seminar Advanced Financial Accounting. We both decided to continue with the subject for our thesis however with different samples.

First of all I would like to thank Mr. Knoops for excellent guidance and advice during the project of writing this thesis and for introducing me to the subject.

Furthermore, I would like to thank PricewaterhouseCoopers for providing me with all the tools I needed for writing this thesis. I am looking forward to start my career at PwC in September.

Last but not least I would like to thank my patient family, fiancée and friends who never got tired (or maybe they did) of hearing the words thesis, IPO and earnings management. Thanks for your never ending support, I could not have come this far without you.

Sara Tsutsumi

Rotterdam, June 2010

Abstract

This thesis researched the reporting quality of firms that had their Initial Public Offering. The research of Ball and Shivakumar (2008) was the motive for conducting a research in this field. For many years it is presumed that firms that offer their stock on the capital market for the first time are a bad investment and have manipulated their figures before the IPO. This thesis researched reporting quality as defined by earnings management and conservatism between three different clusters, as identified by Leuz et al. (2003) in the period of 2000 until 2006. Furthermore, the long-run performance of the IPO firms was tested. The pervasiveness of earnings management at large scale by IPO firms is shown to be doubtful and so is the presumed bad long-run performance. The results in large lines correspond to the results of Ball and Shivakumar (2008).

Key words: Initial Public Offering, Reporting quality, Earnings management, Conservatism

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1. Introduction

For the past years much research has been conducted concerning the topic earnings management. Earnings management can be seen as misleading investors on purpose by, for example, inflating earnings. Seen the many accounting scandals (MyCom, Enron, Ahold) of recent times this kind of behavior is not unthinkable. A special object of the researches conducted is firms going to the public market. When a firm offers its equity to the public for the first time this is called an Initial Public Offering. These firms (as from now referred to as IPO firms, more extensively explained in the next chapter) are monitored with large interest. Investors are not familiar with the firm yet and wish to know the past performance and future expectations of the firm before considering to buy the stocks. When IPO firms sell their equity at a stock exchange they wish to receive a high price. Higher prices are paid when the firm has good forecasts or recent high earnings (Friedlan 1994). The IPO firm thus has an incentive to inflate earnings prior to the IPO.

Another common phenomenon is the reward of managers by granting them stock of the firm. This signals confidence and trust of the firm's managers to investors. They generally are not allowed to sell these stocks for a certain period after the IPO date. This is called the lock-up period. Since managers do not want to make a loss when selling their stock they desire a high stock price at the end of the lock-up period. This gives them an incentive to inflate earnings during the IPOs lock-up period (Mulford and Comiskey 2002).

There are different ways to inflate earnings. Most common known way is through accruals, this thesis will therefore focus on this kind of earnings inflation.

Accruals are the difference between a firm's earnings and cash flows. A distinction can be made between discretionary accruals, accruals that can be influenced by management, and non-discretionary accruals, accruals that cannot be managed. Most studies conclude that firms prior to an IPO inflate their earnings by having positive discretionary accruals, and have lower discretionary accruals and lower stock return performance in the years after the IPO (after the lock-up period as mentioned earlier). The effect of earnings management through accruals is temporary and is identified by Jones (1991, p. 210):

Since the sum of a firm's income over all years must equal the sum of its cash flows, managers must at some point in time reverse any "excessive" earnings-decreasing (or increasing) accruals made in the past.

Summarizing, accruals reverse over time and earnings can thus only be managed upward in the short run while in the long run the firm pays the price. If you keep in mind the litigation costs and reputation damage the discovery of earnings management can bring, it does not seem plausible that a firm would engage in such activities.

A public firm (a firm listed at a stock exchange) has many stakeholders and thus has greater responsibilities towards the public. For this reason not only investors demand more information from the firm, also agencies are established to monitor these firms, for instance the Authority Financial Markets in the Netherlands. Firms that offer their stock to the public for the first time are not known by investors yet. Investors will need and want information to evaluate if they have interest in the firm. For this reason much attention is paid to IPO firms. Considering the previous it would seem odd that especially these firms are considered to apply earnings management on a large scale, as many research concluded (Teoh et al. 1998, Roosenboom et al. 2003).

Recently however some studies found that the pervasiveness of earnings management at IPO firms is overrated. Ball and Shivakumar (2008) find no evidence of massive earnings inflation by IPO firms in the United Kingdom and neither do Armstrong et al. (2009) in the United States. However earnings management is not the only part interesting of this thesis. Ball and Shivakumar developed a model to measure conservatism in the annual report. Conservative reporting can be seen as a component of reporting quality as can earnings management. The study by Ball and Shivakumar (2008) shows evidence that IPO firms improve their quality of reporting before going public. A previous study by Ball and Shivakumar (2005) showed evidence that public firms have a higher quality of reporting than private firms in terms of conservatism. The IPO firm is a transformation from a, less monitored, private firm (not listed at a stock exchange) to a public firm. This thesis will research the pervasiveness of the conclusions of Ball and Shivakumar (2005, 2008) concerning the reporting quality of IPO firms. Besides earnings management and conservatism this thesis focuses on another item. Namely, the long-run performance of IPO firms. It is assumed that IPO firms underperform relative to other public companies. Teoh et al. (1998) and Roosenboom et al. (2003) researched this and found evidence for underperformance of IPO firms. However, Armstrong et al. (2009) recently concluded that they do not find evidence of underperformance of the IPO firms.

Considering the contradictive results found in previous literature it is interesting to provide further research concerning the reporting quality and long-run performance of IPOs.

For auditors it is important that they are able to identify risks. When there is empirical evidence that managers inflate earnings prior to an IPO and/or show earnings decline due to reversal of accruals the auditor can anticipate on this by adjusting the audit control plan. That is why, this thesis brings valuable insights to the questions around earnings management. The media and other parties now assume it to be true that IPO firms inflate their earnings prior to the IPO and show bad results in the years following due to this earnings management. Investors and analysts also assume that IPO firms inflate earnings and that is why they correct for this earnings management in the price they are willing to pay for the firm. This causes undervaluation of the firm. However, this general thought needs not to be correct.

Considering the above the following three main research questions are developed:

- 1. Do IPO firms improve their quality of reporting before they go public?**
- 2. Do IPO firms opportunistically inflate earnings before the IPO?**
- 3. Do IPO firms underperform in the years after the IPO?**

In order to have a good insight on the research of this thesis, knowledge of the subjects such as an Initial Public Offering and reporting quality is essential. Furthermore, the topics are demarcated. The following sub-questions that can contribute to the answering of the main questions are developed:

This first sub-question should bring clarity in why a firm wishes to go public and what aspects are important when a firm goes public. The rules and regulations are discussed. This information is of course necessary for the reader to understand the whole process of going public. The first sub-question is: *What is an IPO?*

Furthermore, the research questions indicate reporting quality. Before being able to evaluate the results and answering the research questions the topic of reporting quality should be defined and explained. The second sub-question gives insight in the broad topic of reporting quality and demarcates its different aspects. As mentioned earlier earnings management can also be seen as an aspect of reporting quality. This section will therefore not only provide an overview of

methods to measure reporting quality but also give incentives for firms to engage in earnings management. Sub-question two is: *What is reporting quality?*

The third research question involves the long-run performance of IPO firms. As mentioned earlier the evidence concerning the performance of IPO firms is divergent. There are many methods applicable to measure the performance of the firms and therefore it is necessary to discuss these methods. So, in order to answer the research question one must know how the long-run performance can be measured and what the (dis)advantages of certain methods are. The third sub-question is: *What is long-run performance and how is it measured?*

To come to a complete view of the topics discussed in this thesis historical evidence is provided by sub-‘question’ four: *Evidence of earnings management, literature study*. This part gives an overview of the main studies conducted over past years. The methods used and results will be presented.

These sub-questions step by step introduce the important topics to the reader. The information provided should be sufficient for the reader to be able to evaluate the empirical research presented in this thesis.

The rest of this thesis is structured as follows:

Chapter two provides the theoretical framework and gives insight in the main subjects. Chapter three gives an overview of the most important literature concerning earnings management at IPOs, earnings quality and other important empirical evidence. Chapter four provides information on the research conducted in this thesis. Chapter five discusses the results of the research including an analysis of the results. Chapter six will conclude and summarize.

2. Theoretical framework

In this chapter the first sub-questions will be answered as stated in the introduction. The topics IPO and reporting quality will be defined and explained. But also related questions such as the distinction between earnings management and fraud will be answered. When the general topics are described, specific information such as how to measure earnings management and long-run performance will be described.

2.1 Initial Public Offering

As stated in the introduction of this thesis an Initial Public Offering means that a firm will be listed at a stock exchange for the first time and offers stock to the public (the capital market). Going public is one of the most important events for a firm. There are many reasons for companies to go public, some of them are summarized below¹:

- A public offering could substantially enlarge the firm's capital providing the means for future growth of the firm.
- A publicly traded company is likely to receive more public attention and thus increases the public's knowledge of the firm's existence.
- Publicly traded shares are more liquid which gives an advantage to investors to more easily sell their shares (or buy more).
- A publicly traded company could offer stock options to its personnel, providing an incentive for the employee to stay with the firm.

Before an IPO firm can issue its shares, a long lasting process precedes. Before a firm can issue shares, a prospectus which includes historical financial statements has to be prepared. In the Netherlands this prospectus is approved by the AFM² and checked on completeness (is all the information enforced by law in the prospectus), comprehensibility (is the prospectus written in language the expected user can understand) and consistence (is the information in the entire

¹ This information is from: [http://www.lettrepme.be/pmekmo/site2.nsf/0/87571fb569b3f797c1257427004f90e0/\\$FILE/KMO%2053.pdf](http://www.lettrepme.be/pmekmo/site2.nsf/0/87571fb569b3f797c1257427004f90e0/$FILE/KMO%2053.pdf)

² This information is from: http://www.afm.nl/nl/consumenten/vertrouwen/bedrijf_bekend/prospectus/goedkeuren.aspx , more information on this could be found on: <http://www.afm.nl/marktpartijen/default.ashx?FolderId=2003>

prospectus consistent). Accuracy is not one of the objectives of the appropriate agency that is auditing the prospectus. The financials in the prospectus however are audited by an auditor.

The most important reason for publishing a prospectus is the information asymmetry between investor and the firm at the moment of the IPO. The firm has all the information about the company, for instance cash flow, possible investment opportunities and more. Investors do not have this inside information. In order to raise their interest for the company, some information needs to be released. The investors will want to know if it is worth investing in the particular shares.

When firms go public, they can restate the financial statement in the prospectus, so investors can better evaluate their economic performance. This simply means adjusting the information to make it more comparable to the statements of the firm when it is public.

There is a relation between financial statement information and offering prices of shares by IPOs. This suggests that managers (issuers) have incentives to inflate their earnings to increase the offering price. Friedlan (1994) states that financial statements influence the decision of investors, like buying or selling shares. Therefore this could be an incentive for firms to manage their earnings, to influence the decision process of investors.

Due to the fact that the process before offering shares to the public is of long duration, managers know for a long time that the firm is going public. Therefore they have a long period to manage earnings. First, they can do this before the IPO, to receive a higher share price. Secondly, managing earnings can also be done after the IPO, in order to hold the high share price especially during the blocked period. The incentives for earnings management are more extensively discussed in section 2.3.2.

2.2 Reporting quality

Reporting quality is a broad topic with many aspects. Reporting quality can be defined as value relevance, where the usefulness of financial statement to investors, creditors, managers and all other parties that are connected to the firm is evaluated. Earnings management can also be seen as an aspect of reporting quality. Less earnings management is an indication of higher reporting quality. Another possible aspect of reporting quality is conservatism. More conservatism in the financial statements is an indication of higher reporting quality. However there is a limit to this view. If a firm puts all its expenses in the current year and thereby shows large profits in the years following it is not conservatism but earnings management. The latter is an extreme example and therefore this thesis will assume that more conservatism leads to a higher reporting quality. This thesis will leave the aspect of value relevance out. The latter is a broad concept involving many different aspects that fall beyond the scope of this thesis. The focus will be on reporting quality as defined by conservatism and earnings management.

The rest of this section will give insight in conservatism and the difference between reporting by public and private firms. The next section will elaborate on the aspect earnings management.

2.2.1 Conservatism

There are several studies that research reporting quality based on timely loss recognition.

Furthermore, many studies make the distinction between the reporting quality of public and private firms, considering they have very different market demands.

Ball and Shivakumar (2005) researched the differences between financial reporting of private and public firms and reported the following:

Regulations of financial reporting that are equivalent for both private and public firms are:

1. The annual financial statements have to comply with accounting standards.
2. Financial statements have to be audited (there is an exception for small companies).
3. They are subject to the same tax laws.

Differences between financial reporting of private and public companies are:

1. Information asymmetry.
2. Timely loss recognition (conditional conservatism).

1. Information asymmetry is larger with public companies than with private companies. For a private firm reporting quality is not as important as for public companies, because the communication with shareholders by private companies is more efficient.

Private companies are better in fixing information asymmetry by a so-called 'insider access model'. This implies that the parties involved in a private company have tighter communication lines. It can be assumed that private firms also have less parties involved than public firms, this makes communication easier. When firms become public the demand for information increases in order to evaluate and monitor the firm. As mentioned earlier the increase is also due to the increase in the number of stakeholders. Investors have to rely on public information. If this information would be poor, investors could decide not to invest in such a firm.

2. Timely loss recognition can be seen as conservative reporting. Conservatism can be split in two types, namely unconditional and conditional conservatism. Unconditional conservatism is news *in*dependent which means that book values of assets in the financial statements is understated because of specific accounting methods and not because of new information. Conditional conservatism is news dependent. This means that under unfavorable conditions the book value of an asset will be written down. A simplistic example: when the market circumstances are changing and a product is expected not to be popular anymore due to a competing product. The machine specifically designed to produce the old product will have a value lower than it had before the introduction of the competing product. When a firm reports conservatively, the machine is impaired. When conditions are favorable the opposite is not true. A firm cannot increase the value of, in the example, the machine when an increase in sales is expected.

Watts and Zimmerman (1986) define conservatism as:

“Conservatism means that the accountant should report the lowest value among the possible alternative values for assets and the highest alternative value for liabilities. Revenues should be recognized later rather than sooner and expenses sooner than later.”

Basu (1997) defines conservatism as:

“I interpret conservatism as capturing accountants’ tendency to require a higher degree of verification for recognizing good news than bad news in financial statements. Under my interpretation of conservatism, earnings reflect bad news more quickly than good news.”

Both definitions of conservatism include the basic thought that reported earnings are lower when reported conservative and can thus be seen as an income-decreasing accounting policy. Firms can also report aggressively, which is the opposite of conservative reporting. Mulford and Comiskey (2003 p. 3), define aggressive accounting as:

‘A forceful and intentional choice and application of accounting principles done in an effort to achieve desired results, typically higher current earnings, whether the practices followed are in accordance with GAAP or not’.

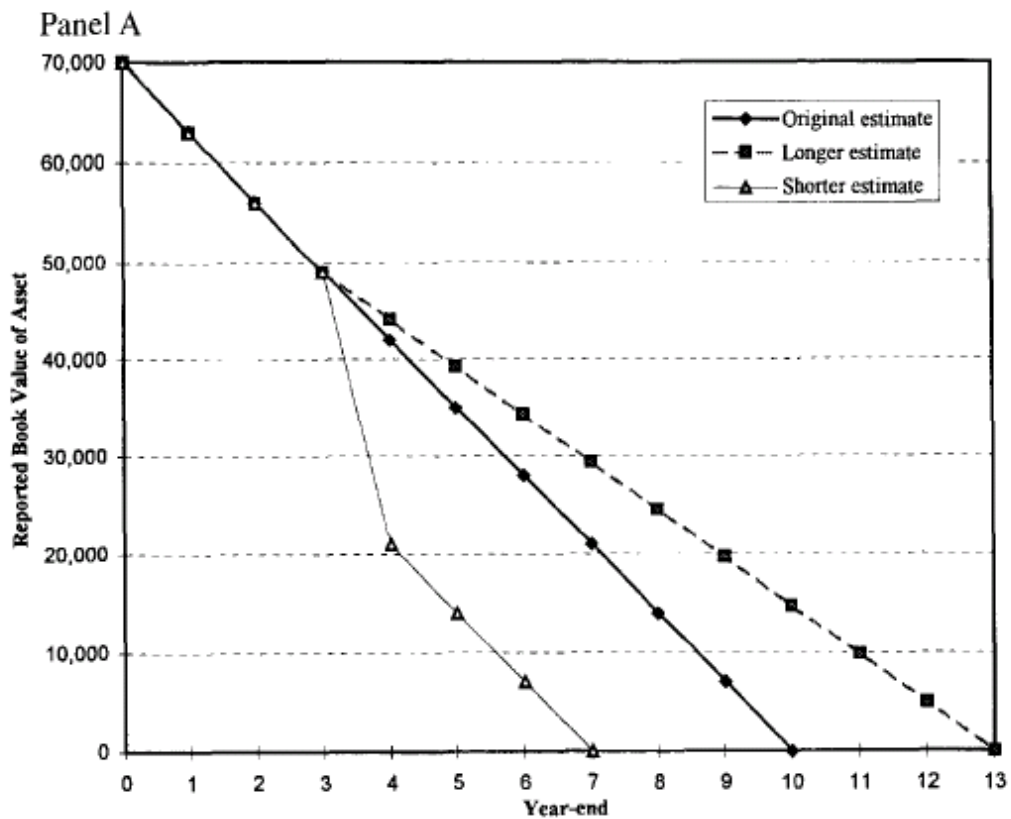
Ball and Shivakumar (2005) find that conservative reporting is more present with public companies than with private companies. Timely loss recognition gives more ex ante information for loan pricing and possibilities for triggering ex post violations of (debt)covenants more quickly. Lenders get the option to impose contractual restrictions on covenant violators. Timely loss recognition affects the efficiency of debt agreements that uses financial statements. As the financial statements give a more conservative view lenders will sooner know when their contractual restrictions are reached. Not only income-statement variables are used to measure the restrictions, such as minimum interest coverage, but also balance sheet variables, such as leverage ratios.

Ball and Shivakumar (2008) state that prior to an IPO firms report more conservatively. As the IPO date approaches firms tend to follow the market’s demand concerning reporting information.

And thus will report more conservatively after the IPO. Ball and Shivakumar (2008) measure reporting quality (although they use the term earnings quality, reporting quality seems more appropriate) with the attribute timely loss recognition. As mentioned earlier in this section timely loss recognition can be seen as conservative reporting. So Ball and Shivakumar actually measure reporting quality by conservatism. They made use of the prospectus of the IPO firm. As mentioned in the previous section, firms have to publish a prospectus containing financial statements of the three years prior to the IPO. Ball and Shivakumar compared this information to financial statements of the firm when they were still private. They also used the prospectus to compare conservatism between private firms and public firms.. Next the model on which their model is based, the Basu model (1997) will be explained. But first a simple example of timely loss recognition will be shown.

Basu (1997) shows a clear example of the way timely loss recognition works in practice:

Figure 1.



Tabel 1: Timeloss recognition in practice (Basu 1997)

The example considers a fixed asset that at some point in time has a shorter or longer expected life. The figure above shows that that the impact of a longer expected life is not so big. However a shorter expected life results in a large write down.

Basu (1997) therefore states that: 'Earnings are predicted to be more strongly associated with concurrent negative unexpected returns, proxy for "bad news", than positive unexpected returns, which proxy for 'good news'.'

Basu (1997) developed a piecewise-linear regression that uses the fiscal-year stock return as the independent variable and the current-year accounting income as the dependent variable. This will be briefly discussed below.

Basu estimates a relation between earnings and the stock return which is supposed to measure conservatism. He reasons that earnings itself do not reflect expected positive future performance due to the conservative accounting principles on which earnings are based. However stock returns do reflect future performance either good or bad. He assumes that stock returns are negative when bad future performance is expected and positive when the future performance is expected to be good. Because we are interested in conservatism in the way that bad news is reflected sooner, the negative stock return is of interest. Therefore a dummy variable was entered in the regression. The following equation shows the Basu model³:

$$NI = b_0 + b_1 RD + b_2 R + b_3 R \cdot RD$$

Where:

NI is the earnings yield, which is E (earnings) scaled by share price at the beginning of the fiscal year.

R is the stock return over the fiscal year (the change in market value) scaled by lagged price (note that the change is not market adjusted)

RD is a dummy variable that is 1 when $R < 0$ and is 0 otherwise.

³ Does the Basu (JAE, 1997) model really measure conservatism in earnings? Len Skerratt, 20 Sep 2005.

The coefficient b_2 reflects the relation between earnings and stock returns when both variables reflect current performance and good future performance is anticipated by R. Coefficient b_3 is the most important coefficient because this reflects the relation between earnings and stock returns both anticipating negative future performance. The more they are related, the more earnings are expected to anticipate bad forecasts. However, this assumes that the negative stock returns are completely due to future bad performance. Only, stock returns are not only dependent on the expected future earnings but also on other factors such as how investors interpret earnings changes. Skerratt (2005) evaluated the Basu model and concluded that it was not a good measure of conservatism due to, among other things, the above. He suggested that using other dependent variables might give a better view on conservatism such as accruals or cash flow.

Ball and Shivakumar (2005) also find limitations in Basu's model namely:

1. 'it cannot distinguish transitory gain or loss components in earnings from random errors in accruals (such as miscounting inventory) and from some types of earnings management (such as excess provisions that revert over time)'
2. 'The model can only identify the existence of transitory components, and not whether their recognition is timely or untimely'

Although Basu mitigates these limitations by conducting an association test, this test requires stock returns as does the initial Basu model. As stock returns for the years prior to the IPO are not available (since they do not exist) the Basu model could not be applied for research on IPO firms.

Ball and Shivakumar (2005) acknowledged the above mentioned, which led them to develop an own method for measuring the timeliness of loss recognition. Their model incorporates some of Basu's assumptions but replaced variables. They base their model on the assumption that 'timely gain and loss recognition is based on expected not realized cash flows, and therefore is accomplished through accruals'. And assume that losses even though unrealized are predicted to be recognized on a timely basis, thus accrued charges against income, while gains are recognized when realized, accounted for on a cash basis. The relation between gains and cash flows should be more present based on the previously mentioned assumption. The model developed by Ball and Shivakumar (2008) will be discussed in chapter four the research design

2.2.2 Earnings management

Earnings management as defined by Healy and Wahlen (1999):

”Earning management occurs when management 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.”

This is quite a broad definition of earnings management. Management has many different options to mislead stakeholders by influencing earnings or other indicators of a firm’s performance. Firms are often judged based on their earnings. This gives an incentive to influence especially reported earnings. Accounting standards can be interpreted in different ways. It is not necessarily fraud, if the firm reports earnings differently. There is of course a limit in the flexibility of interpreting the rules and standards. Besides the interpretation issue, the laws and regulation considering financial accounting leave room for management to make estimates, for instance for the duration an asset will be useful to the firm. This can lead to either conservative or aggressive (or neutral) accounting by the firm. Aggressive accounting is not fraud. Overly aggressive accounting can however lead to fraud, this happens when the firm has no solid grounds for the estimation. Thus, earnings management can lead to fraud but this does not need to be the case. As mentioned earlier earnings management is seen as an aspect of reporting quality. If there is less earnings management the reporting quality is off course higher.

2.2.3 Incentives for earnings management

Private as well as public companies have incentives to manage earnings to misrepresent economic performance, but both in different circumstances. Private companies are more likely to influence their financial reporting by taxation, dividend and other policies. Because private companies usually do not have as many stakeholders outside the firm as public firms, they will not be strictly judged on their profits. This gives them flexibility to focus on other objectives such as paying less tax by making use of accounting methods.

Important incentives for firms to engage in earnings management were identified by Healy (1999). Healy (1999) mentioned the following motivations: (1) capital market motivations, (2) contracts motivations and (3) political costs motivations.

1. The first motive for earnings management can be explained by the use of financial accounting information by investors and stakeholders. Firms can manage earnings in an attempt to influence the short-run stock performance of the firm (Healy 1999, p. 371). It is shown that meeting the analyst expectations is a fundamental earnings target (Athanasakou et al. 2009, Healy 1999, Graham et al., 2005, Choi et al., 2006). Investors react on unexpected (negative) news and this can cause fluctuation in the stock performance.
2. In order to protect stakeholders for undesirable behavior by managers, (debt) covenants can be included in contracts. Such covenants could state that the solvability of a firm cannot come below a certain level or they will be penalized. This was described in section 2.2 considering conservatism. A stakeholder, such as a creditor or bank, would prefer the firm to report conservative because they would sooner be able to take action if the firm was to violate the covenant. The firm however does not want to pay a penalty and thus could have an incentive to manage the financial figures when the debt covenants are not completely met. Another example of contracting motivations is the rewards to managers based on performance. When a manager's salary is linked to the performance of the firm, measured by earnings, the manager has an incentive to inflate earnings in order to get a higher salary.
3. Although Healy has a different name for this motivation, namely anti-trust and other regulation, political cost motivations is a well-know understanding in today's literature (Mulford and Comiskey 2002, p. 7). Political costs are the costs that are connected to the scrutiny some firms endure from the government. Deegan and Unerman (2008) mention for instance the view of the government that oil companies were making too large profits, this led to an extra taxation for the oil companies. The political cost motive would then be to reduce your profits (by using accounting standards and such) to avoid being the centre of attention by interest groups or the government. So, in order to avoid these costs, firms can choose to use earnings management to decrease income.

Another item worth mentioning considering the incentives for earnings management is the positive explanation for the phenomenon. Fan (2007) reasons that earnings management is useless for firms beyond the point of being informative. The reason for earnings management would then be to signal the investor of expected future performance. This informativeness of earnings was also identified by Ronen and Sadan (1981). This theory is also called the information perspective and is supported by Ball and Shivakumar (2008). The information perspective is a more extensive subject that will not be discussed further in this thesis. The information perspective is not directly related to the research questions in this thesis and due to time and page limit the subjects discussed have to be limited. However, one can now realize that earnings management does not only have to be seen from a negative point of view.

2.2.4 Methods to engage in earnings management

Mohanram (2003) distinguishes two categories of earnings management:

- Managing transactions.
- Earnings management by accruals.

The latter is the most common category of earnings management. These categories have different techniques to apply earnings management. These will be discussed next using techniques identified by Mulford and Comiskey (2002).

Mulford and Comiskey (2002) discuss several techniques for managing earnings. They mention the following methods:

- recognizing premature or fictitious revenue;
- aggressive capitalization and extended amortization policies;
- misreported assets and liabilities;
- getting creative with the income statement;
- problems with cash flow reporting;

The first item considers premature recognition of revenues, moving earnings around, and creating false revenue, which is fraud. The second item concerns aggressive capitalization which involves capitalization of costs that should actually go straight to the income statement. By capitalizing the costs and depreciating them in time the costs will be spread and thus the expenses will be lower

which leads to higher earnings. The third item concerns for instance accounts payable and receivables. Firms can value these items too high and minimize expenses by for instance not adding enough to the provision for bad debts.

The last but one item concerns the structure of the profit and loss account. This can give a whole other view on the activities of a firm. Simply by moving certain gains or expenses to nonrecurring the view is changed.

The last item concerns the cash flow statement. Cash flows are deemed to be trustworthy accounting figures. The most 'important' one is the cash flow from operating activities. This cash flow is used to evaluate the on-going practice of the firm. In order to boost this cash flow a firm might classify certain operating expenses in the cash flow for investing or financing activities.

Mohanram (2003) acknowledges two more techniques for managing earnings namely:

1. Accounting changes. This occurs when a firm changes accounting principles or accounting estimates in order to represent values differently.
2. One-time large charges. This is also known as big-bath accounting and cookie jar reserves.

These methods identified by Mulford and Comiskey (2002) and Mohanram (2003) give quite a complete overview of the possibilities for firms to engage in earnings management. As mentioned, earnings management by accruals is the most common category. This thesis will therefore only focus on identifying this kind of earnings management. For the remaining of this section earnings management by accruals will be discussed.

Accruals are the difference between the cash flow and the earnings of a company (Jones 1991). There are other definitions of total accruals. Hribar and Collins (2002) state that using a balance sheet approach to estimate accruals, gives errors if the balance sheet working capital changes do not articulate with accruals from the income statement that are reflected in the statement of cash flows. The reason is that factors could influence the balance sheet data, leading to an increase of the accruals, which gives a signal of earnings management. A good example of such a factor is acquisition. Accruals are biased, because they give a signal of earnings management, but in reality the effect of the acquisition is causing (extreme) positive accruals. Considering the

arguments given by Hribar and Collins (2002) in favor of the cash flow approach for estimating accruals, this thesis will assume that total accruals can be measured by earnings before extraordinary items minus the cash flow from operations.

Accruals are created by for instance depreciation and sales on account. A simple example: when a firm buys a fixed asset it causes cash outflow so the cash flow statement is affected. The profit and loss account however is not. That happens when the firm depreciates. This causes a difference between the earnings (which include depreciation expense) and the cash flow. Sales on account create accruals in the same way. Earnings are reported of the goods or service sold but the cash inflow is not realized yet.

However, earnings and cash flows are expected to be equal over the entire life of an organization. At some point the accruals thus need to reverse.

2.2.5 Methods to measure earnings management through accruals

As mentioned in the previous sub-section this thesis concentrates on earnings management by accruals. Therefore only models will be discussed that measure earnings management by accruals.

The basic thought behind accrual models is that accruals can be split in a part that can be influenced by management and a part that cannot. These parts are referred to as, respectively, discretionary accruals and non-discretionary accruals. Although total accruals can be seen (by some adding and deductions) from cash flow statement or balance sheet, (non-)discretionary accruals cannot be directly observed. To make an estimation of the non-discretionary accruals, also called expected or normal accruals, researchers determine the amount of accruals they expect. Of course these expected accruals should be estimated from some data such as previous periods or current accruals. However no earnings management should be applied in those periods otherwise the accruals are already biased. Examples of accrual models are the Healy model (1985), the DeAngelo model (1986) and the Jones (1991) and Modified-Jones model. Dechow et al. (1995) discuss these models. Since these models many models were developed however most with the same basis.

Ronen and Yaari (2008) argued about the different accrual models. They stated that Dechow et al. (1995) as well as others, find evidence that the Jones model outperforms the naïve models of Healy and DeAngelo, as well as Dechow and Sloan's Industry Model. Other research, however, indicates that no accrual model (Healy, DeAngelo, and Jones models) outperforms some other arbitrary procedure for detecting earnings management.

The Jones (1991) model also shows some biases. In the Jones (1991) model, revenues are seen as non-discretionary accruals. But if earnings are managed through revenues, the Jones (1991) model will not recognize some part of earnings management. (Dechow et al. 1995)

The modified Jones model also has some concerns. Kothari et al. (2005) came to the conclusion that the modified Jones model rejects the null hypothesis of no earnings management too often in firms with extreme operating performance. In their research they propose a performance matched model which includes matching a firm suspected of managing earnings with a peer firm in the same year and industry with similar operating performance. Another concern is that from Ball and Shivakumar (2008), they note that researches of earnings management around IPO scale by prior period total assets. This show some biases, because most of the time total assets of prior year are relatively small and not representative following the IPO. Deflating by prior year total assets, result in large discretionary accruals. Furthermore, discretionary accruals are highly right skewed.

The most common method is the Jones model and extensions of this model. This thesis will therefore elaborate on this model and leave a thorough description of other models mentioned earlier (Healy, DeAngelo) out. After the explanation of the Jones models some recent developed models (of which two are based on the Jones model) will be briefly discussed.

Jones and Modified-Jones (1991)

The Jones and Modified-Jones models (1991) are probably the most well known accrual models. They form a basis for many other accrual models and even though these models were developed many years ago they are still used in today's studies. The Jones models first estimate total accruals, then normal or non-discretionary accruals. The difference between them is the discretionary accruals. Jones's normal accruals are quite logical following Ronen and Yaari (2008) because she uses gross PPE (property, plant and equipment) and sales which are proxies

for depreciation expense, and changes in working capital accruals (accounts receivable, accounts payable) respectively. The Jones model does not assume that non-discretionary accruals are constant over time. Total accruals are calculated by the following formula:

$$TA_t = (NI_t - CFC_t) / A_{t-1}$$

Where

TA = Total accruals in year t scaled by total assets beginning

NI = Net income in year t

CFC = Cash flow from operations in year t

A = Total assets at year t-1

The second step is to determine the alpha's in a regression analysis. Jones's model to determine the non-discretionary accruals is as follows⁴:

$$TA_t = \alpha_1 (1 / A_{t-1}) + \alpha_2 (\Delta Rev_t) + \alpha_3 (PPE_t) + \varepsilon$$

Next the non-discretionary are estimated. The alphas from the previous regression analysis are used to estimate the non-discretionary accruals⁵.

$$NDA_t = \alpha_1 (1 / A_{t-1}) + \alpha_2 (\Delta Rev_t) + \alpha_3 (PPE_t)$$

Where:

NDA_t = Non-discretionary accruals in year t

ΔREV = revenues in year t less revenues in year t-1 scaled by total assets in year t-1

PPE_t = gross property, plant and equipment in year t scaled by total assets in year t-1

A_{t-1} = total assets in year t-1

⁴ Dechow et al. (1995) p. 198

⁵ Dechow et al. (1995) p. 198

The final step is to deduct the non-discretionary accruals from the total accruals as calculated at step 1. This results in the discretionary accruals.

As mentioned on the previous page, the Jones model does not assume earnings management is applied on the sales. Dechow, Sweeney and Sloan (1995) modified the Jones model concerning this assumption. When firms classify revenue in the wrong year however the revenue is discretionary and this would not be detected by the Jones Model. The modification contained a correction on revenue for the change in accounts receivable. This leads to the following formula for identifying non-discretionary accruals:

$$NDA_{\tau} = \alpha_1 (1 / A_{\tau-1}) + \alpha_2 (\Delta REV_{\tau} - \Delta REC_{\tau}) + \alpha_3 (PPE_{\tau})$$

The variables are the same as in the Jones Model described earlier in this section. ΔREC stands for the Receivables year t minus the Receivables of year $t-1$ scaled by total assets at year $t-1$ (as are the other variables).

A distinction can be made between time series models and cross sectional models. When researching on basis of a time series model, a firm or firms are followed throughout the years. So data comes from different periods of time and is then compared. When making use of a cross sectional model, firms are compared to other firms. So the time aspect does not play a role, the research is performed on a certain moment in time. Mostly firms are used as control sample of the same industry. Or selected based on return on investment or total assets.

As mentioned earlier some newer models will be briefly discussed next.

A performance matched model as developed by Kothari et al. (2005) matches the firm of interest to another firm that is supposed to be as identical as possible. This matching is performed by the Return on Assets and also included in the regression (ROA_{t-1}). Furthermore, they add an intercept in their regression model to mitigate heteroskedasticity. Although this is also mitigated by scaling the variables by lagged total assets Kothari et al. (2005) still found this insufficient.

The Beneish model (1997) was developed to assess firms with extreme financial performance. This performance is linked to earnings management. Beneish researched GAAP-violators and

firms with extreme performance and large accruals. He developed a model to distinguish GAAP-violators from aggressive accruals. According to Beneish the Beneish model can assess the likelihood that earnings management is applied. Beneish uses seven proxies for detecting the ability and or incentive for earnings management by the firm. Namely, capital structure, prior market performance, ownership structure, time listed, sales growth, prior positive accruals decisions and independent auditors.

The Poveda model (Pastor-Llorca and Poveda-Fuentes 2006) was developed to avoid using potentially managed variables as regressors as sales, mitigating the simultaneity problems characteristic in accruals estimations. In addition, he suggests a desegregate estimation in order to control the possibility of a different reaction in inventory, sales or purchases to the level of activity' (Pastor-Llorca & Poveda-Fuentes 2006). The Poveda model makes use of the following variables to estimate normal accruals: value of net sales, mean total assets, cash flow generated by sales and services, net purchases, cash flow generated by purchases and inventory variation. The model focuses on the accruals related to accelerating the recognition of credit sales, and/or postponing the accounting of purchases, and/or the overvaluation of year-end inventory' (Pastor-Llorca & Poveda-Fuentes 2006).

The model used in this thesis, developed by Ball and Shivakumar (2008), is based on the Jones model. This model will be described in chapter four together with the hypothesis development of the empirical research of this thesis.

2.3 Long-run performance of IPO firms

Section 2.2 described that reporting quality of firms that apply earnings management is lower. It also explained that when earnings management is applied through accruals these accruals are positive and that these accruals naturally reverse in time. The earnings are inflated and thus give a distorted view of the firm's performance. Acknowledging the above stated leaves one question, what are the consequences? Several studies concluded that the long-run performance of IPO firms is bad and that they have negative abnormal returns after the IPO (Teoh et al. 1998, Pastor Llorca and Poveda Fuentes 2005, Ducharme et al. 2004). These studies attribute this bad performance to the high discretionary accruals in the years prior to the IPO. The negative

performance is then realized due to the reversal of the accruals after the IPO. Leading to disappointing earnings. Armstrong et al. (2009) however do not find an indication of this and attribute previous outcome to biased accruals and cash flows. The view is that accruals reverse leading to higher cash flows and lower earnings (relative to previous years), which leads to earnings to fall short. Today it is assumed to be common knowledge that IPO firms show underperformance in the years after the IPO. There are several methods to measure the abnormal returns. The abnormal returns are the difference between the expected or normal returns and the actual returns. The researcher can choose to use a benchmark portfolio such as the performance of all firms listed on the NASDAQ or AEX. One can also choose to match the firm to another firm that has the same characteristics but did not go public in the same period. This however is time consuming.

Most studies analyze a period of three years after the IPO due to assumptions that the accruals reverse within three years leading to disappointing results.

The methods described next are the most common methods used.

- CAR, cumulative abnormal return;
- BHAR, buy-and-hold abnormal return;
- Calendar time returns;
- The three factor model of Fama and French (1992).

The CAR method is the simplest technique. Both the CAR and the BHAR calculate the returns as if the investor had bought the stock on a certain date and held it till a certain end date. The CAR method calculates the abnormal returns making use of a benchmark. Where the returns of the benchmark are seen as expected and the difference between the actual return and the expected return are abnormal. The abnormal returns are summed up (accumulated) and divided by the number of days or months depending on what kind of stock returns were used (monthly or daily). It actually is the average of abnormal returns over a certain period. The CAR is deemed less skewed than the BHAR discussed next. However, the CAR method is not favored by researchers due to its over simplicity.

Another method to measure the abnormal return is the BHAR, which also makes use of a benchmark to calculate the expected return. Following Teoh et al (1998a), Fama (1998) raises the

following concerns: BHARs are biased, because the distribution is skewed; small differences can be exaggerated by compounding and overlapping of time-periods which gives cross-correlation problems. However, in the studies discussed in the literature review, BHAR is the common method. This method is used in this thesis to measure the long-run performance of IPO firms and will be more extensively explained in chapter four.

The calendar time returns estimate long performance through the average of return by calendar month or week. First the abnormal average return is calculated per stock by either matching the event firm (in our study the IPO firm) to a non-event firm or making use of a benchmark portfolio. Then the average abnormal return of all stocks together is calculated. The advantage of this method is that 'it eliminates the problem of cross-sectional dependence among sample firms because the returns on sample firms are aggregated into a single portfolio' (Lyon et al. 1999, p. 193). Adjustments have been made to this model to allow for heteroskedacity or averaging the standardized abnormal returns. This method obviously still has its flaws and was not found in much of the literature described in the next chapter.

The three factor model of Fama and French uses multiple factors to estimate the risk-adjusted abnormal returns. The model is the same as applying the arbitrage pricing theory. The factors of Fama and French related to company profitability are the market-factor, size-factor and the book to market factor. The following formula is used:

$$r - r_f = \beta_{marketfactor} * r_{marketfactor} + \beta_{sizefactor} * r_{sizefactor} + \beta_{book-to-marketfactor} * r_{book-to-marketfactor}$$

The size-factor includes small market capitalization minus big market capitalization and book-to-market factor includes high book to market prices minus low book to market prices. The size-factor and book-to-market-factor measure the historical excess returns. This model is also common, it however is difficult to find information about the three factors.

As mentioned earlier in this section the BHAR method was the common method in the literature studied for this thesis. Although it has its limitations it seems to give a good estimate of the abnormal returns at IPO firms. Therefore this thesis will make use of this method. The BHAR method was discussed only briefly in this section but will be thoroughly explained in chapter four.

2.4 Summary

This chapter answered the first three sub-questions as identified in the introduction

1. *What is an IPO?*
2. *What is reporting quality?*
3. *What is long-run performance and how is it measured?*

The advantages of going public for a firm, such as increasing the firm's capital or the possibility of granting stock options to personnel, were described. Furthermore, reporting quality was explained. Reporting quality is a broad topic with many aspects, one can think of value relevance, earnings management and timely loss recognition also called conservatism. Public firms are expected to have financial statements that are of higher quality than that of private firms. And IPO firms were found to have higher reporting quality than both public and private firms (Ball and Shivakumar 2008). Earnings management was brought to light in this chapter, where the incentives, techniques and methods to measure earnings management by accruals were explained. The last topic in this chapter concerned long-run performance of IPO firms and methods to measure this long-run performance.

The next chapter will describe previous literature on reporting quality and earnings management and some other related topics and will thereby answer the fourth sub-question.

3. Literature review

This chapter will discuss recent literature concerning earnings management, reporting quality and these phenomena at Initial Public Offerings. Besides these subjects other influences can be important for the research but also for the general view on earnings management. This chapter will therefore aim to give a detailed understanding of earnings management, reporting quality and the factors involved. First, the most important/applicable literature will be described concerning reporting quality followed by earnings management and later the more general factors.

3.1 Reporting quality

As mentioned earlier, Ball and Shivakumar researched reporting quality however they refer to this as earnings quality. The phrase reporting quality seems more appropriate and thus will be used in this thesis.

The most important literature on reporting quality is found in the studies of Ball and Shivakumar 2005 and 2008. The highlights of these studies will be described followed by some concluding remarks.

Ball and Shivakumar, Earnings quality in UK private firms: comparative loss recognition timeliness, 2005

Ball and Shivakumar examined the differences in reporting quality between public and private firms. In Ball and Shivakumar (2005) is examined whether private company financial reporting is of lower quality than public company financial reporting. The difference between reporting quality could be explained by different market demand and regulation. This paper reached the same conclusion as Ball and Shivakumar (2008), that even though private and public companies are subject to the same regulations, private companies show a lower quality of financial reporting. Ball and Shivakumar (2005) emphasize that lower quality does not have to be seen as a failure of supply, but reflects difference in demand. Their research method to measure the timeliness of loss recognition consisted of a method developed by Basu (1997), as discussed in the previous chapter (section 2.2.1) and an own developed accrual model that eliminates the greatest deficiencies of the Basu (1997) model. This model will be elucidated in chapter 4

research design. The research concentrates on other aspects as well, such as an explanation in differences between the risks of public and private firms or whether the size of the auditor firm matters for explaining differences or that managers of public firms could be more opportunistic. However these will not be discussed because they are beyond the scope of this thesis.

Ball and Shivakumar, Earnings quality at initial public offerings, 2008

In their 2008 research, Ball and Shivakumar exploit the IPO setting for researching whether private firms that are going to be public adjust their reporting. As mentioned earlier in this thesis firms that are going public have to submit a prospectus, they have the option to adjust their figures of when they were still private to make them more comparable to their figures as a public firm in the future. These adjustments are called restatements. Ball and Shivakumar compare the adjusted financials in the prospectus to the reported financials when the firm was private. Furthermore, they research if the financials in the prospectus are more conservative than financials of public and/or private firms. Both of their hypotheses could be accepted resulting in the conclusion that IPO firms proved to be more conservative in their reporting. They also appeared to restate their financials less as the IPO date approached, three years prior to the IPO date their reporting differed much from the IPO year but one year prior to the IPO date the financials were already about the same, which led to almost no restatements in the financials in the prospectus. Their research was conducted among UK firms for the period 1992 till 1999, their final sample consisted of about 393 firms.

Results show that IPO firms in year t-3 restate their financials significantly lower in the prospectus for intangible fixed assets, total assets, retained profit and shareholder's funds. The restatements of year t-2 are similar to than for year t-3, but they are only smaller. Also the same financials as in year t-3 are significantly lower in the prospectus than in the financials from the annual report when the firms are private. Year t-1 show fewer restatements of the financials than year t-2 and year t-3. Furthermore are only intangible fixed assets significant lower in the prospectus of year t-1. In all the three years prior to the IPO the average net income is not significantly restated in the prospectus. These results of this research lead to the conclusion that IPO firms restate their financials less in the year closest to the IPO. This is consistent with the explanation that firms are more likely to adapt if likelihood of the future is increasing. Parameters in the regression which

indicate earnings inflation of the regression are not significant, so no suggestion of earnings overstatements could be made.

After that Ball and Shivakumar (2008) compare the conservatism of IPO firms, private firms and public firms as measured in the timeliness of losses . Conservatism is measured by a corrected modified Jones model which is also used in earlier research of Ball and Shivakumar (2005, 2006). A pooled regression test is executed to determine the parameters for IPO firms, private firms and public firms. Results from the pooled regression show that the values of the parameters, which indicate conservatism or not, for private and public firms are significantly negative. The negative parameters lead to the conclusion that IPO firms report more conservative than private and public firms (this model is explained further in chapter four). Ball and Shivakumar (2008) state that IPO report more conservative because IPO firms face greater scrutiny to their reporting quality.

Both of the hypotheses in Ball and Shivakumar (2008) were accepted and led to the conclusion that IPO firms are more conservative in their reporting. They also appeared to restate their financials less as the IPO date approached, three years prior to the IPO date their reporting differed much from the IPO year but one year prior to the IPO date the financials were already about the same, which led to almost no restatements in the financials in the prospectus. Ball and Shivakumar (2005) conclude that public firms show higher reporting quality than private firms.

3.2 Earnings management at IPOs

The study of Teoh et al. (1998) is referred to in almost every study on earnings management. Besides the literature that concurs with their results, they also received much criticism. Because Teoh et al. (1998) is such an influential paper this will be described first. Followed by studies that found supporting evidence to Teoh et al.'s results. Subsequent, the studies that found opposite results will be described. This is the main drive for this thesis. Such as Ball and Shivakumar 2008 and Armstrong et al. 2009. Many researchers do not only research the presence of earnings management by accrual models, they also research the long run performance of the IPO firm. As mentioned in section 2.4, several studies found that IPO firms have negative abnormal returns which can be linked to earnings management in the pre-IPO stage.

Teoh et al., Earnings Management and the Long-Run Market Performance of Initial Public Offerings, 1998a

Teoh et al. (1998a) study whether the discretionary accruals influence the post-IPO long-run stock return performance. They made a separation between discretionary and nondiscretionary accruals. The sample that Teoh et al. used for their research includes 1649 IPO firms from the US. For this purpose they used the cross-sectional model of Jones (1991). First they determine the nondiscretionary accruals with the parameters change in sales and the gross level of property, plant and equipment. The parameters are good predictors of discretionary accruals. To measure the long-run stock performance they used the CAR and BHAR model, as described in chapter 2.2.3. This paper concludes that discretionary accruals of IPO firms are higher around the time of the IPO than those of non-issuers. Managers with the most aggressive earnings management have worse long-run stock return performance in the three years after the IPO, than managers with more conservatively earnings management.

Roosenboom et al., Earnings management and initial public offerings: Evidence from the Netherlands, 2003

Roosenboom et al. (2003) investigate earnings management at IPO-firms in the Netherlands, by examining discretionary accruals over time. They focus on earnings management before and after the IPO. Furthermore they researched whether there is a relation between firms that apply earnings management and their long-run stock price performance. For their research Roosenboom et al. used a sample of 64 IPO firms in the Netherlands from 1984-1994.

Roosenboom et al. (2003) used the same model as Teoh et al. (1998a), namely the Jones-model. Besides the Jones-model, they also used the DeAngelo-model (1986). The DeAngelo-model considers the accruals from an earlier period as normal accruals. Discretionary accruals will be noticed as the difference between current accruals and these expected accruals. To measure the long-run stock performance they used the BHAR model.

The conclusion of this paper was: the year before the IPO, there was no earnings management applied, but in the year of the IPO they find evidence that managers manage earnings. They also find a negative correlation between the size of the discretionary accruals and the long-run stock price performance in the year of the IPO.

Roosenboom et al. (2003) reached the same conclusion as Teoh et al. (1998a), that the long-run stock price performance is lower in the period after the IPO.

Teoh et al., Are accruals during IPO opportunistic, 1998b

In this paper Teoh et al. examine earnings performance and issue-year and long-run issue accruals. Furthermore they examine the relation of issue-year excess accruals to post-issue earnings. Issue-year accruals include pre as well as post-IPO accruals. For this research they used different models to measure accruals, the modified Jones model and the Beneish (1997) model, see chapter 2.2.5. Their sample consists of 1.682 IPO firms from 1980-1990. Long-run performance is measured by the IPO return on sales and the industry-adjusted return on sales.

Teoh et al. conclude that there is evidence for opportunistic accruals management. The return on sales of IPO firms, during the year of going public, is higher than in other periods and for the control group of non-issuing firms. Also IPO firms earn less post-issue than non-issue firms. Furthermore they find evidence that IPO firms report high earnings during the IPO by reporting abnormal accruals aggressively. After the IPO, when high abnormal accruals cannot be sustained, the earnings after the IPO underperform relative to non-issuing firms in the three years after the IPO. These findings are explained by abnormal accruals. Furthermore IPO firms use more income-increasing depreciation methods and provide less for uncollectible accounts receivable than non-issuing firms. The conclusion of this paper is that firms inflate their earnings during an IPO by opportunistically managing current accruals.

Pastor Llorca and Poveda Fuentes, Earnings Management and the Long-Run Performance of Spanish Initial Public Offerings, 2005

Pastor Llorca and Poveda Fuentes (2005) examine the long-run market reaction of IPOs in Spain. Further they want to examine whether managers show opportunistic behavior when revealing earnings around an IPO and if this has a relation with the post-offering return performance.

For this research they have a final sample of 65 Spanish IPO firms from 1987 till 2002.

To measure IPO abnormal accruals, they estimate the normal accruals by a control group of non-issuing firms. To measure accruals they used two models, the modified Jones model and the Poveda (2005) model, see chapter 2.2.5. For measuring the long-run performance they used the calendar time method.

Results in this research show that IPO firms show underperformance in the three years after an IPO. In the year of the IPO, there are unusually high abnormal accruals and a decline after that. IPOs with high discretionary accruals show a lower stock return performance the years after.

Ducharme et al., Earnings management, stock issues and shareholder lawsuits, 2004

Ducharme et al. (2004) investigate positive accruals prior to an issuing of a firm. In the period after the issuing, firms' accruals will reverse. Furthermore they state that abnormal accruals around issuing firms will be negatively related with returns after the IPO. Ducharme et al. (2004) also examine if lawsuits of investors are positively related to earnings management prior to an issuing firms. This could be interpreted as that litigation costs are positively related to managing earnings. Ducharme tries to find relations between earnings management, stock offerings, abnormal accruals, the post-offer returns and lawsuits of investors. For this research they used a sample of issuing firms between 1988-1997. To measure accruals, they used the modified Jones model. They used the BHAR-model to measure long-run stock performance.

After the research Ducharme et al. (2004) conclude that firms around an issuing report high positive abnormal accruals. Furthermore, the abnormal accruals are negatively related to the returns in the period after the issuing of a firm, they tend to reverse. Another conclusion that they made is that stock returns are a lot lower and that reversals are more pronounced in the period after the issuing of firms if the firms are sued, than those who are not sued in relation with issuing firms.

Ball and Shivakumar, Earnings quality at initial public offerings, 2008

Ball and Shivakumar (2008) research the quality of reporting around IPOs. To estimate the discretionary accruals Ball and Shivakumar (2008) used a corrected modified version of Jones from prior research of Ball and Shivakumar (2005, 2006). Discretionary accruals of IPO firms in year -2 and year -1 did not significant differ from non-IPO firms. Indicating that earnings management was not applied, at least not different from firms that did not go public in the same period.

Furthermore, Ball and Shivakumar show great doubt about the conclusions made in Teoh et al. (1998a) that managers opportunistically inflate earnings to influence share pricing. They find it implausible that managers would have the opportunity to inflate earnings on such large scale

while the monitoring on public companies is much higher than on private companies. They replicate the research of Teoh et al. (1998a), however this time with a different model, namely a corrected modified Jones model, but with the same US data. This corrected modified Jones model determines accruals by extracting data from the cash flow statement while Teoh et al. (1998a) used data from the balance sheet to measure discretionary accruals. The replication of the research of Teoh et al. (1998a) did not find evidence of systematic earnings inflation.

Armstrong et al., Earnings Management around Initial Public Offerings: A Re-Examination, 2009

Armstrong et al. (2009) research earnings management by examining the magnitude of discretionary accruals around IPOs. Furthermore they examine the incentives of managers to inflate their earnings around the IPO. Their research was conducted over 4,169 US IPO firms in the period of 1987-2005. In their research Armstrong et al. (2009) first examine the magnitude of discretionary accruals. Result of their research show that the years prior to an IPO the discretionary accruals are negative and the year during the IPO there are positive discretionary accruals. Armstrong et al. (2009) measure earnings management with four accrual models. Namely the modified Jones model (Balance Sheet and Model Statement of Cash Flows), a corrected modified Jones model by Ball and Shivakumar (2005, 2006) and the KLV-model (Kothari et al. 2005), earlier described in chapter 2.2.5. Armstrong et al. analyzed the correlation between the four models. Results show that the four models all have a high degree of correlation with each other. All four models exhibit a negative correlation in the full sample and in the year of the IPO. This negative correlation becomes more pronounced in the year of the IPO. Also the strong negative correlation between discretionary accruals and cash flows found Armstrong et al. (2009) remarkable. Armstrong et al. (2009) suggest that cash flows are a potentially important omitted variable of the relation between discretionary accruals during the IPO and future performance.

The results of the univariate t-statistic show that for all models the median for discretionary accruals are different from zero. The modified Jones model using the balance sheet showed a negative median for discretionary accruals in the years before the IPO and a positive median in the year during the IPO. These medians are all significant as well for the univariate t-statistics as for the corrected t-statistics which is corrected for cross-sectional dependence. The modified

Jones model using cash flows showed the same results as the modified Jones model using the balance sheet approach. The corrected modified Jones model showed some different results than the models before. The only difference between the models is that the modified Jones model scales by average total assets and the corrected modified Jones model scale it by prior period total assets. First Armstrong et al. (2009) find that the median discretionary accruals during the year of the IPO are smaller which are estimated by the corrected modified Jones model. The reason for this is that this model mitigates the small denominator problem. Findings are that even though the univariate t-statistics show that the median discretionary accruals during the year of the IPO is significantly higher than zero, the median discretionary accruals are not longer significantly different from zero based on the corrected t-statistics. Further the negative discretionary accruals prior to an IPO are significant. Armstrong et al. (2009) state that this is consistent with Ball and Shivakumar (2008) that firms report more conservative around the IPO. The K LW model show similar results to the corrected modified Jones model. The discretionary accruals in the year of the IPO are significant different from zero, before correction, but after the correction for cross-section dependence, discretionary accruals are indistinguishable from zero. Further discretionary accruals from K LW model prior to an IPO are significant negative. Finally Armstrong et al. (2009) conclude that after correcting some known biases in the tests, discretionary accruals in the year of the IPO are not different from zero. Furthermore Armstrong et al. measure the long-run performance of stock returns with the three factor model of Fama and French (1993), see chapter 2.2.4. They find that the return of firms with high and firms with low discretionary accruals differ significantly from each other. The returns and the magnitude of discretionary accruals show a significant negative correlation. Furthermore Armstrong et al. (2009) indicate that firms with high discretionary accruals have low stock returns because of the low cash flows. Results show highly significant negative relation between future returns and discretionary accruals. After correcting for cash flow discretionary accruals are no longer related to returns. Armstrong et al. (2009) conclude that high accruals have low cash flows and the relation between discretionary accruals and returns is an artifact of cash flow mispricing. Armstrong et al. (2009) conclude that the large discretionary accruals in the year of the IPO from prior studies are influenced by biases that are common in tests. In their research they did not find evidence for systematically inflation of earnings. Furthermore they find evidence that negative correlation between discretionary accruals and stock returns are subsumed by cash flows.

3.3 Other influences

Besides the differences in application of earnings management between private and public firms and IPO firms and non-issuing firms. Differences in earnings management can also arise between countries or clusters. The studies discussed next will elucidate the latter.

Leuz et al., Earnings management and investor protection: an international comparison, 2003

Leuz et al. (2003) discusses earnings management across European countries. In this research they measure earnings management with four proxies. Namely, the tendency of firms to avoid small losses, the magnitude of total accruals, the smoothness of earnings relative to cash flows and the correlation between accounting accruals and operating cash flows. They also split the sample of European countries up in three clusters, showed in prior work:

- 1) Outsider economies with large stock markets, dispersed ownership, strong investor rights, and strong legal enforcement (e.g., United Kingdom and United States);
- 2) Insider economies with less-developed stock markets, concentrated ownership, weak investor rights, but strong legal enforcement (e.g. Germany, Sweden and Netherlands);
- 3) Insider economies with weak legal enforcement (e.g., Italy, Spain, Greece and India).

This research concludes that earnings management differs systematically across the three clusters. Outsider economy showed the lowest earnings management, Insider economy the highest level of earnings management. Also earnings management is negatively associated with the quality of minority shareholder rights and legal enforcement. This suggests an important link between investor protection and the quality of financial reporting.

Burgstahler et al., The importance of reporting incentives: earnings management in European private and public firms, 2006

Burgstahler et al. (2006) continue research of Leuz et al. (2003) about earnings management across European countries. In Burgstahler et al. (2006) the same three clusters as in Leuz et al. (2003) are used. Burgstahler et al. (2006) make use of the fact that all European private and public companies largely face the same accounting standards, but are subject to different market demands. They use the following proxies as an indication of earnings management:

1. The ratio of small losses to small profits where firms are sorted by country and industry.
2. The magnitude of the accruals relative to the magnitude of the operating cash flow.

3. The standard deviation of operating income divided by the standard deviation of the operating cash flow and this outcome multiplied by -1.
4. A spearman correlation between the changes in accruals and the operating cash flow both lagged by total assets t-1.

Van Hulle et al. (2004) find evidence for harmonization of accounting standards across countries. There can be concluded that accounting standards within countries don not differ a lot, but there is much variation of capital market forces and institutional incentives across countries.

Burgstahler et al. (2006) have the following conclusions: earnings management is more pervasive in private companies; earnings management is more announced in countries with weaker legal systems and enforcement, effect for private firms as well public firms; strong tax alignment is referred with more earnings management, but this effect is mitigated by market pressure on public firms; legal institution that facilitate equity market in public firms, reduce the level of earnings management; countries with large and highly developed equity markets, have less earnings management.

They interestingly conclude that the demand for publicly traded capital and associated public market pressures gives the public firms the incentive to report earnings more informative and thus lowering earnings management. This leads to higher reporting quality. This is in line with conclusions of Ball and Shivakumar (2008).

In 2005 IFRS became mandatory for public companies in the EU. This could be a quiet important variable in a possible reduction in earnings management for the firms that had an IPO after 2005 in general. In order to have a clear view of the possible influence of IFRS on earnings management or reporting quality some related literature will be described in this sub-paragraph.

Christensen et al., Incentives or standards: What determines accounting quality changes around IFRS adoption, 2008

Christensen et al. (2008) study the difference between firms who willingly adopt IFRS and firms who have no incentive to adopt IFRS before its mandatory adoption. They study German firms in the period between 1998 and 2005. They examine two dimensions of reporting quality namely, timely loss recognition and earnings management.

They conclude that although IFRS is perceived to be a higher quality standard than the German accounting regulation the incentives of firms plays a great role in determining reporting quality.

Soderstrom and Sun, IFRS Adoption and Accounting Quality: A Review, 2007

Soderstrom and Sun provide a review on literature regarding the adoption of different GAAP's. They refer to Barth et al. (2006) who find that firms that adopt IFRS have 'less earnings management, more timely loss recognition and more value relevance of earnings'.

However, not only the accounting standard system is important when determining accounting quality. The institutional setting and the country's legal system is also of influence. La Porta et al. (1998) investigate the effect of a country's legal system on the financial system. They conclude that common law countries have better accounting systems than code law countries. When interpreting results from international research one must take into account these differences and several other determinants of accounting quality such as tax system, capital structure and capital market development (Soderstrom and Sun 2008).

3.4 Motives for going public

For the general view on IPOs the study described next will describe the motivations for public equity offerings. Difference can be made between Initial Public offerings, which is thoroughly discussed in chapter 2.1, and Seasoned Equity Offerings (SEO) which are public offerings by firms that are already listed at a stock exchange.

Kim and Weisbach, Motivations for public equity offers, an international perspective, 2008

Kim and Weisbach (2008) provides an empirical link between equity issues and subsequent firm-level investments. How is the money raised in the offering used by the firm that raises it? As well as other motives for issuing publicly traded equity.

Research is based on more than 20.000 IPO firms and SEO firms from 38 countries in the period of 1990-2003. In this research they focused on the ultimate use of the capital raised, how this use varies with firm valuation, and the extent to which this variation is consistent with alternative motivations for equity offers.

The effect of equity offering on investment is examined by increases in total assets, inventory, capital expenditures, acquisitions, R&D, cash holdings, and long-term debt reduction, to capture the uses of the capital raised in the equity offering.

The conclusion that could be made after research is that equity offers are used to raise investment capital. The year after an IPO there is an increase in R&D expenditures. Furthermore the result shows that some equity offers are made to take advantages of high valuations. Money that's been raised is mostly kept as cash, especially by firms with a high market to book ratio. Furthermore, expenditures on investments are higher for low valuation firms than for high valuation firms. This leads to the conclusion that high valuation firms take advantage of potential overvaluation. Overall Kim and Weisbach (2008) state that equity offers are used for finance investment and for exploiting a firm's valuation when it has a high valuation by the market.

3.5 Summary

Earnings management has been a hot topic for already quite some years. Most studies described in this chapter concluded that IPO firms are using earnings management to report higher earnings in their year of IPO (Teoh et al. 1998, Roosenboom 2003). As a consequence the accruals of these firms tend to reverse in the years after the issuing and lead to disappointing long-run stock performance. This was also researched by Pastor Llorca and Poveda Fuentes in 2005, which led him to the same conclusion. There were however two articles that reach contradicting conclusions, namely Ball and Shivakumar (2008) and Armstrong et al. (2009). They used the same method to determine the discretionary accruals, namely the modified Jones model modified by Ball and Shivakumar (2008). Both these studies stated that Teoh et al. reached to the conclusion of pervasive earnings management due to biases in the accrual models used. Because of the interest of this thesis in the reporting quality of IPO firms, which is a private firm transforming in a public firm, the literature review included literature on differences in reporting quality between private and public firms. Several studies conclude that reporting quality is higher for public firms than for private firms (Ball and Shivakumar (2005, 2008), Burgstahler et al (2006)). When analyzing the literature in this chapter, several factors can be found that can have influence. To come to unbiased conclusions literature was included on possible influence factors such as the difference between countries in the sample and the adoption of IFRS. Leuz et al. (2003) finds that earnings management differs systematically between three clusters of European

countries defined in earlier work. Burgstahler et al (2006) come to similar conclusions. Soderstrom and Sun (2007) and Christensen et al. (2006) evaluate the influences of IFRS on reporting quality. They however illuminate different perspectives. Christensen et al (2006) compare firms that willingly adopt IFRS with firms that adopted IFRS when it became mandatory. They found that although IFRS is perceived to improve reporting quality the incentive of the firm has great influence on the reporting quality. Soderstrom and Sun (2007) conclude that firms that adopt IFRS have higher reporting quality (expressed in lower earnings management, higher value relevance and more timely loss recognition). However, this differs for code law and common law countries. Furthermore, Ducharme et al. (2004) investigate the relation positive accruals prior to an IPO and a reversal in the years after the IPO. They also link litigation of firms to earnings management and find that firms that were sued had lower stock returns and the reversal of accruals was more pronounced.

The table on the next page will give a clear overview of the studies discussed in this chapter concerning earnings management and the long-run performance of IPO firms. The next chapter will present the research design including the hypothesis development and the methods that will be used.

Table 1. Author(s)	Object of study	Sample	Methodology	Outcome
Ball and Shivakumar (2008)	Earnings quality at Initial Public Offerings	393 UK IPO firms between 1992-1999	Corrected Modified Jones-model Dechow (2002) model	Firms improve quality of financial reporting prior to an IPO and there is no indication of systematic earnings inflation around IPO's.
Armstrong et al. (2009)	Earnings Management Around Initial Public Offerings: A Re-Examination	4,169 IPO firms in the US for the period of 1987-2005.	Jones (1991) Modified Jones model Modified Jones model corrected by Ball and Shivakumar (2008) Three factor model of Fama and French (2003)	Earnings management is not as prevalent as described in current literature. The high accruals and strong negative relation between the estimated accruals and stock returns is mainly based on biased discretionary accrual models and cash flows.
Ball and Shivakumar (2005)	Reporting quality differences between private and public firms	54,778 private firms and 1,475 public companies in the UK (1990-2000)	Dechow (1998) model Multiple Regression analysis	Private companies show a lower quality of financial reporting.
Teoh et al. (1998a)	Opportunistic behavior of managers concerning accruals around IPO's	1682 US IPO firms in period 1980-1990	Cross-sectional modified Jones-model (1991) BHAR-model and CAR-model	Opportunistic accruals management found in the year of IPO and underperformance in years after IPO.
Roosenboom et al. (2003)	Earnings management at IPO's in the Netherlands	64 Dutch IPO firms in period 1984 until 1994	Jones-model (1991) DeAngelo-model (1986) BHAR-model	Earnings management detected in the year of IPO, not before. And reversal in years after IPO.
Leuz et al. (2003)	Earnings Management across European countries	Over more than 8,000 companies over 31 European countries.	Modified Jones model Multiple Regression analyses	Earnings management differs systematically across the three clusters.

Author(s)	Object of study	Sample	Methodology	Outcome
Burgstahler et al. (2006)	Pervasiveness of earnings management across public and private firms across EU.	269 firms across 13 European countries of the period 1997-2003	Several methods used by earlier mentioned studies (Leuz et al. 2003, Dechow 1995) and benchmark	Public firms have higher earnings quality. Earnings management is more pervasive at private firms, in countries with weaker legal systems, in countries with a strong tax alignment and in countries with less developed equity markets.
Teoh et al. (1998b)	Earnings management and long-run performance	1.682 IPO firms from 1980-1990.	Modified Jones model Beneish model Long-run performance: IPO return on sales and the industry-adjusted return on sales.	IPO firms show opportunistic accrual management and IPO firms underperform relative to non-issuing firms in the three years after the IPO.
Pastor Llorca and Poveda Fuentes (2005)	Long-run performance of IPO's in Spain and the relation with opportunistic behavior	65 IPO firms in Spain (1987-2002)	Modified Jones model Poveda model Calendar time method to measure long-run performance	IPO firms show underperformance in the three years after an IPO. In the year of the IPO, there are unusually high abnormal accruals and a decline after that. IPO's with high discretionary accruals, show a lower stock return performance the years after.
Ducharme et al. (2004)	Earnings management and the relation with lawsuits for issuing firms	10.000 issuing firms from 1988-1997	Modified Jones model BHAR-method	IPO firms report high positive abnormal accruals which are negatively related to the returns in the period after the issuing. Firms that are sued have a lower stock performance and reversals are more pronounced.

4. Research design

This chapter will concentrate on the empirical research of this thesis. To answer the main questions as defined in chapter one, sub-questions are formulated and answered in the previous chapters. The reader should now be familiar with the concept of earnings management, reporting quality and long-run performance of IPO firms.

To answer the main questions stated below, three hypotheses are developed that will be tested in the next chapter:

- 1. Do firms improve their quality of reporting before they go public (IPO)?**
- 2. Do IPO firms opportunistically inflate earnings before the IPO?**
- 3. Do IPO firms underperform in the years after the IPO?**

This chapter will lay out the design of the research and describe the methods that are being used to test the hypotheses. The sample and the descriptive will be discussed in the next chapter.

4.1 Hypothesis 1

This hypothesis concentrates on reporting quality and main question one. The hypothesis is formulated as follows:

IPO firms report more conservatively than public firms.

Ball and Shivakumar (2005) develop a model to measure conservatism by the timeliness of loss recognition which is modified in Ball and Shivakumar (2006). In Ball and Shivakumar (2008) conservatism is again measured, this time with their models from their prior research and the modified Jones model (1991) combined. The following model was constructed:

$$\begin{aligned}
ACC_{j,t} = & \alpha_0 + \alpha_1 CFO_{j,t} + \alpha_2 \Delta Sales_{j,t} + \alpha_3 FASSET_{j,t} + \alpha_4 DCF O_{j,t} + \alpha_5 DCF O_{j,t} * CFO_{j,t} \\
& + \alpha_{10} DPUB_{j,t} + \alpha_{11} DPUB_{j,t} * CFO_{j,t} + \alpha_{12} DPUB_{j,t} * \Delta Sales_{j,t} \\
& + \alpha_{13} DPUB_{j,t} * FASSET_{j,t} + \alpha_{14} DPUB_{j,t} * DCF O_{j,t} + \alpha_{15} DPUB_{j,t} * DCF O_{j,t} * CFO_{j,t} \\
& + \alpha_{20} DPVT_{j,t} + \alpha_{21} DPVT_{j,t} * CFO_{j,t} + \alpha_{22} DPVT_{j,t} * \Delta Sales_{j,t} \\
& + \alpha_{23} DPVT_{j,t} * FASSET_{j,t} + \alpha_{24} DPVT_{j,t} * DCF O_{j,t} + \alpha_{25} DPVT_{j,t} * DCF O_{j,t} * CFO_{j,t} + \varepsilon_{j,t},
\end{aligned}$$

Where the variables are defined as follows:

ACC_{j, t} is the accruals for firm j in year t, CFO_{j,t} is the operating cash flow, ΔSales is the change in sales, FASSET_{j,t} is the book value of fixed assets all divided by total assets at t-1 and DCF O represents a dummy variable which takes value 1 if the cash flow is below zero and 0 if the cash flow is zero or positive.

Where α₁ until α₅ represents information in the IPO prospectus, α₁₀ until α₁₅ represents public firms and α₂₀ until α₂₅ represents private firms. Where DPVT and DPUB are dummy variables to identify the IPO, private and public firms. These coefficients capture any incremental accruals for the IPO firms that are not explained by the model. If these coefficients are negative and significant it would indicate earnings management by IPO firms.

The procedure is repeated for year two prior to the IPO and year one prior to the IPO. The variable ΔSales requires lagged observations and the prospectus only contains information as from three years prior to the IPO.

Negative values of the coefficients for public and private firms indicate that IPO firms are conditionally more conservative than public and/or private firms. The latter can be explained as follows:

Ball and Shivakumar (2005) identify two main functions of accruals namely, to mitigate noise in the cash flow from operations and for timely recognition of gains and losses. The first function relates to the asymmetric recognition of cash flows and income. The accruals that now arise from this principle are mostly working capital accruals that will reverse in time. The second function concerning conservatism lies in the positive relation between cash flow and accruals. Ball and Shivakumar (2005, p. 94) give a simple example of when an asset is worth less due to new information. The asset will be impaired leading to a change in current income (impairment

charge) and in the expected cash flows resulting from the asset (its present value). The asymmetry arises when economic losses are recognized on a timelier basis and economic gains are recognized when realized. Due to this expected positive relation between accruals and cash flows these variables are added to the regression.

The research in this thesis will repeat this above test with exception of the private firm variables. Due to the fact that private firms often have exemptions for publishing data and have less stakeholders the financial data of private firms is not readily available from a database. The United Kingdom has a database with private firm information because of a law enforcing the publication of this information, however Germany and Greece do not. The database Amadeus also has information of financial data of private firms available however many variables are missing and cash flows do not match to information found in annual reports. The latter was discovered when performing a random check on the accurateness of the collected data from Amadeus. Since this accurateness could not be confirmed it was decided not to use the information and leave the sample of private firms out. Still a conclusion can be made when evaluating conservatism of public firms and IPO firms and therefore this adjustment is not to be expected to influence the research. The following regression will be performed, where variables are as defined earlier:

$$\begin{aligned}
 ACC_{j,t} = & \alpha_0 + \alpha_1 CFO_{j,t} + \alpha_2 \Delta Sales_{j,t} + \alpha_3 FASSET_{j,t} + \alpha_4 DCF_{j,t} + \alpha_5 DCF_{j,t} * CFO_{j,t} \\
 & + \alpha_{10} DPUB_{j,t} + \alpha_{11} DPUB_{j,t} * CFO_{j,t} + \alpha_{12} DPUB_{j,t} * \Delta Sales_{j,t} \\
 & + \alpha_{13} DPUB_{j,t} * FASSET_{j,t} + \alpha_{14} DPUB_{j,t} * DCF_{j,t} + \alpha_{15} DPUB_{j,t} * DCF_{j,t} * CFO_{j,t}
 \end{aligned}$$

4.2 Hypothesis 2

This hypothesis concentrates on the second main question regarding the presence of earnings management before and after the IPO. The hypothesis is formulated as follows:

IPO firms inflate their earnings in the years before the IPO.

Many studies researched earnings management around IPO's and found evidence for systematic inflation of earnings. Some of these studies are described in chapter three, the literature study.

Ball and Shivakumar (2008) and Armstrong et al. (2009) however did not find such evidence, they even reached the opposite conclusion. Ball and Shivakumar (2008) used a sample of UK firms, where others used other countries. Leuz et al. (2003) and Burgstahler et al. (2006) were also discussed in chapter three, which concluded in their papers that earnings management differs across countries. The United Kingdom stands for a country with a strong legal system, strong investor rights, large stock markets and dispersed ownership. This could be a reason that Ball and Shivakumar (2008) did not find earnings management around IPO and other researchers did. For this reason, this thesis uses an international sample.

There are different methods to estimate accruals. Accruals estimated from changes in balance sheet or from changes in cash flow. Ball and Shivakumar (2008) give the preference to accruals from changes in cash flow because of the possible bias in accruals estimated from the balance sheet. Armstrong et al. (2008) also used the corrected modified Jones model of Ball and Shivakumar (2008) for their research.

As mentioned in chapter two, Hribar and Collins (2002) state that using a balance sheet approach to estimate accruals, gives errors if the balance sheet working capital changes do not articulate with accruals from the income statement that are reflected in the statement of cash flows. This thesis will therefore estimate total accruals by deducting the operating cash flow from the earnings before extraordinary items.

Chapter two already mentioned that this thesis will make use of the accrual model developed by Ball and Shivakumar (2008). They estimated normal accruals using the cross-section modified Jones model and a piecewise linear variant suggested by Ball and Shivakumar (2005, 2006):

$$ACC_t = \alpha_0 + \alpha_1 \Delta Sale_t + \alpha_2 FASSET_t + \alpha_3 CFO_t + \alpha_4 DCFO_t + \alpha_5 * DCFO_t * CFO_t + \varepsilon.$$

Where the variables are defined as follows:

ACC_t is the accruals in year t, CFO_t is the operating cash flow, ΔSale_t is the change in sales, FASSET_t is the book value of fixed assets. All variables are divided by total assets at t-1. DCFO represents a dummy variable which takes value 1 if the cash flow is below zero and 0 if the cash flow is zero or positive, DCFO_t * CFO also represents a dummy variable which take the value 1

if the cash flow is negative and 0 if the cash flow is zero or positive and then multiplied by the operating cash flow. The first two variables are quite similar to the Jones model that uses change in sales and Property, Plant and Equipment (PPE) to show the depreciation accruals. Where Ball and Shivakumar use the book value of fixed assets for the latter. The remaining variables stem from the Basu model (1997) and represent conservatism.

As explained in chapter 2.3.3, first the total accruals are calculated by subtracting the cash flow from operations from the net earnings (income before extraordinary items). This is done for all the IPO firms and also for the control sample firms. The control sample will exist of all the available data for firms in the same industry, as determined by the SIC code on two digits. The following step is to determine the alphas. By running the following regression:

$$ACC_t = \alpha_0 + \alpha_1 \Delta Sales_t + \alpha_2 FASSET_t + \alpha_3 CFO_t + \alpha_4 DCFO_t + \alpha_5 * DCFO_t * CFO_t + \epsilon.$$

The alphas stemming from the previous regression are used to determine the non-discretionary accruals. By multiplying the alpha's by the financials from the prospectus the non-discretionary accruals for the IPO firm are calculated.

The last step involves subtracting the calculated normal accruals from the total accruals calculated in step one. If the remains are positive, this indicates positive abnormal accruals and thus earnings management. Of course, the significance of these discretionary accruals still needs to be proven. Thus, a paired-sample T test is performed to test for significance. Considering the small sample used in this thesis a significance level of 10% or 0.10 should be reasonable.

4.3 Hypothesis 3

This hypothesis concentrates on the long-run performance of the IPO firms. Section 2.4 described four different models to measure the long-run performance. This thesis will make use of the Buy-Hold-Abnormal-Return (BHAR) method. The hypothesis is as follows:

IPO firms show a reversal in their performance in the three years after the IPO.

The BHAR method calculates the long-run abnormal return as the return on a buy-and-hold investment of the firm minus the return on a buy-and-hold investment in a benchmark. For each firm, abnormal returns can be obtained as:

$$BHAR_{it} = \prod_{t=1}^T (1 + R_{it}) - \prod_{t=1}^T (1 + R_{Mt})$$

R_{it} is the raw return adjusted for splits and dividends in month t

R_{Mt} is the expected benchmark return in month t (value-weighted market index)

T is the number of months (12, 24 or 36 months)

t is the date of closing price on the first date of trading

The average return of all firms is obtained as:

$$BHAR_T = \frac{1}{n} \sum_{i=0}^n BHAR_{i,T}$$

n is the number of firms

This thesis will examine the long-run performance for three years. This is the maximum amount of years possible due to the recentness of the sample (2000 up and including 2006) and as mentioned before, most researchers expect the reversal of accruals, influenced by earnings management, to take place within the three years after the IPO. The periods, $T = 12$, $T = 24$ and $T = 36$ will be examined. This should give insight in the trend of performance.

Significant negative abnormal returns for IPO firms would indicate that IPO's do underperform in the years after the IPO.

For the long-run performance the IPO firms are again set off against firms operating in the same industry as defined by the SIC code on two digits. The benchmark groups should at least contain five firms to maintain a level of representation. The relative change of the Return Index (RI) is calculated for each firm. Then the product of the months is calculated for 12 months, 24 months

and 36 months. The abnormal return is calculated by subtracting the average return calculated for the group of control firms from the IPO firm. Where, as mentioned earlier, the control group consists of at least five firms in the same two-digit SIC. Furthermore, the IPO firms are divided in three groups namely, conservative, neutral and aggressive reporting. The groups are selected by discretionary accruals as result of hypothesis two. A T-test will be performed to test whether the groups differ from each other. The group with high discretionary accruals is expected to have a more negative abnormal return.

4.4 Summary

This chapter described the three hypotheses that will be tested, namely:

1. *IPO firms report more conservatively than public firms.*
2. *IPO firms inflate their earnings in the years before the IPO.*
3. *IPO firms show a reversal in their performance in the three years after the IPO.*

This chapter also thoroughly explained how the hypotheses will be tested. The research follows the research by Ball and Shivakumar (2008) narrowly for the first hypotheses and uses a method (the BHAR method) for the third hypothesis. This method is often used in research for the long-run performance of IPO firms.

Chapter five will describe the sample, selection of data and composition (descriptive statistics) and the results from the tests conducted. An analysis will be set forth on the results.

5. Descriptive statistics, results & analysis

5.1 Descriptive statistics

5.1.1 Samples

Ball and Shivakumar (2008) conducted their research among firms in the United Kingdom. This thesis will perform a more international comparison and therefore include two extra countries in the research. Several studies have been conducted on this topic, for example Leuz et al. (2003). Leuz et al. (2003) found that there are three different clusters:

1. Outsider economies with large stock markets, dispersed ownership, strong investor rights, and strong legal enforcement (e.g., United Kingdom and United States);
2. Insider economies with less-developed stock markets, concentrated ownership, weak investor rights, but strong legal enforcement (e.g. Germany, Sweden and Netherlands);
3. Insider economies with weak legal enforcement (e.g., Italy, Spain, Greece and India).

The first cluster of outsider economies, such as the United Kingdom, is known for their ‘large stock markets, low ownership concentration, extensive outsider rights, high disclosure, and strong legal enforcement’ (Leuz et al. 2003, p. 507). Furthermore, Leuz et al. (2003, p. 507) find the following: ‘Legal systems protect investors by conferring on them rights to discipline insiders (e.g., to replace managers), as well as by enforcing contracts designed to limit insiders’ private control benefits. As a result, legal systems that effectively protect outside investors reduce insiders’ need to conceal their activities. We therefore propose that earnings management is more pervasive in countries where the legal protection of outside investors is weak, because in these countries insiders enjoy greater private control benefits and hence have stronger incentives to obfuscate firm performance.’ The legal systems are thus of great importance when investor rights are concerned. For the first cluster, investor rights are strong and so is legal enforcement. Considering the above earnings management is less pervasive in the first cluster. Another characteristic of the United Kingdom is that is a common-law country. Ball (2000) concludes that common-law countries have more conditional conservatism than code-law countries.

The second cluster is defined as an insider economy with less developed stock markets however with strong legal enforcement. Earnings management is thought to be more pervasive in this

cluster. Germany is identified as a country belonging to this cluster. Van Tendeloo and Vanstaelen (2005) reason that German accounting is rather conservative. Furthermore, they state that the financial statements form the basis for the tax accounts. This leads to the incentive to minimize tax and thus use earnings management to decrease earnings. 'Guenther and Young (2000) argue that in countries where there is a conformity between financial and tax accounting rules 'financial accounting information may differ from underlying economic activities because firms attempt to minimize taxable income'. Managers are given a large number of options regarding inclusion and valuation of items in the balance sheet and the opportunity to control net income.' Van Tendeloo and Vanstaelen (2005, p. 160). Although Germany is expected to be conservative earnings management is pervasive to smooth income. Furthermore, Germany is a code-law country.

The third cluster has the worst investor protection. Besides the weak investor protection, legal enforcement is also weak. This leads to the expectation that earnings management is most pervasive in this cluster (Leuz et al. 2003). Greece is identified as a country belonging to the third cluster. Greece is expected to have less conservatism than the other two countries. Greece is a code-law country like Germany and France. Greece's capital markets are not as developed as those of the United Kingdom and Germany. Other items on which Greece is very different from the United Kingdom and Germany is the weak corporate governance, moderate tax and financial accounting conformity and low use of accruals (Dimitropoulos and Asteriou 2008).

Furthermore, Leuz et al. 2003 found that earnings management differs significantly between these clusters. For this reason the following countries, all from a different cluster as defined by Leuz et al. (2003), will be included:

1. The United Kingdom, for comparing results to that of Ball and Shivakumar (2008)
2. Germany, this is a large country with sufficient data. Research on the area of earnings management at IPOs was not earlier conducted in Germany.
3. Greece, this country clearly lies in a different cluster than the other countries.

The emphasis of this thesis is thus on difference between cluster and not per se between countries. One of the objectives of this thesis is to identify differences in earnings management between the three clusters.

This research involves only Initial Public Offerings which should not be confused with Seasoned Equity Offerings. The focus of this thesis lies on IPO's because of the transformation from a private firm to a public firm. Seasoned Equity Offerings concern equity offerings of firms that already are public.

5.1.2 Gathering the data

The data for this empirical research are gathered from databases and partly hand-collected from prospectuses of the IPO firms. For starters the IPOs needed to be identified which was done through Thomson One Banker. IPOs are identified by Issue date (01-01-2000 till 31-12-2006), Issue Type (IPO) and Nation (UK, Greece, Germany). The prospectus was sometimes available in Thomson One Banker in other cases the prospectus could be found on the website of the firm. From the prospectuses the following data were collected:

1. Total assets
2. Total fixed assets (if this was not available current assets were taken and deducted from total assets)
3. Cash flow from operations
4. Sales/Revenue
5. Income before extraordinary items

The same data is gathered from COMPUSTAT Global for all the available firms in the period of 2000 to 2006 for the control sample. The variables as defined by COMPUSTAT Global, corresponding to the previous variables by number, are:

1. AT (Assets Total)
2. ACT (Assets Current Total, fixed total assets is not available in COMPUSTAT and therefore total current assets is collected and deducted from total assets to come to fixed total assets)
3. OANCF (Operating Activities Net Cash Flow)
4. Sale (Net Sales)
5. IXON (Income Before Extraordinary Items)

Some data of firms had to be removed from the sample due to missing data. Financial services providers were also excluded from the sample due to their difference in demands and laws and regulations. Data that was applicable to either of the following items was deleted:

1. Firms that had missing data in either one of the variables.
2. Firms that are financial services providers (banks etc. due to the fact that they have different market demands and rules and regulations to comply with).
3. Firms that had data available for only one year (all variables need to be scaled by total assets at t-1 with only one year of data available this is not possible).

Table 2.

IPO overview		
Germany	01-01-2005 / 31-12-2006	84
Greece	01-01-2004 / 31-12-2006	27
United Kingdom	01-01-2006 / 31-12-2006	179

Table 2, above, shows the total number of IPOs per cluster/country and the year(s) selected per cluster as given by Thomson One Banker. Because data needed to be hand-collected from prospectuses it was not realistic to use all the IPOs however a selection (randomly) was made for 20 IPOs for Germany and the United Kingdom. Greece did not have that many useful IPOs with prospectuses available. Therefore only eight IPOs were included in the sample to represent the cluster of ‘Insider economies with weak legal enforcement’. While the United Kingdom had many recent IPOs the other two countries did not. Therefore the time period for data selection differs between the three countries. This brings the advantage that only most recent information is included however the disadvantage is that their time horizon is different which could influence the results. For instance, the trend of the economy could be different between the sample of the United Kingdom and Greece for certain firms.

Table 3

United Kingdom in millions	t = 0 N = 12			t = -1 N = 19			t = -2 N = 16		
	Mean	Median	St.Dev.	Mean	Median	St.Dev.	Mean	Median	St.Dev.
Fixed assets	186,64	3,30	432,74	171,83	3,66	488,07	150,02	2,94	375,38
Total assets	243,33	5,36	529,91	269,98	2,18	829,08	224,22	2,22	595,88
Cash flow from operations	28,87	0,02	56,30	32,49	0,18	92,69	27,12	0,15	74,65
Sales	168,81	1,80	441,31	230,24	1,24	748,93	181,66	0,92	502,95

Table 4

Germany in millions	t = 0 N = 16			t = -1 N = 18			t = -2 N = 17		
	Mean	Median	St.Dev.	Mean	Median	St.Dev.	Mean	Median	St.Dev.
Fixed assets	398,96	21,28	888,93	1283,72	15,27	4228,62	226,46	8,52	573,11
Total assets	759,82	76,53	1495,41	2965,49	23,85	10448,02	529,40	12,92	1278,65
Cash flow from operations	52,34	0,31	185,65	64,76	4,71	140,30	31,32	2,21	91,63
Sales	666,03	71,60	1506,72	4045,43	60,54	15460,29	683,65	29,79	1601,03

Table 5

Greece in millions	t = 0			t = -1 N = 7			t = -2 N = 5		
	Mean	Median	St.Dev.	Mean	Median	St.Dev.	Mean	Median	St.Dev.
Fixed assets				373,37	153,76	441,62	277,39	114,21	340,69
Total assets				401,59	161,36	472,34	320,86	183,55	389,13
Cash flow from operations				69,44	44,61	83,21	44,94	21,90	49,50
Sales				280,79	241,38	219,51	129,27	63,46	99,21

Tables 3 till 5 represent the descriptive statistics of the IPO firms for the years, $t = 0$, $t = -1$ and $t = -2$. $T = 0$ is not analyzed for Greece because the information was not available. Consequently, the hypotheses could not be tested for the IPO year for Greece. The tables contain the mean, median and standard deviation for fixed assets, total assets, cash flow from operations and sales. The year prior to the IPO is bold for total assets and sales because these are the only variables that can be compared to Ball and Shivakumar (2008). Their mean and median for total assets is, respectively, 52,6 million and 11,1 million. The mean and median for sales are, respectively, 72,2 million and 15,6 million. It shows that the Greek and German firms included in this thesis have larger mean and average sales and total assets than those in the sample of Ball and Shivakumar (2008). The firms from the United Kingdom have larger mean and smaller median than the sample of Ball and Shivakumar (2008). The sample of this thesis is more spread than that of Ball and Shivakumar (2008), this indicates that their distribution is probably closer to normal and

therefore more reliable. Furthermore, Germany shows large differences between mean and median which indicates that extreme values (outliers) are probable or that there are big differences between the firms in the sample. The cash flow from operations for Germany and the United Kingdom shows big differences between the mean and median indicating the sample is widely spread or that outliers exist in the sample. The data for Greece does not show such big differences between the mean and median for either variable.

Concerning the control samples the following table, table 6, shows the numbers of data of the sample before and after deletion of certain firms. If a firm had its IPO in the three years before the start date of the sample (1-1-2004, 1-1-2005, 1-1-2006 respectively for Greece, Germany and the United Kingdom) it was deleted from the sample. Firms could have an incentive in the years after the IPO to inflate earnings, due to the lock-up period as mentioned in chapter 2, therefore these firms are excluded from the sample. The lock-up period varies per firm however to be safe three years were used as a limit. Furthermore, firms with missing data and only one year observation were deleted. As for the IPO firms the variables all need to be scaled by total assets at t-1 with only one year of data available this is not possible.

Table 6

	Control sample United Kingdom	Control sample Germany	Control sample Greece
Initial sample	11225	4185	975
Deletion of firms within IPO in sample date	1196	294	40
Deletion of firms with missing data	3311	1420	391
Deletion of firms with only one observation year	164	351	4
Total control sample	6554	2120	540

It is important that the control sample contains enough firms to represent the benchmark. A condition to use the benchmark is that it contains at least five firms.

Furthermore, the IPO firms did not always include the right information in the prospectus. Some firms include financial information of the year of the IPO ($t=0$) in the prospectus while others do not. Because of the latter IPO firms from Greece could not be analyzed for the year $t=0$.

The discretionary accruals (only for the IPO firms) as estimated by the method discussed in chapter 4.2 are analyzed. The discretionary accruals are plotted in boxplots and graphs for all countries and all years. These graphs and boxplots are included in the appendix for Germany⁶ for the years 2004-2006 (Figures 2-13). Outliers were identified by analysis of the boxplot. The data outside the boxplot were removed. For example, figure 2 in the appendix shows the boxplot for Germany for 2004. It shows that 2 variables are outside the boxplot, these variables are identified as outliers and are then removed. The figures show the distribution with and without outliers for the years 2004 until 2006. Outliers can disturb the results and sketch a wrong view on data, and should therefore be deleted.

The third hypothesis involves data of stock returns of IPO firms and a benchmark group. Again the benchmark group should at least contain five firms. The Return Index (RI) is collected from Datastream for the period of 31-12-2006 until 31-12-2009. The relative change of the index is then calculated. This data is used to calculate the Buy-Hold-Abnormal-Return.

5.2 Results

5.2.1 Hypothesis 1

The analysis on the variables led to the final sample for hypothesis one of the following:

Table 7

	t = 0	t = -1	t = -2
Germany	16	18	17
Greece	0	7	5
United Kingdom	18	19	12

Information from the prospectuses did not always seem useable. Therefore smaller samples than 20 (for Germany and the United Kingdom) and 8 (for Greece) are obtained. Greece did not have any information available for the year of the IPO (t = 0) and could therefore not be analyzed. For the available firms the variables, Cash flow from operations, book value of Fixed assets, Δ Sales are all scaled by total assets t = -1 and the dummy variables for Cash flow are also

⁶ Data for Greece and the UK are available on request.

included. Total accruals are calculated by subtracting the cash flow from operations from the income before extraordinary items and then scaled by total assets $t = -1$. The same is done for the control sample. The variables are then added in a linear regression in SPSS. The regression is shown below:

$$\begin{aligned}
 ACC_{j,t} = & \alpha_0 + \alpha_1 CFO_{j,t} + \alpha_2 \Delta Sales_{j,t} + \alpha_3 FASSET_{j,t} + \alpha_4 DCFO_{j,t} + \alpha_5 DCFO_{j,t} * CFO_{j,t} \\
 & + \alpha_{10} DPUB_{j,t} + \alpha_{11} DPUB_{j,t} * CFO_{j,t} + \alpha_{12} DPUB_{j,t} * \Delta Sales_{j,t} \\
 & + \alpha_{13} DPUB_{j,t} * FASSET_{j,t} + \alpha_{14} DPUB_{j,t} * DCFO_{j,t} + \alpha_{15} DPUB_{j,t} * DCFO_{j,t} * CFO_{j,t}
 \end{aligned}$$

The objective is to find conditional conservatism for IPO firms by the coefficient $DPUB * DCFO * CFO$. $DCFO$ is a dummy variable that takes value 1 if the cash flow from operations is negative, and is multiplied by the cash flow from operations scaled by total assets of $t = -1$. The second variable of interest is the dummy variable indicating the public firm, $DPUB$. $DPUB$ captures any incremental accruals of IPO firms that are not explained by the model.

The first table shown below, table 8, shows the results for Germany. The variables of interest are marked. Sometimes it appeared that variables were correlated too much and were therefore excluded from the regression. This coefficient is significant and negative for $t = -1$, zero (or positive on 7 decimals), for $t = -2$ and negative and insignificant for $t = 0$. The negative and significant coefficient for $t = -1$ indicates that IPO firms do inflate earnings. This however contradicts the coefficient discussed next. The coefficient $DPUB * DCFO * CFO$ shows more conservatism for IPO firms. As explained in previous chapters this variable should be negative (and significant) to show that IPO firms are more conservative than public firms. The event years $t = -1$ and $t = -2$ show negative and significant coefficients. The year of the IPO ($t = 0$) does not show a significant result.

Table 8

Hypothesis 1 Germany	t=0 Coeff.	N = 16 Sign.	t=-1 Coeff.	N = 18 Sign.	t=-2 Coeff.	N = 17 Sign.
CFO	-1.323	.043	-	2.417 .000	-.897	0,000
FASSET	-.398	.001	.117	.356	-	-
SALES	5.605	.000	.438	.031	,586	0,000
DCFO	-.063	.659	-.181	.000	,005	0,008
DCFO * CFO	.289	.157	1.435	.000	,008	0,000
DPUB	-.010	.790	-.041	.001*	0,000	0,059*
DPUB CFO	.327	.612	.619	.000	,007	0,000
DPUB FASSET	.247	.010	-.169	.171	,002	0,003
DPUB SALES	-5.492	.000	-.353	.082	-,040	0,000
DPUB DCFO	.045	.746	.141	.003	-,005	0,005
DPUB DCFO * CFO	-.073	.689	-.375	.000*	-,006	0,001*

* Significant on a 10% level.

The next table shown below, table 9, contains the results for Greece. For the year t = -1 a negative coefficient is found for DPUB DCFO * CFO, which indicates IPO firms are more conditionally conservative than public firms. Year t = -2 however does not show significant results. DPUB is not significant in both years. The dummy variables for IPO firms do not show results because neither one of the IPO firms in the sample had negative cash flows.

Table 9

Hypothesis 1 Greece	t=-1 Coeff.	N = 7 Sign.	t=-2 Coeff.	N = 5 Sign.
CFO	.473	.007	.160	.476
FASSET	.033	.590	.016	.884
SALES	-3924	.000	-4.404	.000
DCFO	0	-	0	-
DCFO * CFO	0	-	0	-
DPUB	-.054	.296	-.121	.188
DPUB CFO	-.772	.000	-.662	.004
DPUB FASSET	-.004	.931	.030	.721
DPUB SALES	3681	.000	4.101	.000
DPUB DCFO	.020	.601	.057	.383
DPUB DCFO * CFO	-.073	.045*	.009	.888

* Significant on a 10% level.

Table 10

Hypothesis 1 United Kingdom	t=-0 Coeff.	- Sign.	t=-1 Coeff.	N = 19 Sign.	t=-2 Coeff.	N = 12 Sign.
CFO	-	-	-1.400	.000	.728	.000
FASSET	-	-	.049	.788	0	
SALES	-	-	1.835	.000	-1.096	.000
DCFO	-	-	-.539	.026	3.805	.000
DCFO * CFO	-	-	1.267	.000	0	
DPUB	-	-	.009	.887	.116	.394
DPUB CFO	-	-	.379	.002	.011	.666
DPUB FASSET	-	-	.096	.603	-.815	.000
DPUB SALES	-	-	-1.537	.000	-3.859	.000
DPUB DCFO	-	-	.511	.034	-.133	.327
DPUB DCFO * CFO	-	-	-.454	.001*	-.300	.004*

* Significant on a 10% level.

The results for the United Kingdom are shown in table 10 above. Consistent with the results of Ball and Shivakumar (2008) IPO firms are shown to be more conditionally conservative than public firms for the years $t = -2$ and $t = -1$. The year $t = 0$ was however not fit to analyze. The variables correlated too much and caused them to be excluded from the regression. No inferences can be made from these results. DPUB was insignificant for both years.

The coefficient for DPUB was insignificant and often positive for Greece and the United Kingdom however Germany showed a slightly negative and significant result for this coefficient in the year $t = -1$. This is the opposite of the expectations of Ball and Shivakumar (2008). This would indicate that IPO firms do engage in earnings management while the coefficient for conditional conservatism shows something else. Although the coefficient is only slightly negative the result is surprising.

The coefficient for DPUB DCFO * CFO differed between the clusters. The results for the United Kingdom are similar to those of Ball and Shivakumar. As mentioned in the first section of this chapter, the United Kingdom is known for its strong legal enforcement, large stock markets and strong investor rights. The indication of higher conservatism with IPO firms is therefore logically explained by its institutional setting. The stronger the investor rights the less room for earnings manipulation. The results for Germany indicate that IPO firms report conditionally more conservative in event year $t = -1$ and $t = -2$. The result for $t = 0$ is also negative however not

significant. Germany is known to have weak investor rights however strong legal enforcement. Furthermore Germany is a code-law country other than the United Kingdom which is a common-law country. The latter makes that conditional conservatism is more pervasive in the United Kingdom than in Germany. The results as shown in the tables are contiguous to the latter, the coefficients are more negative for the United Kingdom. Greece showed higher conservatism in the event year $t = -1$ and no significant results for $t = -2$. A clear trend concerning conservatism would be expected, such as an increasing negative coefficient. However, the latter cannot be seen from the results.

The first hypothesis: *IPO firms report more conservatively than public firms* can be accepted for the United Kingdom and for some years for Germany and Greece however not in general. The results can be partially explained by the sample. While the United Kingdom has much information available on IPOs and public firms Greece does not. The sample of IPOs and the control sample were therefore quite small. When the sample size increases it approaches a normal distribution more closely, leading to more reliable results. Germany has more data available than Greece however compared to the study conducted by Ball and Shivakumar (2008) it is relatively small. The control sample for Ball and Shivakumar consisted of over 50.000 firm/year observations, which are over 10.000 firms. While the control sample for Germany in this thesis is only slightly over 2.000 firms. The results for this hypothesis therefore have to be cautiously interpreted. The contradicting results for Germany do not have a clear explanation. The results indicate that IPO firms do show more conditionally conservatism in their reports however at the same time inflate earnings by using accruals. Hypothesis 2 will perform tests to point out whether there is an indication of earnings management. If there is a clear indication that German IPO firms inflate earnings for the period $t = -2$ and $t = -1$, by the results of hypothesis 2, it is possible that the results found for hypothesis 1 concerning the coefficient DPUB are correct. However if the latter is not shown by the results of hypothesis 2 it is expected that other influences caused the results.

5.2.2 Hypothesis 2

The model used to test this hypothesis is the model of Ball and Shivakumar (2008) described in the previous chapter. The total accruals of the public firms used for hypothesis 1 are now split in groups per SIC. The variables of the group are entered in SPSS in the following (linear) regression, where the variables are the same as in hypothesis 1, Cash flow from operations, book value of Fixed assets, Δ Sales all scaled by total assets $t = -1$ and the dummy variables for Cash flow. Total accruals are calculated by subtracting the cash flow from operations from the income before extraordinary items and then scaled by total assets $t = -1$:

$$ACC_t = \alpha_0 + \alpha_1 \Delta Sales_t + \alpha_2 FASSET_t + \alpha_3 CFO_t + \alpha_4 DCFO_t + \alpha_5 * DCFO_t * CFO_t + \epsilon.$$

The alphas found in this regression are multiplied by the IPO firm's variables leading to the expected or normal accruals. These expected accruals are then deducted from the actual accruals. The remains are the discretionary accruals. The IPO firm's accruals are thus calculated by alphas from the regression of firms in the same two digits SIC. The found discretionary accruals are then tested by a t-test in SPSS to analyze whether they significantly deviate from zero.

The following tables, tables 11-13, show the outcome of the one-sample-t-test on the discretionary accruals. N shows the number of IPO firms included in the test, mean difference is important to show how the mean of the IPO firms differ from zero and the third column shows the significance of the test. As mentioned before, due to the small sample size a significance level of 10% is maintained. The amount of IPO firms, N, is smaller than in the previous hypothesis. This was caused by missing variables for certain event years or the inability to find an appropriate control group. For instance, if there were less than five firms in the SIC group.

Table 11

Hypothesis 2 Germany	N	Mean difference	Sign.
t = -2	15	-0,096489	.384
t = -1	14	-0,360176	.142
t = 0	15	0,966962	.185

Table 12

Hypothesis 2 Greece	N	Mean	Sign.
t = -3	3	0,408874	.002*
t = -2	5	-0,111620	.015*
t = -1	7	-0,873652	.527

* Significant on a 10% level.

Table 13

Hypothesis 2 United Kingdom	N	Mean	Sign.
t = -2	10	0,485432	.115
t = -1	18	-0,153971	.331
t = 0	16	-0,155196	.358

For Germany and the United Kingdom there is no indication of earnings management. The tests indicate that the mean of the discretionary accruals does not significantly deviate from zero. The results for the United Kingdom are similar to that of Ball and Shivakumar (2008) who too do not find significant indication of earnings inflation by IPO firms. For Germany the results do not deviate from previous literature. Germany is known as a conservative country and the cluster of ‘Insider economies with less-developed stock markets, concentrated ownership, weak investor rights, but strong legal enforcement’ is thought to be less pervasive in earnings management. That no significant indication of earnings management was found is thus not surprising. The results for Greece however ask for a closer look. The results for t = -3 show that there is an indication of earning management, the estimated discretionary accruals deviate upwards from zero. The next year however, t = -2, shows a significant indication of earnings management however this time downwards. Event year t = -1 does not show significant results. However, difference between the clusters is shown. Earnings management is thought to more pervasive in countries with weak legal enforcement. As mentioned when analyzing hypothesis 1, the sample is very small and thus caution is necessary when interpreting the results.

Concerning the questioning result found in the results of hypothesis 1 for Germany, it is shown that no indication of earnings management is found for Germany for the year t = -1. The mean difference is even negative which indicates that the discretionary accruals would be negative. When earnings inflation is expected those accruals should be positive.

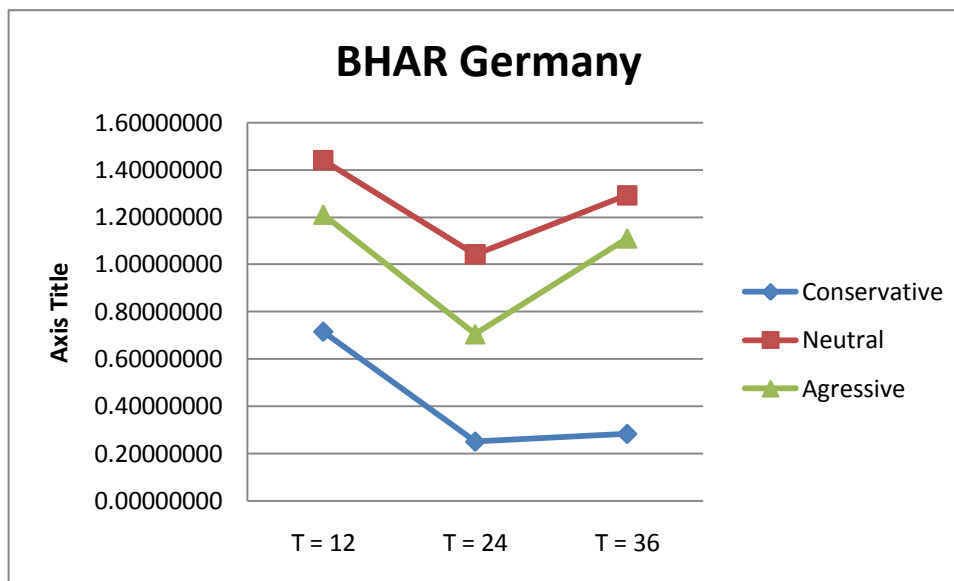
5.2.3 Hypothesis 3

The Buy-Hold-Abnormal-Return was calculated for the IPO firms and the benchmark firms for the United Kingdom and Germany. Unfortunately Greece did not have enough data available to provide a representative research. The BHAR was calculated as described in chapter 4.3. The monthly Return Index (RI) was downloaded from Datastream for the IPO firms and the control benchmark, consisting of the same groups of public firms in the same SIC as used in hypothesis two. This was done for the period 31-12-2006 until 31-12-2009. The relative change of the index was calculated for all the firms. The BHAR is then calculated by adding one to the monthly return and calculating the product for the periods $t = 12$, $t = 24$ and $t = 36$.

The IPO firms are divided in three groups based on their discretionary accruals, namely conservative, neutral and aggressive accounting. First a deeper look is provided to the data before discussing the results.

The graphs below show the average abnormal return for the three groups of reporting, conservative, neutral and aggressive for the United Kingdom and Germany. The graphs sketch a rather unusual view. First the Germany will be analyzed followed by United Kingdom.

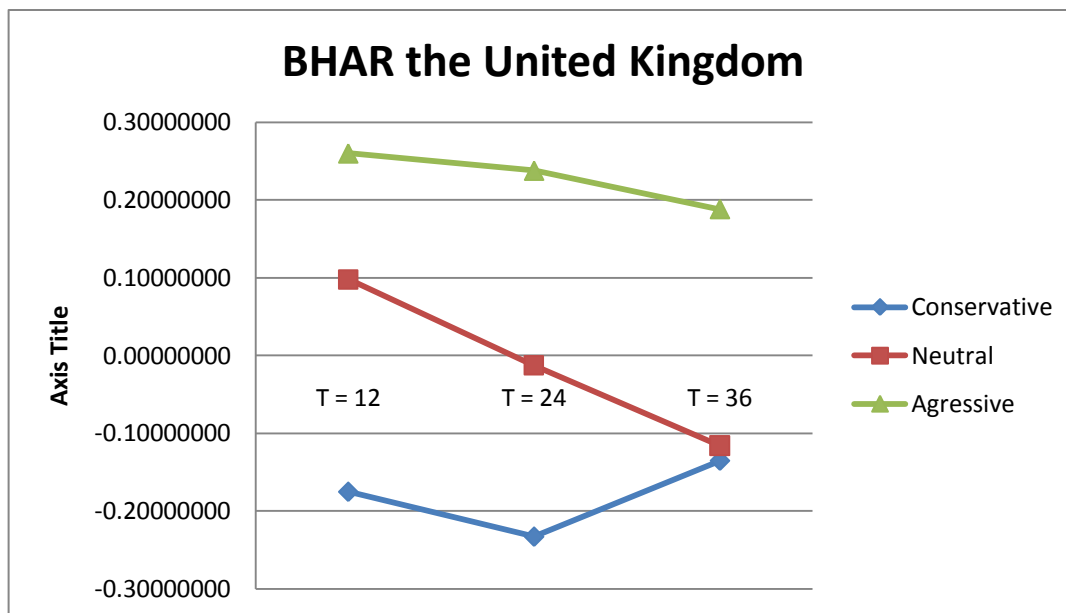
Graph 2



Germany shows a view other than expected. The conservative firms show worse performance than the other two groups. All the groups show a roughly similar trend. The second year the performance declines and the third year it improves again. The aggressive firms show the steepest improvement in the third year and the conservative firms the most flat. All three groups have

positive abnormal returns and do not underperform relative to their industry colleagues. The studies conducted by Teoh et al. (1998), Roosenboom et al. (2003) and Pastor-Llorca and Poveda-Fuentes (2006) find a decline in the performance of the IPO firms after the offering. The view sketched by the graph is thus different from the previous literature. A factor that could be of influence on the trend shown in the graph is the lock-up period. All the German IPO firms show a decline of performance in the second year. This is often the year that the lock-up period ends. It is possible that this is a reason for firms showing a decline in performance in the second year. The firm could flatter the financials in the first year to maintain a high price until after the lock-up period. This incentive was described in the introduction and in chapter 2. Furthermore, this analysis points to the view that IPO firms do not underperform and that discretionary accruals have no effect on the performance in the three years after the IPO.

Graph 1



Although the third group, aggressive reporting firms, shows a subtle decline the abnormal returns are extremely positive (over 20%) which indicates that the IPOs in this group outperformed their colleague firms in the industry. The neutral firms show an almost linear decline over the three years. This is actually expected for the group of firms that report aggressively. The most surprising trend is however that of conservative firms. Where they are expected to show positive results as result of reversing accruals, they show underperformance relative to the benchmark.

The third year however shows an improvement but stays negative. These results are not in line with the earlier mentioned literature.

To provide statistical prove however a T-test is performed. The tables below, tables 14 and 15, show the outcome of the one sample T-Test. This test provides us with results to indicate whether the means differ significantly from zero. The test is performed per year and per group.

Table 14

Hypothesis 3 United Kingdom	N	Mean difference	Sign.
Conservative T = 12	5	-0,175545	,106
Conservative T = 24	5	-0,233169	,338
Conservative T = 36	5	-0,135670	,518
Neutral T = 12	5	0,097967	,540
Neutral T = 24	5	-0,012892	,952
Neutral T = 36	5	-0,115896	,550
Aggressive T = 12	5	0,260086	,344
Aggressive T = 24	5	0,237765	,444
Aggressive T = 36	5	0,188146	,493

Table 15

Hypothesis 3 Germany	N	Mean difference	Sign.
Conservative T = 12	5	-0,421057	,049*
Conservative T = 24	5	-0,516095	,011*
Conservative T = 36	5	-0,601470	,003*
Neutral T = 12	5	0,390704	,549
Neutral T = 24	5	0,324123	,638
Neutral T = 36	5	0,389505	,587
Aggressive T = 12	5	0,078146	,781
Aggressive T = 24	5	0,015982	,902
Aggressive T = 36	5	0,235941	,513

* Significant on a 10% level.

The results indicate that none of the groups in neither year differ significantly from zero for the United Kingdom. This means that the IPOs do not under- or overperform relative to the benchmark. The table for Germany however shows that the conservative group does significantly underperform relative to the benchmark. The conservative firms often had negative discretionary accruals it could be that this accounting strategy is also followed for the years after the IPO leading to suppressed results. Taking in account that no indication of earnings management was

found for the firms the result corresponds to the conclusion of the previous hypothesis. If firms do not engage in earnings management the performance is not expected to be worse than other firms in the same industry and other factors could be influencing the performance. Due to the small sample the results have to be interpreted cautiously. Other studies had more firms per group. For example, Pastor-Llorca and Poveda Fuentes (2005) had over twenty firms per group and Teoh et al. (1998) even had over 500 per group, while the groups in this research only contains five firms per group.

The next tables, tables 16 and 17, indicate the difference between the three groups. It shows that the conservative group differs from the other two significantly for almost all years. This is the same for the United Kingdom and Germany. This is in line with the previous test that indicated that conservative firms underperform and the neutral and aggressive firms do not.

Table 16

Hypothesis 3 United Kingdom	N	Mean difference	Sign.
Conservative vs. Neutral	T = 12	-0,273512	,032*
Conservative vs. Aggressive	T = 12	-0,435631	,007*
Neutral vs. Aggressive	T = 12	-0,162119	,331
Conservative vs. Neutral	T = 24	-0,220277	,362
Conservative vs. Aggressive	T = 24	-0,470934	,093*
Neutral vs. Aggressive	T = 24	-0,250657	,284
Conservative vs. Neutral	T = 36	-0,019774	,923
Conservative vs. Aggressive	T = 36	-0,323816	,166
Neutral vs. Aggressive	T = 36	-0,304042	,162

Table 17

Hypothesis 3 Germany	N	Mean difference	Sign.
Conservative vs. Neutral	T = 12	-0,811760	,006*
Conservative vs. Aggressive	T = 12	-0,499203	,030*
Neutral vs. Aggressive	T = 12	0,312557	,629
Conservative vs. Neutral	T = 24	-0,840218	,002*
Conservative vs. Aggressive	T = 24	-0,532077	,010*
Neutral vs. Aggressive	T = 24	0,308142	,654
Conservative vs. Neutral	T = 36	-0,990974	,001*
Conservative vs. Aggressive	T = 36	-0,837411	,001*
Neutral vs. Aggressive	T = 36	0,153563	,828

The overall view is that IPO firms do not underperform relative to firms in their industry. The conservative firms showed a surprising result namely that they do significantly underperform. Studies of Teoh et al. (1998), Roosenboom et al. (2003) and Pastor-Llorca and Poveda-Fuentes (2006) on the contrary found that aggressive firms underperform. It is expected that the discretionary accruals are not the main reason for this result. The conservative firms also did not show an indication of earnings management (see previous hypothesis) thus other factors are expected to have influence in this scenario.

6. Conclusion and Summary

This chapter will discuss the conclusion of the research and a summary of this thesis. Afterwards, the limitations of the research and recommendations for future research are discussed.

6.1 Conclusion and summary

This thesis focused on the reporting quality of IPO firms. Before discussing the conclusion of the research first a summary will be given of the first four chapters. The research questions as introduced in chapter one are:

- 1. Do IPO firms improve their quality of reporting before they go public?**
- 2. Do IPO firms opportunistically inflate earnings before the IPO?**
- 3. Do IPO firms underperform in the years after the IPO?**

In order to answer these questions four sub-questions were developed to provide sufficient knowledge of the topics of interest. These were discussed and answered in the first four chapters. They will be briefly discussed next.

The first sub-question was ‘*What is an IPO?*’. An IPO is the offering of stock to the capital market for the first time. Reasons for going public are the possibility to increase the capital of the firm. Firms that have the incentive to expand largely can use an IPO to finance this growth. Before a company is allowed to offer its stocks on the capital market a prospectus needs to be prepared and offered to the public. A prospectus provides the possible investor with the information he needs. The investor can decide to invest in the IPO firm based on the information in the prospectus. This prospectus has to give a fair view and is therefore audited by the institution appointed, in the Netherlands this is the Authority Financial Markets. Furthermore, the financial information included in the prospectus (annual statements of the three years before the IPO) are audited by a Certified Public Accountant. The second sub-question was: ‘*What is reporting quality?*’. Reporting quality was demarcated as conservatism and earnings management. There are two types of conservatism namely conditional (news dependent) and unconditional (news independent). More conservatism is seen as higher reporting quality. However there is a limit to this view. If a firm puts all its expenses in the current year and thereby shows large profits in the years following it is not conservatism but earnings management. The latter is an extreme example, this thesis therefore keeps to the view that more conservatism leads

to higher reporting quality. Ball and Shivakumar (2008) developed a model to measure conditional conservatism. The model is based on the Basu model (1997). The Basu model (1997) measured conservatism by the relation between earnings and stock returns. The model measures the timeliness of loss recognition and states that bad news is sooner incorporated in earnings than good news. Ball and Shivakumar (2008) adjusted the model and used the relation between accruals and cash flows to measure the timeliness of loss recognition. Furthermore the model also incorporated the Jones model (1991) which is a measure for earnings management. This same model was therefore also used to measure earnings management. Earnings management is the intentionally misleading of investors. IPO firms have an incentive to engage in earnings management to receive a higher price for their stock. If a firm shows increasing earnings for the years prior to the IPO investors are willing to pay a high price for the stock. Earnings management is then realized by inflating earnings. This can be achieved by accruals. Accruals are the difference between a firm's earnings and its cash flow. Some part of these accruals can be manipulated by the firm, that part is called the discretionary accruals. The model of Ball and Shivakumar (2008) mentioned earlier tries to measure these discretionary accruals. The third sub-question is: '*What is the long-run performance and how is it measured?*'. IPO firms have a reputation of showing disappointing results in the years after the IPO. It is attributed to the positive accruals in the years prior to the IPO. Accruals naturally reverse, so when a firm postponed expenses by accruals sooner or later these expenses have to be recognized. Several studies have proven that the long-run performance of IPO firms is bad. However, a recent study by Armstrong et al. (2009) claimed otherwise. The fourth sub-question pointed to previous studies on the topics. This is extensively described in chapter three. Where literature was discussed concerning earnings quality, earnings management and long-run performance of IPO firms. Two studies, Ball and Shivakumar (2008) and Armstrong et al. (2009) concluded that there is no indication that IPO firms engage in massive earnings inflation while several older studies such as, Teoh et al. (1998), Roosenboom (2004) and several others did. Furthermore, Armstrong et al. (2009) was the only study concluding that IPO firms do not underperform where several other studies found evidence that IPO firms do underperform.

To answer the three research questions the following hypotheses are developed:

1. *IPO firms report more conservatively than public firms.*

2. *IPO firms inflate their earnings in the years before the IPO.*

3. *IPO firms show a reversal in their performance in the three years after the IPO.*

The first hypothesis was tested by the model developed by Ball and Shivakumar (2008). The results for the United Kingdom were similar to those of Ball and Shivakumar (2008). However the results for Germany and Greece were not as clear cut as those of the United Kingdom. The hypothesis could not be accepted for all the years. For Greece event year $t = -2$ was insignificant and the same counts for event year $t = 0$ for Germany. Due to partial correlations in the sample, event year $t = 0$ could not be analyzed for the United Kingdom. Due to missing information the year of the IPO could not be analyzed for Greece either. Germany showed an abnormality in event year $t = -1$. Both the coefficient that measures conditional conservatism and the coefficient that captures all other accruals are significant and negative. The last indicates that IPO firms are more conditionally conservative while the latter indicates that IPO firms engage in earnings management. Overall the results show either that IPO firms report more conservatively or the results are insignificant. There is thus no indication that the reporting quality of IPO firms is lower. In this view the results are contradicting to literature prior to the study of Ball and Shivakumar (2008) and similar to the results of Ball and Shivakumar (2008). The answer to the first research question is not straight forward, the results do point in the direction that IPO firms report more conservatively than Public firms.

The second hypothesis was tested by the same model as hypothesis one developed by Ball and Shivakumar (2008). Germany and the United Kingdom showed no indication of earnings management. Again contradicting the older studies. Greece however showed an indication of earnings management, positive discretionary accruals, in event year $t = -3$, this was reversed in the year after by negative significant discretionary accruals. This is in line with the view that earnings management is more pervasive in insider economies with weak legal enforcement. The second research question can be answered as clear no for Germany and the United Kingdom. However Greece did show some indication of earnings management.

The long-run performance was tested by the Buy-Hold-Abnormal-Return. The existing literature prior to Ball and Shivakumar (2008) showed that IPO firms underperform relative to firms in the same industry and especially firms that make use of aggressive accounting (as measured by accruals) underperform. The results for this thesis show exactly the opposite for German IPOs, namely that conservative firms underperform relative to their industry while the neutral and

aggressive firms do not. An explanation for this result could be that IPO firms still after the IPO report overly conservative influencing the earnings and thereby the stock returns. The results for the United Kingdom did not show any underperformance for the IPO firms in either group. Resulting in the answer to the research question that IPO firms do not underperform. The results of the research in general are mostly contiguous to Ball and Shivakumar (2008). Some differences between the three clusters were shown which is in line with Leuz et al. (2003). Overall the results of the research performed in this thesis indicate that IPO firms do not have lower reporting quality, do not massively engage in earnings management and do not underperform relative to firms in their industry. The differences between the three clusters are indicated by the results however could be better evaluated when taking a closer look at other influences, as Burgstahler et al. (2006) did.

6.2 Limitations

This thesis, as like all other studies conducted, has its limitations. Limitations should be considered when interpreting the results.

1. Although models developed are innovated continuously one cannot determine from these models that earnings management is applied. The magnitude of the discretionary accruals indicate possible application of earnings management by the firm it however does not establish it.
2. The size of the sample in the research of this thesis is rather small. Especially the cluster of 'Insider economies with weak legal enforcement' has a particularly small sample. When comparing to studies conducted by Ball and Shivakumar (2008) and Teoh et al. (1998) the samples differ tremendously in size (Ball and Shivakumar 393 IPO firms and Teoh et al. 1682 IPO firms). The larger the sample the more accurate the results become. However, because data had to be hand collected a larger sample was not possible. But also concerning the control sample the differences in size between other studies was large. Furthermore, this thesis was aimed to research recent data. This put a limit on the number of IPOs available. For this reason the year of the IPO ($t=0$) could not be analyzed for the

cluster of 'Insider economies with weak legal enforcement' which is unfortunate when comparing the three clusters.

3. Concerning the approach for testing the third hypothesis some limitations must be addressed. The calculations for the long-run performance did not account for the date of the IPO. The performance was measured from the first of January of the next year. So when a firm had its IPO in May the performance was measured as from seven months later. Although it is not expected to have great influence for the returns do not fluctuate that much, accounting for this matter would make results more accurate. Another limitation of the same kind is that the test did not account for the ending of the fiscal year of the firms. To remove these limitations however would have increased the workload for the tests enormously and therefore it was decided to accept the limitations. The general view of the long-run performance of IPO firms is identified by the test.

6.3 Recommendations for future research

The first sample when developing the research design included the Netherlands. However, due to a limited number of IPOs in past years and a too small benchmark control group the country was excluded from the research and replaced by Germany. It however would be interesting to conduct a research in this small but not insignificant country. Furthermore the results of this thesis are contiguous to those of Ball and Shivakumar (2008) concerning the first two hypotheses, however the sample size put a limit on the value of the results. A research conducted in similar way with a larger sample and still recent data would therefore be interesting. This thesis focused on only a small part of earnings management and reporting quality. Many more factors are involved and can serve as explanatory variables. Past literature for instance linked accruals to firm size or the size of the auditor firm (Ball and Shivakumar 2005). Furthermore, the role of the underwriter could be of importance at IPO firms. An underwriter is a firm that guides the IPO firm during its offering. The underwriter and the IPO firm agree on a price for the stocks and the underwriter will try to find investors to sell the stocks to. When the underwriter fails to find willing investors he has to pay the agreed price to the IPO firm. The underwriter thus has an interest in selling the shares. The latter is enhanced when an IPO firm shows good past performance. Furthermore, the payment of the underwriter is dependent on the price he receives for the stocks. The difference

between the agreed price with the IPO firm and the price the investors pay is his fee. This shows an incentive to show an overly positive view of the IPO firm.

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Appendix

Figure 2. Distribution of discretionary accruals Germany containing outliers, year 2004

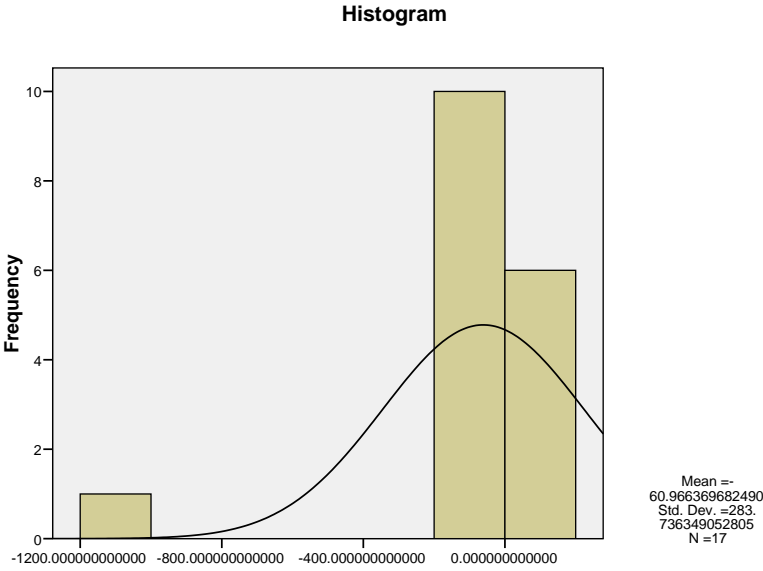


Figure 3. Distribution of discretionary accruals Germany containing outliers, year 2004

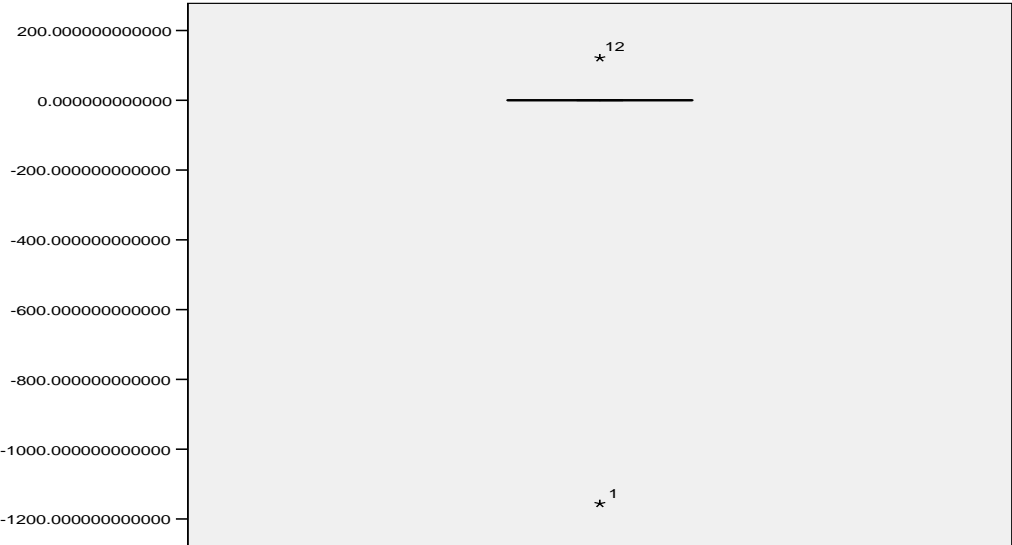


Figure 4. Distribution of discretionary accruals Germany without outliers, year 2004

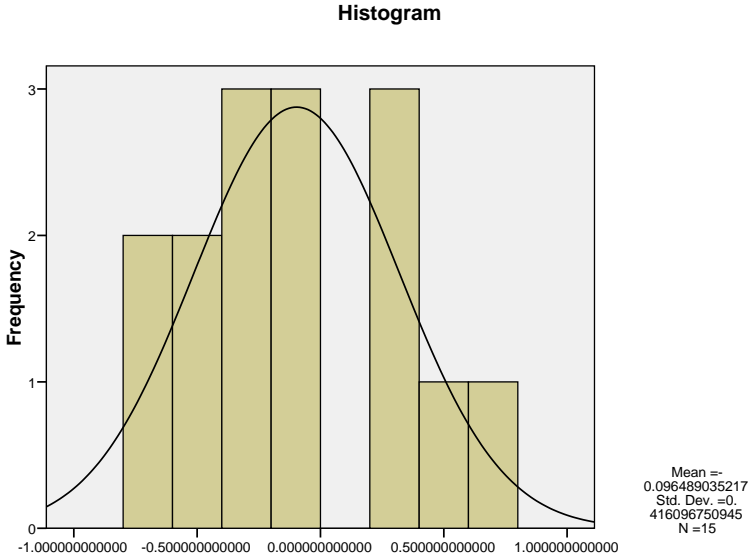


Figure 5. Distribution of discretionary accruals Germany without outliers, year 2004

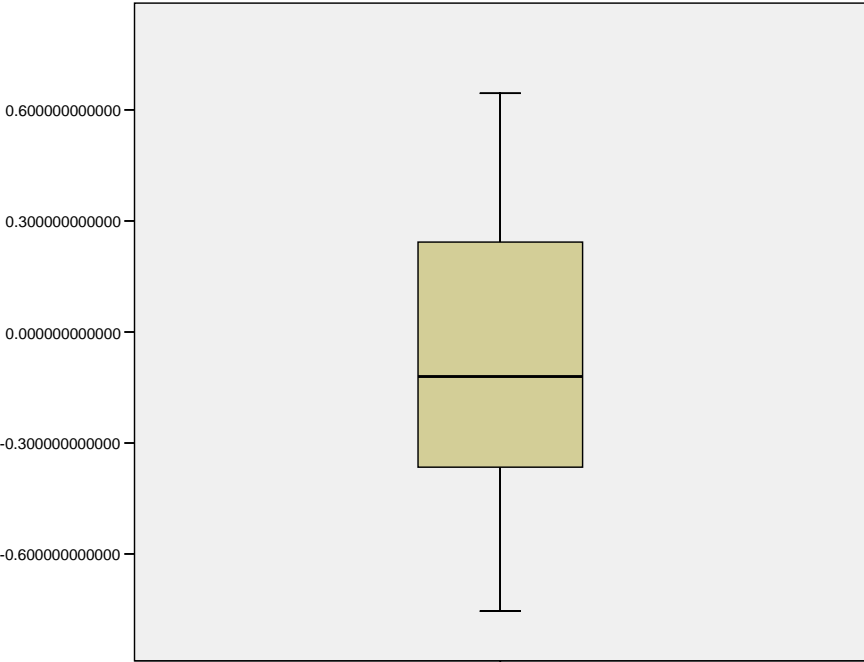


Figure 6. Distribution of discretionary accruals Germany containing outliers, year 2005

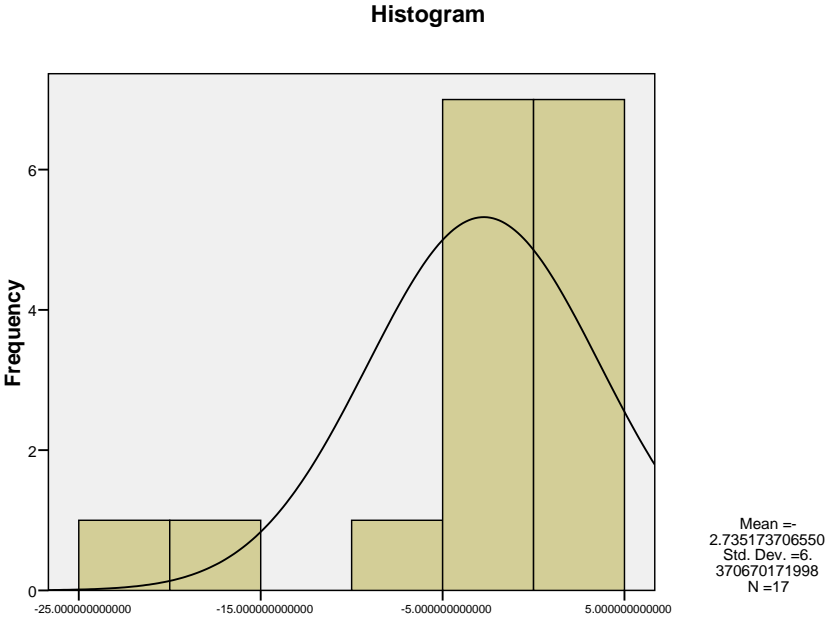


Figure 7. Distribution of discretionary accruals Germany with outliers, year 2005

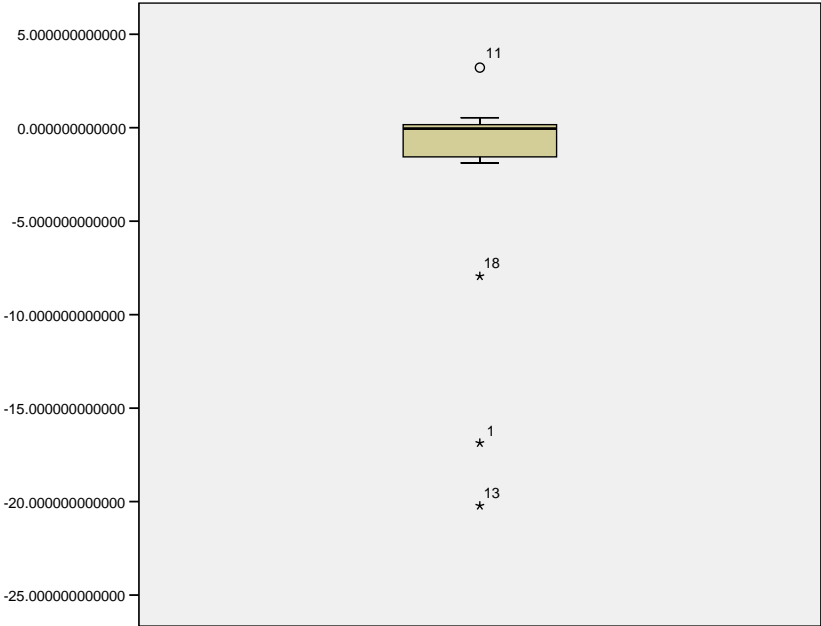


Figure 8. Distribution of discretionary accruals Germany without outliers, year 2005

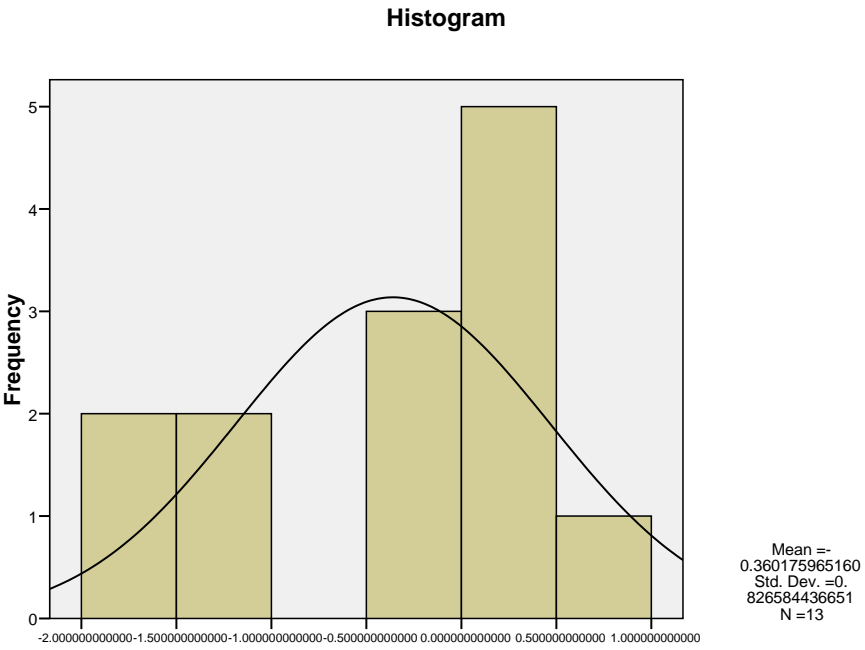


Figure 9. Distribution of discretionary accruals Germany without outliers, year 2005

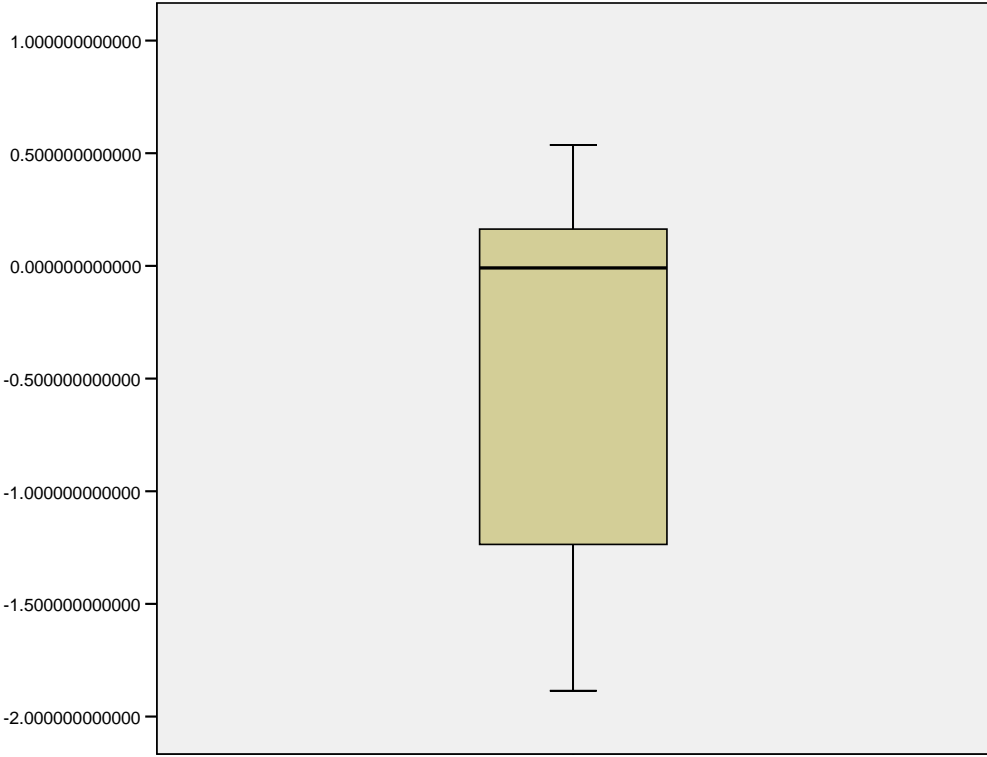


Figure 10. Distribution of discretionary accruals Germany with outliers, year 2006

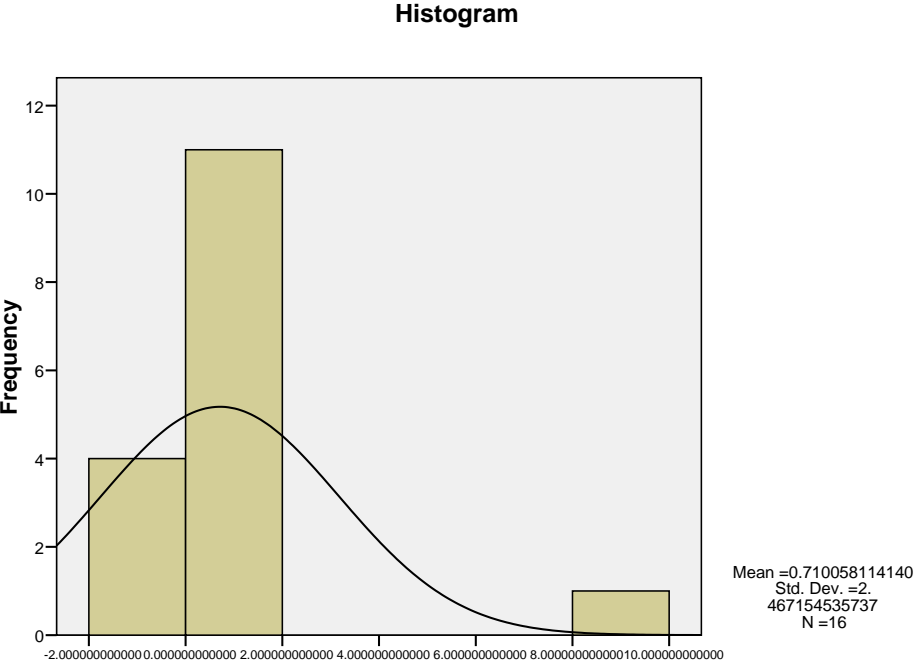


Figure 11. Distribution of discretionary accruals Germany with outliers, year 2006

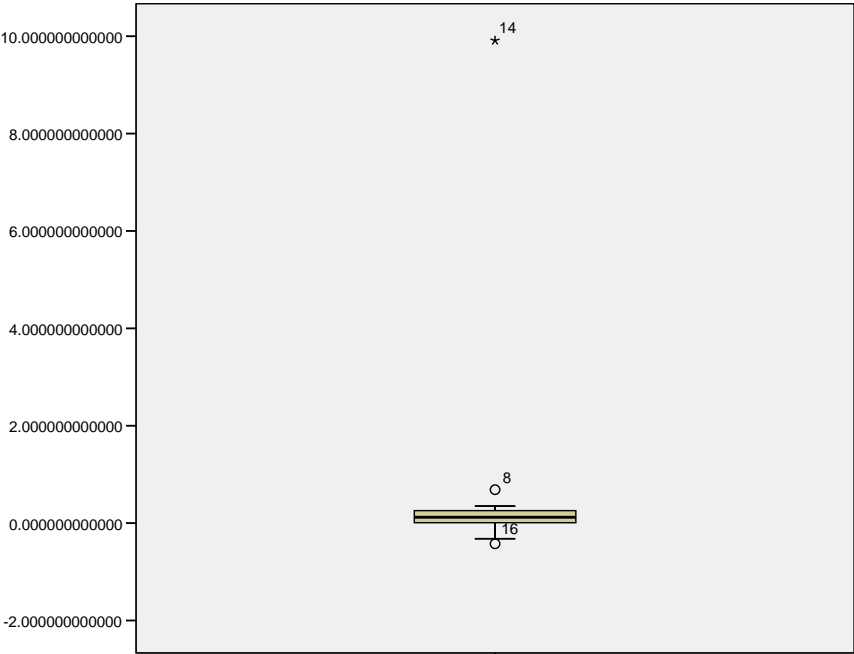


Figure 12. Distribution of discretionary accruals Germany without outliers, year 2006

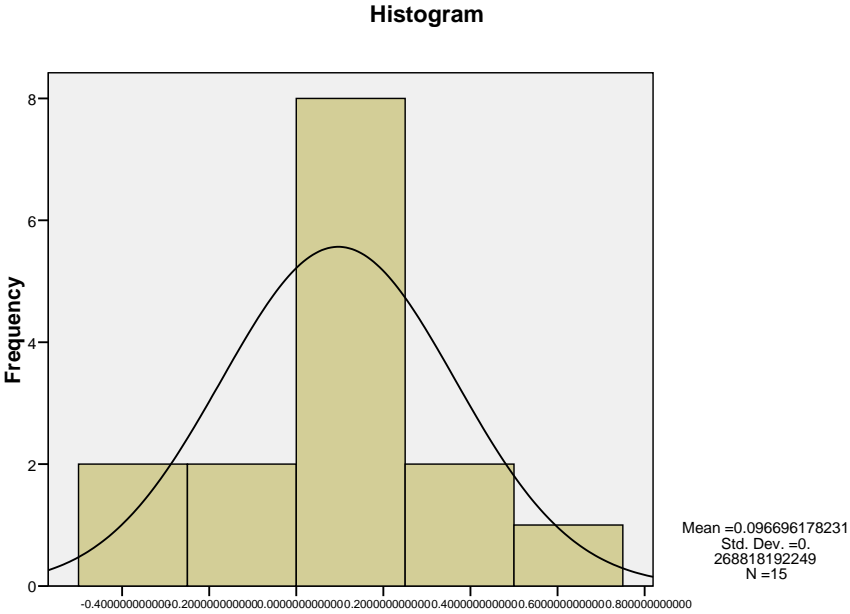


Figure 13. Distribution of discretionary accruals Germany without outliers, year 2006

