The disaggregation of financing and operational information in the financial statements

MSC Accounting, Auditing & Control

Student: Alexander Vermeeren

Studentennummer: 357912

Supervisor: Wal RA, drs. R. van der

Second-reader: Leung, dr. P.Y.E.

Abstract

The IASB and FASB are currently working on a joint project for a new proposal regarding the presentation of financial statements. To find out whether investors will value the proposed disaggregation between operational and financing information, it is examined whether the investors react differently to operational or financing information. Cumulative Abnormal Returns (CAR) is used to examine the investor's reaction. The advantage of using CAR is that it excludes market-wide effects. There is an insignificant relation between CAR and the earnings per share announcement. This is not in accordance with the previous literature. However, this thesis shows that there is a significant relation between CAR and operational information when excluding for market-wide effects. That is in accordance with the previous literature. Therefore the joint project of the FASB and IASB should disaggregate the financing and operational information. Even though not all of the Ordinary Least Squares assumptions apply, there are little consequences regarding the significance. Therefore the conclusion does not have to be altered.

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1 Introduction

1.1 Introduction

The purpose of this thesis is to test the value relevance of the disaggregation of the operational and financing information in the financial statements. The market response of the investors during the earnings announcement is examined to find out whether the investors value the disaggregation. This thesis will test the value relevance of the disaggregation of the operational and financing information for the investors. The research question is:

Is there a different reaction to the operational and financing information by investors, regarding the value relevance?

To answer the research question, the theoretical basis on which the research question is formed will be described. The key related literature shows the current state of research regarding this thesis. The theoretical basis and related literature are used to develop the hypotheses. The research design used to test the hypotheses is described. Following, the results of the statistical testing are used to answer the hypotheses.

1.2 Theory

This thesis is applicable to two theories, namely the agency theory and the Efficient Market Hypothesis. First, the agency theory is described and secondly the Efficient Market Hypothesis.

Information asymmetry exists when some people are not perfectly informed before they make a decision and therefore they have less information than others. Information asymmetry leads to two problems, adverse selection and moral hazard. The agency theory is a special case of information asymmetry. An agency relation arises when there is a contractual arrangement, where an agent acts for, or on behalf of a principal in a certain decision domain (Ross, 1973). To make sure that the manager's behaviour is fully on behalf of the investor, the investors incur monitoring and bonding costs. However the monitoring and bonding costs will not ensure that the agent's decisions are optimal for the investor. The difference between the optimal behaviour of an agent and the real behaviour is known as the residual loss. In the

capital market there is a separation of ownership of a firm and control of a firm. The shareholders are the owners of a firm but the managers have control (Fama, 1980). Financial statement analysis can be useful to diminish the residual loss, when it is unlikely that managers will fully disclose all information. Investors try to gain insider information by analysing the financial statements (Healy, Peek, & Palepu, 2013). In this thesis abnormal stock returns will be examined in order to investigate the disaggregation between operational and financing information, proposed by the joint project of the FASB and IASB. The basis for the abnormal stock returns lies in the Efficient Market Hypothesis.

An important goal of any economy is the allocation of savings to investments. A market where the investors are fully informed about a firm is an ideal market. In this fully efficient market the security price "fully reflects" all available information on a firm (Fama, 1970). There are three forms of the Efficient Market Hypothesis. First, there is the weak form of efficiency, where the security price only reflects all historical information. The second is the semi-strong form of efficiency where the security price reflects all publicly available information. The third is the strong form of efficiency where all the information is reflected in the stock prices. There is no monopoly power to some information (Fama, 1970). However, the Efficient Market Hypothesis is susceptible to numerous limitations. On top of that, the real world will always be different from a theoretical model (Ball, 2009). The semi-strong form of the EMH will be applied because it is unlikely that all information is reflected in the security price in a timely manner. Even though the many limitations, it is still theoretically applicable.

1.3 Key related literature

Ball & Brown (1968) showed that financial information is not meaningless because the security market reacts to the earnings announcement. According to Beaver (1998), the relation between stock return and the earnings number of a firm consists of three links: current period earnings predict future period's earnings, future period's earnings provide information to develop expectations about dividends in future periods and dividends in future periods are used to determine share value. Higher information content leads to higher value relevance of the financial statements. Therefore higher information content will increase the explanatory power of the financial statements to measure market value (Francis & Schipper, 1999). The total stock return is the return of firm-specific factors

plus the return of market-wide factors. The difference between the expected total stock return and the actual total stock return is the abnormal stock return. Expected earnings will partly be reflected in the stock price prior to the release of the earnings numbers so investors will only react to unexpected earnings numbers (Ball & Brown, 1968). To exclude the market-wide factors the abnormal stock return will be used and not the normal return. The abnormal stock return is the difference between the expected stock price adjusted for the market index. Traditionally Return On Equity (ROE) is decomposed as follows: $ROE = ROA * Equity\ Multiplier$. There ROA is the Return on Operating Assets and the equity multiplier is a ratio of the financial leverage of the firm. Nissim & Penman (2001) decompose ROE the untraditional way.

$$ROE = RNOA + spread * financial\ leverage$$

The Return on Net Operating Assets (RNOA) is a ratio of the efficiency of the application of the operating assets and liabilities. The spread and financial leverage or taken together Return On Financial Leverage (RFLEV) is the ratio of efficiency for the financing information. RNOA can be decomposed to operating return on sales (OROS) and operating asset turnover (OATO), which is the net operating income divided by sales and sales divided by Net Operating Assets (NOA) respectively. Lim (2014) found that the profitability regarding the operational activities has a higher association with stock return than the shareholder profitability regarding the financing activities (Lim, 2014). However, Lim (2014) only used total stock return as a dependent variable, which is influenced by the market-wide factors. The abnormal stock return is used to evaluate if the investors react to the earnings announcement. Using the abnormal stock return will exclude the influence of market-wide factors. To exclude other factors influencing the stock price the event window in which the abnormal returns are calculated is five days. To find out whether the investors react to the earnings announcement within five days the hypothesis is:

$$H1: Investors\ react\ to\ the\ earnings\ announcement$$

The difference in persistence in operational and financing information makes separating financing and operational information useful to forecasts future economic profitability. (Nissim & Penman 2001; Nissim & Penman 2003; Esplin, Hewitt, Plumlee & Yohn, 2014). The difference in persistence exists because financing information contains no net present

value (Modigliani & Miller, 1958). Therefore the FASB and IASB are jointly working on a new proposal for the presentation of the financial statements (FASB, 2010). In the joint proposal, it is proposed to divide the financial statements into five sections: business, financing, income tax, discontinued operating and multi-category transaction. If the usefulness of financial statements is increased, investors should appreciate this. Therefore the hypothesis is formed as:

$$H2: Investors\ value\ the\ disaggregation\ of\ financing\ and\ operational\ information$$

If the hypothesis is confirmed then the investor's value the disaggregation of financing and operational information and the FASB and IASB should continue their joint proposal for a new financial statement presentation.

1.4 Relevance

It is important to answer the research question because of the current joint discussion of the IASB and the FASB to propose a new presentation model for the financial statements. The new presentation model requires companies to disaggregate their financing and operational information (FASB, 2010). The goal of the joint discussion is to improve the disclosure legislation for financial statements such that the financial statements will be more useful for the users of the financial statements (FASB, 2010). Currently, companies only disaggregate the operational from financing information in the cash flow statement. The joint discussion proposes that the balance sheet will be divided into operational, investing and financing information, with the long-term or short-term as subsections of the operational, investing and financing sections. The expectation is that investors will react differently to operational than to financing information. The results will provide insight for the joint discussion of the IASB and FASB whether disaggregating information improves the usability of the financial statements.

Current period earnings predict future period earnings, which develop expectations about future period dividends. Expected future period dividends provide information to determine the share value (Beaver, 1998). Due to the difference in persistence between operational and financing information, it is useful for investors to separately value the information. The previous literature found that the disaggregation of operational and financing information

improved forecasting future earnings numbers and lead to better valuation models. Profitability regarding the operational information has a higher association with stock return than the shareholder profitability regarding the financing information (Lim, 2014). However, the market-wide factors are still included and Lim (2014) used a full year as event period. Therefore other factors might influence the reaction of the stock market. Therefore a five-day window is used in this thesis to exclude those factors and CAR will be the dependent variable. This excludes the market-wide factors. This thesis will test whether the results by Lim (2014) will differ if the market-wide factors are excluded.

1.5 Research design

To test both hypotheses, an event study will be performed with the earnings announcement as the event. The event window will be a five-day window [-2; +2]. The sampling period will be from 1 January 1995 until 31 December 2014. Financial firms are excluded, all firms have an average total value of equity of at least $10 million and the average operating assets, average net operating assets and average common equity are positive. This led to a total sample of 1857 unique firms. The cumulative abnormal returns are calculated to show the total market reaction for the event window. The abnormal returns are calculated by subtracting the expected returns for firm i from the actual return of firm i for earnings announcement *t*, during the 5 days of the event window.

$$CAR = \sum_{t=0}^{T=5} AR_{i,t}$$

There are multiple factors that could influence the Cumulative Abnormal Return (CAR). Therefore, a logarithm of total assets (LogAssets) will be used to control for firm size. To control for firm growth, the change in book value (changeBVP) is added in the regression. Investors are loss averse so a dummy variable for Loss is added. To control for institutional ownership, the percentage of shares, which is held by institutional investors per firm for each firm year (percTS) is added. The following OLS regression is used for the first hypothesis:

$$CAR_{i,t} = EPS_{i,t} + LogAssets_{i,t} + changeBVP_{i,t} + percTS_{i,t} + Loss_{i,t} + \varepsilon$$

To test the second hypothesis RNOA and RFLEV replace EPS (Earnings per Share) in the regression. RNOA is calculated by dividing the operating income by the net operating assets and the return on financial leverage is the net borrowing costs subtracted from the RNOA

times the financial leverage. The following OLS regression is used to accept or reject the second hypothesis:

$$CAR_{i,t} = RNOA_{i,t} + RFLEV_{i,t} + LogAssets_{i,t} + changeBVP_{i,t} + percTS_{i,t} + Loss_{i,t} + \varepsilon$$

1.6 Empirical results and analysis

The sample is winsorized at the bottom and upper 1 per cent to exclude the extreme variables. Due to many extreme variables, RNOA is winsorized at a 5 per cent level. Further, there are no surprises for the observations that are used in the OLS regressions. The first hypothesis is rejected, so apparently a five-day window is too short to find a significant relation between EPS and CAR for this sample. Although the EMH states that all historical information should be reflected in the stock prices this result does not imply that the EMH should be rejected. It is possible that the information content of EPS is too low to provoke a significant reaction in the stock market. Another possible explanation is that the EPS could be clouded with financing information. Therefore the second hypothesis is tested. The second hypothesis is accepted because the relation between RNOA and CAR is significant. Sensitivity analyses were performed to check the comparability with the rest of the Compustat database, the RNOA is comparable, however, other variables differ quite a bit. Some of the assumptions of Ordinary Least Squares (OLS) do not hold up, for example, there is heteroskedasticity, therefore the coefficients of the regression might be biased. Fortunately, there is little influence on the significance so the conclusion does not have to be changed.

1.7 Conclusion

Investors value the OpFin Disaggregation, therefore the FASB and IASB should continue their joint project and introduce the new standards. This will increase the information content and therefore the value relevance of the financial statements. However, there are some limitations in this thesis. Following EMH, there are no transaction costs, however, in the real world firms hold cash because the accumulation of cash incurs costs. Cash cannot be separated into operational or financing information because it is unclear for what purpose the firms holds cash. There is heteroskedasticity in the error term, therefore the standard errors are biased and the coefficients might be biased.

2 Theory & Literature Review

2.1 Introduction.

This thesis applies to two theories, namely the Efficient Market Hypothesis and the agency theory. It also extends the literature regarding the disaggregation of financing and operational information. This chapter is structured as follows, first, the information asymmetry and the subsequent agency theory are described, where the information asymmetry between investors and managers is the underlying problem regarding this thesis. Then the Efficient Market Hypothesis is explained and it is explained why the semi-strong form of the Efficient Market Hypothesis (EMH) will be used. In addition to the EMH, the relation between a firm's stock price, its earnings, the value relevance of those earnings and how to test for the value relevance of accounting information will be explained. The last section describes the disaggregation of financing and operational information and its implications for financial ratio analysis.

2.2 Information asymmetry

In this section, it is described what information asymmetry is and which problems occur because of information asymmetry. When some people are not perfectly informed before they make a decision and therefore they have less information than others, this is called information asymmetry. Information asymmetry can lead to two problems: First, in his seminal paper "The market for lemons" Akerlof explained information asymmetry using an example from the automotive industry. The lemons are slang for bad cars in the market. There are four sorts of cars, there are new and used cars and the new cars can be good or bad, the same goes for the used cars. The customers do not know when they buy a car if it is a good car or a lemon, but they do know what the probability is that they buy a good car. This is the reason that the market price of a car is a weighted average of the good and bad cars in the market. Therefore the lemons are overpriced and the good cars are under-priced. Because the selling price of a good car and a lemon are the same, the lemons will drive out all the good cars because the expected selling price is lower than the real value of a good car (Akerlof, 1970). This is the first problem, which is called adverse selection, also known as the lemons problem. The problem with adverse selection is that the agent has private knowledge and therefore can take advantage of the principal. The second problem is moral hazard, which relates to the behaviour of people that are not directly responsible or affected by their actions. This can be explained by an example from the insurance market. If a person has a medical

insurance, he is more likely to go to a general practitioner than an uninsured person because he does not have to pay for it. Moral hazard can be explained more easily in a principal-agent situation, which is known as the agency theory (Akerlof, 1970).

2.3 Agency theory

In this section, the agency theory will be defined and which assumptions are applied will be outlined. The agency costs and the different streams of literature will be explained. Concluding, the link between the agency theory and the capital market will be provided.

A special case of information asymmetry is the agency theory. An agency relation arises when there is a contractual arrangement, where an agent acts for, or on behalf of a principal in a certain decision domain (Ross, 1973). The principal assigns decision authority to the agent. If both the agent and the principal are utility maximizers there is a high probability that the agent will not always act in favour of the principal. The agent might act on his own behalf if that leads to higher benefits (Jensen & Meckling, 1976).

There are three of assumptions regarding the agency theory. First, people are behaving in their self-interest, they are risk averse and they have bounded rationality. Second, within an organisation there are goal conflicts between members of the organisation and obviously, there is information asymmetry. Third, information is a purchasable commodity (Eisenhardt, 1989).

In the theory of the firm Jensen & Meckling (1976) two sorts of firms are compared. One in which the manager owns 100% of the equity and the other where the manager sells a part of the equity. In the former, the manager will act on behalf of the firm because all the benefits will accrue to him. If the manager sells part of his equity, (e.g.) 50%, then only 50% of the benefits from the firm will accrue to him. The investors want the manager to fully act on behalf of the firm but because the manager will not receive the full benefits, he will act differently. In this case, the manager is the agent and the investor is the principal. This relates to moral hazard, where the agent can take actions, which are often unobservable by the principal. Therefore the agent might choose to perform actions, which will favour himself and not the firm, and therefore those actions will not favour the principal (Laffont & Martimort, 2001).

To assure that the agent acts in the principals' favour, the principal can establish incentives for the agent and incur monitoring costs to limit unfavourable actions by the agent. Agents might engage in contractual obligations that would limit the agent, this is what is called bonding costs (Jensen & Meckling, 1976). In an agency relationship, the monitoring and bonding costs will not ensure that the agent's decisions are optimal for the investor. That difference is what is known as the residual loss. Therefore, the agency costs are the sum of monitoring costs of the principal, bonding costs of the agent and the residual loss (Jensen & Meckling, 1976). The theory of the firm assumes that agents will always act in self-interest and will not perform any actions that are selfless. But it is not the fact that the principal and agent have egoistic preferences, they have different preferences. Therefore the agent and the principal will pursue their own goals and it does not matter if those goals are selfish or not (Heath, 2013). Conflicts of interest between principals and agents arise for multiple reasons. The most common reasons are "effort aversion by the agent, the agent can divert resources for his private consumption or use, differential time horizons and differential risk aversion." (Lambert, 2001).

The main goal of the agency theory is to explain how the agent and principal design contracts to minimise the agency costs by aligning the incentives between the agent and principal. According to Eisenhardt (1989), there are two main streams of literature regarding the agency theory. The first stream of literature is the positivist. The positivist's main focus is to identify situations where the principal and agent might have conflicting goals and then describe possible monitoring and bonding mechanisms. The aforementioned theory of the firm is an example of a positivist theory. The positivists propose a bonding mechanism which is, if the contract between an agent and principal is outcome based the agent is more likely to behave the way the principal wants him to behave. A monitoring mechanism that is proposed is that the agent is more likely to behave in the principal's favour if the principal has information to verify the agents' behaviour (Eisenhardt, 1989). The second stream of literature is the principal-agent theorist, who focuses on determining the optimal contract between a principal and an agent. If the principal is not able to observe the behaviour of the agent he has two options. The two options are the same as for positivists, namely monitoring and bonding but they have different dependent variables and the mathematical thoroughness (Eisenhardt, 1989).

In the capital market, there is a separation of ownership of a firm and control of a firm. The shareholders are the owners of a firm but the managers are in control (Fama, 1980). Here the agency theory can be applied, the managers are the agents and the shareholders are the principals. The shareholders want the managers to fully act on behalf of the firm and therefore they have to incur monitoring costs. When it is unlikely that the managers will fully disclose all information, financial statement analysis is useful. Financial statement analysis is one of the monitoring mechanisms that an investor can use. Investors try to gain insider information by analysing the financial statements (Healy, Peek, & Palepu, 2013). To help the investors analyse the financial statements, the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) have started a joint project to alter the financial statement presentation. To examine whether the investors appreciate the disaggregation, which will be proposed by the project, the abnormal stock return will be examined. The basis for the abnormal stock return lies in the Efficient Market Hypothesis.

2.4 Efficient Market Hypothesis

In this section, the Efficient Market Hypothesis and the three forms of market efficiency are described. Followed by the criticism on the Efficient Market Hypothesis and this section is concluded with which form of the Efficient Market Hypothesis will be applied.

An important goal of any economy is the allocation of savings to investments. An ideal market is a market where the investors are fully informed about a firm. The security price "fully reflects" all available information on a firm, is what is called a fully efficient market (Fama, 1970). It is impossible to make consistent economic profits if the market is fully efficient (Jensen, 1978). There are three conditions for the Efficient Market Hypothesis. First, trading securities incurs no transaction costs, so once information is available, investors react quickly and unbiased so that the security prices reflect the new information in a timely manner. Second, all market participants have costless availability to all information, which means that the timing of one information announcement is independent of the others and the new information comes randomly to the market. Third, all market participants accept the implications of given information, implying that profit-maximizing participants analyse and value market securities independent from each other and that these markets are costless to operate (Fama, 1970).

The Efficient Market Hypothesis originates from the random walk model. In 1900 Bachelier tested the stock prices and found that they followed a random walk model. Following Bachelier, there were many researchers that investigated the Efficient Market Hypothesis. Fama (1970) was the first to combine all the extant literature. The research regarding the Efficient Market Hypothesis can be divided into three forms. First, there is the weak form of efficiency, where the security price only reflects all historical information. The current security price is equal to the expected returns discounted by the one-period percentage return. The information is used as a basis for the difference between the expected value and the current security price. The Efficient Market Hypothesis implies that successive price changes are a random walk. That means that the price changes are independent of each other and that the successive changes are identically distributed. Therefore it is impossible to use current security prices to predict future security prices. Of course, this does not completely reflect the markets in practice. For example, if some investors disagree about the implications of certain information. It does not imply market inefficiency unless one investor is constantly able to evaluate the available information better (Fama, 1970). The second is the semi-strong form of efficiency where the security price reflects all publicly available information. The third is the strong form of efficiency where all information is reflected in the stock prices. There is no monopoly power to some information (Fama, 1970).

There is an on-going debate regarding the Efficient Market Hypothesis. Basu (1977) showed that low price to earnings ratio portfolio's earned higher rates of return than high price to earnings ratio portfolio's. These results are inconsistent with the semi-strong form of the Efficient Market Hypothesis (Basu, 1977). De Bondt and Thaler (1984) also test for the overreaction of stock regarding unexpected news events. De Bondt and Thaler used the stock return to separate the highest 35 and the lowest 35 firms and put them in a "winner" and "loser" portfolio. Thirty-six months after the formation of the loser portfolio they outperformed the market by 19.6%, while the winner portfolio underperformed the market by 5% (De Bondt & Thaler, 1984). There seems to be an overreaction for the "loser" portfolio, which is higher than the overreaction for the "winner" portfolio. This is not consistent with the Efficient Market Hypothesis because that implies that investors react quickly and unbiased to new information. According to Malkiel (2003), these results do not necessarily suggest market inefficiency but they may simply indicate that there are

some dimensions of risks that are not captured by CAPM (Malkiel, 2003). There are too many successive moves in the same direction. Investors are susceptible to irrational excitement and investors also tend to underreact to new information. Both ways of behaving seem to imply irrationality by investors (Shiller, 2000). Therefore the hypothesis that stock prices behave according to the random walk model should be rejected (Malkiel, 2003). The irrational excitement of investors is also shown by Odean (1999). He shows that momentum traders buy a "winner" security, while the underlying value is lower. After the last momentum trader bought the security, the security price starts to underperform the market. When new information becomes available the security price will drop (Odean, 1999). If the overreaction is tested in a long time window, the overreaction of the market is as common as under reaction of the market. Long-term anomalies are susceptible to methodology when different models are used they seem to disappear or become marginal (Fama, 1970). The alternatives for the Efficient Market Hypothesis that show under reaction or overreaction in the securities market seems to disappear after that it's published in the academic literature. The small-firm anomaly, turn-of-the year effect, the weekend effect and the value effect seem to disappear the moment they were published in the academic literature (Schwert, 2003). Another problem with the turn-of-the year effect is that the transaction costs to exploit the advantage are relatively large (Malkiel, 2003). In the long run holding period returns are negatively correlated with past returns (Fama, 1998). This proves that security prices are predictable, even though it is only for a small portion. However, the most significant results come from a sample period, which also includes the Great Depression, which might influence the generalizability. A problem with the predictability of securities is that the results are not robust. Another problem is that the patterns are self-destructive. Once a certain effect is published investors will try to exploit the effect, which makes the effect disappear. Another market inefficiency is the monopoly power by the specialist investors. The specialists have more knowledge than non-specialists, which they can turn into profit (Fama, 1970).

The great depression is not the only depression that occurred. More recent was the global financial crisis. The global financial crisis has also led to critique on the Efficient Market Hypothesis. Most of the critics come down to the point that the global financial crisis happened because the investors thought that the current asset prices were reflecting all available information. Therefore the investors felt little need to look into the true asset value. Opponents of the EMH claim that if the current prices were reflecting all available

information why did investors have the need to drive these prices up? The EMH implies that the future security prices are unpredictable because they follow a random walk. If investors could predict a financial crisis than the EMH does not hold up because the current price should embody the future financial crisis. Because of competition, there is a close correspondence between revenues and costs. If there are excessive profits in a market, another firm will entry the market to reduce or eliminate the excessive profits. This explains that firms that take excessive risks are destined to loose someday (Ball, 2009).

There are numerous limitations in testing the EMH, for example, risk is not a constant variable. On top of that, the real world will always be different from a theoretical model (Ball, 2009). The weak form of the EMH will be applied because it is unlikely that all information is reflected in the security price in a timely manner. Managers are not always fully disclosing everything, namely their interests differ from the interest of the investors. Due to the accounting standards, managers are obliged to disclose certain information if the information is not favourable to their own interest they try to hide it in the footnotes of the financial statements (Ball & Brown, 1968; Bloomfield, 2002) Therefore, it is also improbable that the security price will reflect all available information in a timely manner. Even though there are many limitations to the weak form of testing, regarding this thesis, it is theoretically applicable.

2.5 The relation between stock return and earnings

In this section, the three links within the relation between stock return and earnings are described. After that, the information content of financial statements is discussed. The information content is influenced by the earnings quality and one of the important factors of earnings quality is accruals.

Before 1968 financial information was claimed to be meaningless, Ball & Brown's seminal paper in 1968 changed that view. Earnings per share are variable and market-wide effects explain half of the change in earnings per share, so the earnings of the firms tend to move together. Therefore, the change in earnings can be partly predicted. To differentiate the market-wide effects on income and the firm-specific income, they use the unexpected earnings, which are actual earnings minus predicted earnings. The same goes for stock

returns. They also tend to move together because of the market-wide information, which pertains to all the firms (Ball & Brown, 1968). According to the Efficient Market Hypothesis, security prices adapt rapidly to new information, which means that security prices reflect the information flow to the securities market. Immediately after the announcement date, the market judgment is reflected in the stock price (Fama, Fisher, Jensen, & Roll, 1969). A firm's earnings are the profit or loss resulting from its business activities and events during the year. The stock return of a firm, which is the dividends paid plus any change in the security price, is how the market judges the firm's earnings. According to Beaver (1998) the relation between stocks return and the earnings number of a firm consists of three links:

- Current period earnings predict future period's earnings, the first link consists of two important elements to measure the expected dividends, namely the information on the current dividends and information on the future earnings. Normally, the operating earnings are also given which are likely to re-occur in the future.
- Future period's earnings provide information to develop expectations about dividends in future periods,
- Dividends in future periods provide information to determine share value. This is the classical view on stock price, namely that stock prices represent all the capitalized expected future dividends plus the change in earnings.

A firm's financial statement contains information for investors if the issuing of the financial statement will lead to a change in the expectations of investors on their future returns (Beaver, 1998). Investors have limited attention and limited processing power to process all the available information. Managers can abuse this by disclosing information in places where it is less likely that the investor will look (Hirshleifer & Teoh, 2003). Higher information content leads to a higher value relevance of the financial statements. This will increase the explanatory power of the financial statements to measure the market value (Francis & Schipper, 1999). High earnings quality will give more explanatory power to the financial statements.

According to the FASB conceptual framework, qualitative constructs of earnings quality are relevance and reliability. That means that the information in the financial statement must be decision-useful and accurate, true and fair. Another property of earnings quality is persistence. Persistence is the part of earnings that re-occurs in future years. The earnings of a firm consist of different components and each component has different levels of persistence. Equity

investors should value these components differently (Amir, Kama, & Livnat, 2011). Earnings with a high persistence are assumed to better indicate future cash flows; this will be more useful for valuation (Dechow, Ge, & Schrand, 2010)

Accrual accounting is the accounting method which aims to record the economic consequences of transactions and events which occur in a different period than to which they pertain, rather than to record the economic consequences in the period in which the cash is received or paid (FASB, 1985). For example, cost of goods sold are recognised at the moment that the goods are delivered to the client and not at the moment that the invoice of the supplier is paid (Ingram & Lee, 1997). Timing and matching problems with cash flows are solved by accruals. These timing and matching problems arise because there is a need for financial reports over finite intervals. Accrual accounting introduces a new problem, management has discretionary decision power of the recognition of accruals (Dechow, 1994). Dechow shows that the quarterly earnings number has a higher association with stock prices than the quarterly cash flows. The four-year earnings number has a proportionally lower association with stock prices that the quarterly earnings number compared to the cash flows. If the time period is infinite cash flows and accruals will be equal and the timing and matching problems of accruals would disappear (Dechow, 1994).

To investigate whether investors value the disaggregation of financing and operational information the reaction in the stock market will be investigated. The total stock return is the return of firm-specific factors plus return of market-wide factors. The difference between the expected total stock return and the actual total stock return is the abnormal stock return. Expected earnings will partly be reflected in the stock price prior to the release of the earnings numbers so investors will only react to unexpected earnings numbers (Ball & Brown, 1968). To exclude the market-wide factors the abnormal stock return will be used and not the normal return. The abnormal stock return is the difference between the expected stock price adjusted for the market index. Another possibility to investigate the value relevance of accounting information is an association study. Association studies test for correlation between accounting variables and stock return, where they use a linear formula to determine the abnormal return, stock return or stock price. One could also apply the OpFin Disaggregation in valuation models to examine if the disaggregation leads to a better valuation of for example book value of equity (Klimczak, 2009).

2.6 Disaggregation of operational and financing information

First, the disaggregation of operational and financing information (OpFin Disaggregation) is explained. Then Net Operating Assets is described followed by the investment section and the financing section. Then the implications regarding the recognition of the operational and financing activities are discussed. This is followed by the explanation why the financing section contains no net present value. Concluding, it is explained how disaggregation is applied in the valuation of the firm.

The balance sheet consists of operational assets, operational liabilities, financing assets, financing liabilities and shareholders' equity. Operational information is all the information related to the production of goods and services for the customer. The financing assets and liabilities are used to acquire the assets for operational purposes and to distribute the excess funds to stakeholders (Lim, 2014). Originally, the financial statements are divided into assets, liabilities and equity, where the assets and liabilities can be divided into long-term and short-term. In the joint project of the IASB and FASB of the new presentation model they propose that the entity will include the following subsections:

- A business section containing an operating category and an investing category.
- A financing section containing a debt category and equity category.
- An income tax section
- A discontinued operation section
- A multi-category transaction section

The financial statements will be divided into assets, liabilities and equity but now instead of dividing assets and liabilities into long-term and short-term items, the financial statements have to be divided into the subsection, the subsections should be divided into short-term and long-term items. The operating category includes all assets and liabilities that are used or arose in the process of providing goods and services to clients. The investing section consists of the assets that are used by the entity to generate a gain or return on excess cash, examples are dividends and interest. The financing section contains all the items that are used to obtain or repay capital. Due to the cohesiveness principle, the gains and losses regarding these assets and liabilities are classified in the same category as the asset they arose from or result in (FASB, 2010).

An asset is a balance sheet item that resulted from past business transactions and is likely to generate a future gain and can be measured with a reasonable amount of certainty. When an asset is used in day-to-day operations it can be seen as an operating asset. Liabilities are present obligations of the firm that resulted from past transactions and will result in future losses for a firm and can be measured with a reasonable amount of certainty. If the liability originated from day-to-day operations it is seen as an operating liability. The net operating assets (NOA) are the operating assets minus the operating liabilities (FASB, 2010; Lim, 2014; Esplin, Hewitt, Plumlee & Yohn, 2014). Net operating assets can also be calculated by subtracting the free cash flow from the operating income. Free cash flow is the operating cash flow minus the investing cash flow. A high NOA is a negative predictor of future stock returns. It is unlikely that the good accounting performance is sustainable. Investors with limited attention and limited computing power will overestimate this sustainability (Hirschleifer, Hou, Teoh, & Zhang, 2004).

The investing section of the business category contains assets that yield a return and is not involved in any of the primary operational activities. Here one can think of short-term investments, investment in securities or cash received from investing activities (FASB, 2010). All firms hold cash for several reasons. Cash and cash equivalents, which are assets that can be converted into cash in short notice, are held for operations, precautionary motives or future capital investments. That a firm needs cash for its operations does not need an explanation. Precautionary motives are intended to cover unexpected expenses, which can result from a volatile economic environment. According to the EMH, there are no transaction costs for raising capital. However, in the real world firms need cash to cover the expenses for future investments (Opler, Pinkowitz, Stulz, & Williamson, 1999). The disadvantage of holding cash is a lower rate of return. Cash for operations should be classified in the operating section of the business category. The excess cash should be reported in the investing category. This will be helpful for the investors because assessing which part of cash is operational and which part is cash for investing is hard or even impossible. For example, if a firm is saving cash to make strategic investments, it will be hard to determine for investors (Damodaran, 2005). This is the reason why in this thesis the investing section will be included in the financing section.

The risk for cash and cash equivalents is quite low and therefore the return is lower than the return on short-term investments. Investing a substantial amount in marketable

securities will generate a higher return by investing in riskier securities. Investing in corporate bonds will generate a higher return than investing in government bonds. Investing in stocks will have a higher risk but will guarantee that the firm will receive a higher return. Securities that are undervalued will generate a higher return, however, those are hard to recognise (Damodaran, 2005). Long-term investments in other firms are considered investment activities unless there is control (Damodaran, 2005; FASB, 2010).

The financing section contains a debt section and an equity section. There are two kinds of debt. The first one is operating debt, which should be recognised in the operating section. The second one is the liabilities due to financing. The financing liabilities are traded in perfect markets (Nissim & Penman, 2003). The net financing debt is the financing liabilities minus the investment assets. Combining the net financing debt with the net operating assets one can calculate equity.

$$Equity = (operating\ assets - operating\ liabilities) - (financial\ liabilities - financial\ assets)$$

The equation divides the balance sheet into operational and financing activities (Nissim & Penman, 2003).

There are different issues regarding the recognition of operational and financing activities. Operational activities are accounted for in the operating assets. The operating assets are usually not traded in perfect and complete markets (Feltham & Ohlson, 1995). Perfect and complete markets is an economic setting, where complete means that everything can be exchanged in a market transaction and perfect means that there are no transaction costs. Transaction costs are costs associated with for example the acquiring of information (Fellingham, Philipich, Schroeder, & Young, 1997). Therefore there is the need to apply accrual accounting. For financing activities, there are perfect and complete markets for the financial assets and liabilities. Accrual accounting is therefore simple or not needed (Feltham & Ohlson, 1995). Operating earnings are the sum of operating cash flows and accruals (Feltham & Ohlson, 1995). The persistence in operating cash flows is different from the persistence in operating accruals. Therefore the persistence of future earnings depends on the relative size of the accruals (Sloan , 1996).

According to Modigliani & Miller (1958), the earnings are of low predictive value because there is no persistence in the financing part of the earnings. For the owners of a firm the

cost of capital is equal to the interest rate on bonds. If firms act rationally, they will invest money until the marginal return on investment equals the marginal costs of borrowed capital. In case of absolute certainty, the current value of an asset is the sum of the expected returns capitalized by the interest rate. In case of uncertainty, risk-adjusted expected returns should be applied. Under the market value approach, an investment will be executed if the investment will increase the market value of the firm. Modigliani and Miller (1958) found that there is no relation between the average cost of capital and the capital structure of the firm. On top of that, there is no relation between the average cost of capital and the market value of the firm. Therefore the capital structure of the firm has no influence on the market value, so financing activities contain no net present value (Modigliani & Miller, 1958).

The paper by Feltham & Ohlson (1995) examines how accrual accounting applied for operational earnings is related to the valuation of a firm's equity, using multiple sets of analysis. The first set of analysis relates to the expectation of future earnings and the current value. There are three important concepts that belong to this relation. First, Feltham & Ohlson (1995) apply clean surplus accounting in their model. Clean surplus accounting is the restriction that the current book value of equity is the book value of equity of last year plus net income minus any dividends. If there is a difference this will be known as dirty surplus. Secondly, following Modigliani & Miller (1958), the net present value of the financing activities is zero and therefore a change in the firm's equity is only attributable to a firm's operational activities. Thirdly, net-operating earnings is the operating cash flow plus the accruals. The second set of analysis shows that the current value relates to the current accounting numbers and is influenced by the growth in operating assets, conservatism in reporting operating assets and the persistence in abnormal operating earnings (Feltham & Ohlson, 1995). The difference between a firm's market and book value is the abnormal earnings. If other information is disregarded, the book value of a firm is the weighted average of the capitalized current earnings (adjusted for dividends) and the current book value. Other information is the uncertainty in future events, which alters the predictability in future earnings. The market value of equity is the book value of equity adjusted for current profitability calculated by abnormal earnings plus other information (Ohlson, 1995).

2.7 Ratio analysis

In this section, the traditional ratio analysis is described. Followed by the OpFin Disaggregation ratio analysis proposed by Nissim and Penman. Then it is identified how the OpFin Disaggregation analysis is applied in forecasting.

Since Ball & Brown (1968) it is known that the financial statements contain information. Especially the financial ratios have claimed a lot of attention. The existent financial ratios can be classified into four categories: activity, liquidity, solvency and profitability ratios. The profitability ratios show the firm's ability to generate sales from their assets. The activity ratios show the firms efficiency regarding the day-to-day operations of a firm. The liquidity and solvency ratios show the ability to repay the short- and long-term obligations.

To forecast future Return on Equity (ROE), current ROE should be calculated (Nissim & Penman, 2003). ROE is the shareholder's profitability. ROE is calculated by dividing Net profit by Shareholders' equity. Traditionally ROE is decomposed as follows:

$$ROE = ROA * Equity\ Multiplier$$

Return on Assets (ROA) shows how well the firm's assets are used to generate profits. The Equity Multiplier shows how many assets are deployed divided by the total value of shares. Return on assets can also be decomposed to:

$$ROA = \frac{Net\ Profit}{Sales} * \frac{Sales}{Total\ Assets}$$

Net profit divided by sales is also known as the net profit margin or return on sales and the sales divided by total assets is also known as Asset turnover (ATO). Net profit margin measures the efficiency of a firm. ATO measures the profitability of a firm. Because of several limitations of the traditional decomposition, ROE is also decomposed in alternative ways. One of the limitations is that when computing ROA the net profit is the return for the equity holders of a firm, but the total assets can also be claimed by debt holders of a firm (Healy, Peek, & Palepu, 2013).

Nissim & Penman (2001) decompose ROE differently. They applied the Modigliani & Miller (1958) notion and the Feltham & Ohlson (1995) model in their model to value equity. Valuation of a firm requires forecasting future earnings. The Feltham and Ohlson model shows how book value and forecasted earnings relate to forecasted dividends and therefore to current value. Next to the Modigliani and Miller (1958) notion that financing information has zero net present value, the financing information has perfect markets, so the financing assets and liabilities are close to market value. In the traditional ratio analysis operating liabilities and financing liabilities are not separated. Therefore among others, Nissim and Penman (2001) divided ROE differently. Nissim and Penman (2001) divided ROE using their residual income valuation model. To apply this decomposition the disaggregation of operational and financing information is applicable. Common stockholder equity (CSE) is the book value of equity, which is the net operating assets (NOA) minus the net financing obligations (NFO). NOA can also be divided by the operating assets (OA) minus the operating liabilities (OL) and NFO is the financing obligations (FO) minus the financing assets (FA). To link these items to the balance sheet, the total assets are the OA plus FA and the total liabilities are the sum of the OL and FL, where the total assets is equal to the total liabilities plus common shareholders equity (Nissim & Penman, 2001; Lim, 2014). The FASB and Palepu et al. (2013) divide the business section by operating and investing activities. As mentioned before, in this thesis the net operating assets contain the operating activities. The investing activities are seen as financing activities following Nissim & Penman (2003). Therefore the comprehensive net income (OI) is the net operating assets minus the net financing obligations (Nissim & Penman, 2003). They decompose ROE as follows (Nissim & Penman, 2001; Nissim & Penman, 2003; Soliman, 2008; Lim, 2014).

$$ROE = RNOA + spread * financial\ leverage$$

Return on net operating assets (RNOA) is OI divided by the net operating assets of last year. The net borrowing rate (NBC) is the net financing expense (NFE) divided by the net financing obligations (NFO). The financial leverage spread is the difference between RNOA and NBC. Financial leverage is the NFO divided by the CSE. Financial leverage includes the financing assets and excludes the operating liabilities. So there is a possibility that the financial leverage is negative, which means that the financing assets are higher than the financing liabilities (Nissim & Penman, 2001; Nissim & Penman, 2003; Soliman,

2008; Healy, Peek & Palepu, 2013). RNOA can be decomposed to operating return on sales (OROS) and operating asset turnover (OATO). That is the net operating income divided by sales and sales divided by NOA respectively. A change in OROS is a change in sales where the change in operating income is proportionally different. A low OROS does not mean that the firm is performing badly because it might not need high investment in NOA and therefore it will have a high OATO. Firms with a high investment in NOA will need a high OROS to yield a high RNOA. The persistence of RNOA is affected more strongly by the persistence in OROS than the persistence in OATO (Amir, Kama, & Livnat, 2011).

Esplin, Hewitt, Plumlee & Yohn (2014) tested this approach to see whether the disaggregation between operational and financing information (OpFin Disaggregation) was relevant for the forecasting of the profitability. There are two different kinds of forecasting models: the first is the aggregate forecasts approach, which directly forecasts return on equity, using the OpFin Disaggregation information. Second, is the components approach, which first separately forecasts the two components of traditional ROE decomposition, so net operating assets and net borrowing assets, before using a combination of these components to forecast return on equity. NBC is the spread, and LEV is the leverage. The components forecasting model leads to better forecasts if it uses the OpFin Disaggregation (Esplin, Hewitt, Plumlee, & Yohn, 2014). Lim (2014) found that the profitability regarding the operating activities has a higher association with stock return than the shareholder profitability regarding the financing activities (Lim, 2014). This thesis tests also tests whether there is a stronger relation between stock return and operational activities than between stock return and financing activities. However this thesis uses the abnormal stock return to exclude market-wide factors. On top of that Lim (2014) uses an event window of a whole year while this thesis uses a five-day window.

2.8 Summary and Conclusion

Information asymmetry and the two corresponding problems, adverse selection and moral hazard provide the need for financial statements. The agency costs are the costs that follow from those problems and consist of monitoring costs, bonding costs and residual loss. Financial statement analysis is one of the monitoring costs. The joint project of the FASB and IASB is started to help the analysis of the financial statements. The weak form of the Efficient

Market Hypothesis states that the security price will reflect all available information in a timely manner. The information content of the financial statements is shown if there is a reaction in the security price following the financial statements. This reaction happened due to a change in the expectations of the analysts of the future earnings and therefore dividends of the firm. The OpFin Disaggregation leads to a different decomposition of ROE, which eliminates some of the problems of the traditional ROE decomposition. The OpFin Disaggregation is used in the forecasting of ROE and applied in valuation models. Lim (2014) was the first to see whether the OpFin Disaggregation provides a higher information content of the financial statements. However, he did not exclude the market-wide effects by using the annual return. The abnormal returns will be used to exclude the market-wide effects instead of an association study because an association study does not show causality and is already performed by Lim (2014). The valuation model study is also not applied because this is also already heavily researched.

3 Research Design

3.1 Introduction

This chapter contains how the theory and previous literature are applied to formulate the hypotheses and it describes the methodology. The objective of this thesis is to find whether investors value the disaggregation of financing and operational information. First, the hypothesis development is described followed by the research strategy that is used, which will include the type of study and the research sample. Then it is explained how the variables used in the regressions are calculated. Following the explanation of the research strategy, cumulative abnormal returns is explained, followed by the control variables and earnings per share. Those variables are required to answer the first hypothesis. Second, the calculation of RNOA and RFLEV is described. To answer the second hypothesis the cumulative abnormal returns, RNOA, RFLEV and control variables are used.

3.2 Hypothesis Development

Due to the separation of ownership and control of a firm, there is information asymmetry in the capital market. The information asymmetry leads to agency costs, which are monitoring costs, bonding costs and residual loss. The agency costs will arise because managers are utility maximizers and therefore they will not always act in favour of the investors. To assure the investor that the manager acts in the investor's favour, the investor can monitor a firm by analysing their financial statements. Analysing those financial statements will incur costs, which are known as monitoring costs (Akerlof, 1970). The accounting standard board's objective is to increase the usefulness of financial statements for its intended users. Increasing the usefulness of the financial statements will lower the monitoring costs by increasing the information content of financial statements. The monitoring costs will decrease because the information asymmetry between the manager and the investors decreases. Therefore the probability that problems like adverse selection and moral hazard occur decreases. This is in accordance with the agency theory (Akerlof, 1970).

Previous literature has shown that the investors react to the earning announcement (Ball & Brown, 1968). However, there is uncertainty on the time that the market needs to react to the earnings announcement. Following the weak form of market efficiency, all available historical information should be reflected in the stock prices. When the financial statements are presented the historical information of that firm becomes available. The reaction of the

investors to the information will be reflected in the stock price in a timely manner. The same goes for the earnings announcement. The total stock return is the return of firm-specific factors plus return of market-wide factors. To exclude the market-wide factors, the abnormal stock return is used to evaluate if the investors react to the earnings announcement. The event window in which the abnormal returns are calculated is five days to exclude other factors influencing the stock price. In the next section, the event window is specified. However, the event window might be too short to see a reaction in the stock market. To test this the hypothesis is stated as follows:

$$H1: Investors\ react\ to\ the\ earnings\ announcement$$

If there is a reaction in the stock market, investors react to the earnings announcement within the event window. However, if there is no significant reaction in the stock market, there are a few possible explanations. The most likely explanation is that the event window is too short to see a reaction in the stock market. However, there is the possibility that the earnings announcement is clouded due to the financing information included in the earnings. Namely, there is a difference in the persistence of operational and financing information.

During the financial statement analysis, investors also forecast the future economic consequences of the firm (Healy, Peek, & Palepu, 2013). Forecasting future economic consequences provides information on the future period's earnings and therefore the future dividends (Ball & Brown, 1968; Beaver, 1998). The difference in persistence in operational and financing information makes separating financing and operational information useful to forecasts future economic profitability (Nissim & Penman, 2001; Esplin, Hewitt, Plumlee & Yohn, 2014). Namely, financing information has zero net present value. Therefore financing information is of low interest in the valuation models. Therefore the FASB and IASB are jointly working on a new proposal for the presentation of the financial statements (FASB, 2010). In the joint proposal, it is proposed to divide the financial statements into five sections: business, financing, income tax, discontinued operating and multi-category transaction. If the usefulness of financial statements is increased, investors should appreciate this.

$$H2: Investors\ value\ the\ disaggregation\ of\ financing\ and\ operational\ information$$

If the hypothesis is accepted then the investors value the disaggregation of financing and operational information then the FASB and IASB should continue their joint proposal for a new financial statement presentation. A stronger correlation between operational information and CAR than between financing information and CAR confirms the second hypothesis. If the hypothesis is rejected there is no stronger correlation between operational information and CAR than between financing information and CAR. It is possible that the correlation between financing information and CAR is stronger than the correlation between operational information and CAR, however, following the previous literature, e.g. Modigliani & Miller (1958) it seems highly unlikely. The correlation between the operational/financing information and CAR shows if the information disclosed is useful for investors. For the Libby Boxes, see appendix 1.

An issue regarding the statistical testing of both hypotheses is that the theoretical constructs used in the hypotheses are not directly measurable or observable. Proxies will be used to empirically test these theoretical constructs. The degree to which a proxy captures the underlying theoretical construct it is supposed to measure is the construct validity. In other words, construct validity is a measure that indicates whether a test that is used to test a construct, is really testing that construct. This thesis tries to test the value relevance of the earnings announcement, RNOA and RFLEV. To test the value relevance it uses CAR. CAR is heavily used in previous literature to test the value relevance of financial statement information. There are numerous influences on the stock market reaction that might influence CAR, which have no relation to the value relevance of the financing information. However, it is impossible to control for all these external influences. Therefore the construct validity of the dependent variable is relatively low. Earnings per share are used to proxy for the earnings announcement. RNOA and RFLEV are used to proxy the operational and financing information respectively. For the calculation of RNOA and RFLEV, Nissim and Penman (2003) are followed. EPS, RNOA and RFLEV have high construct validity for measuring the earnings announcement, operational and financing information.

Internal validity is described as the ability of a study to determine that the observed correlations are causal. In other words, internal validity refers to how well a study captures a causal relation, after eliminating other possible explanations (Roe & Just, 2009). External validity is defined as the ability to generalize the outcome of the study to other persons, settings or research subjects (Roe & Just, 2009). This thesis uses field data, therefore, it has

relatively low internal validity and a relatively high external validity. There are a couple of reasons why this thesis has a low internal validity. First, there are probably external influences that make the relation between the stock market reaction and the independent variables spurious. Second, the real reaction in the stock market might be outside of our event window. Third, there might be correlated omitted variables. Regarding the external validity, the means of the final sample are comparable to the mean of the total sample. On top of that, the total number of observations is quite high, which results in a better ability to generalize the findings to other settings.

3.3 Research strategy

To investigate if investors value the disaggregation between operational and financing information, an event study will be performed, where the earnings announcement will be the event. By using an event study, the market-wide factors will be excluded. Following Soliman (2008) a five-day window is used, which surrounds the earnings announcement, so two days before the earnings announcement and two days after [-2; +2]. The rationality is that the investors meet the assumptions of the EMH and therefore are able to react quickly and unbiased, in a timely manner, while accepting the consequences of the new information (Ball & Brown, 1968). However, the market might be able to acquire information prior to the earnings announcement and it might take some time to estimate the economic consequences (MacKinlay, 1997).

The sampling period will be from 1 January 1995 until 31 December 2014. Following Nissim and Penman (2003) some restrictions for the firms are applied. All financial firms are excluded (SIC codes 6.000-6.999). This eliminates firms where the financing assets are for operational purposes. This concerned 3.017 observations that were excluded from the sample. During the sampling period, the average book value of total equity is at least $10 million. There were 4.871 observations with an average book value of total equity lower than $10 million, so those observations had to be dropped. The reason is that smaller firms have unstable relations and they are quantitatively different than the rest (Nissim & Penman, 2003). The average operating assets, average net operating assets and average common equity are positive. Only 13 observations had negative average operating assets, 7.308 observations had negative average net operating assets and of 1.006 observations the average common equity was negative, those observations had to be deleted. The data is collected from the Compustat, Compustat Quarterly, Thomson Reuters and DataStream. Some firms included in the sample

had to be excluded due to missing values. This included the observations with missing values for earnings per shares and/or return on financial leverage. See chapter 3.7 for the calculation of return on financial leverage. 33.669 observations were deleted because they did not concern values for earnings per share. Another 52.530 observations had to be dropped because they did not have the values required to calculate return on financial leverage. For 2.596 observations there was no ISIN number available in the Compustat database, therefore, it is impossible to merge those firms with the DataStream database. Only US firms are used and compared with the S&P 500 index. The S&P 500 index consists of large firms that have common stock listed on the NYSE or NASDAQ. Therefore another 10.176 observations are deleted. For 435 observations there was no quarterly data available in Compustat. For 1.603 observations there was no stock market data available in DataStream. Therefore it is not possible to calculate the CAR and these observations were dropped. For the collection of the stock market prices, DataStream is used instead of CRSP because DataStream has an event study tool, which makes it possible to calculate CAR. Using CRSP would provide more complete data and the data collection is easier. However, the Stata code required to calculate the CAR is very difficult, therefore it is better to use DataStream. The last set of observations that had to be dropped was because they had missing values regarding the change in book value per share, this were another 33 observations. Excluding the firms that did not follow the sample criteria and dropping the observations of firms that had missing values let to a total sample of 14.848 observations consisting of 1857 unique firms.

Table 1 sample selection

Sample screening	**Number of observations**
Starting number of observations	132.051
Less observations from:	
Financial firms	3.017
Firms with a book value less than $10 million	4.817
Firms with negative average operating assets	13
Firms with negative average net operating assets	7.308
Firms with negative average common equity	1.006
Firms with missing values for EPS	33.669
Firms with missing values required for the calculation of RFLEV	52.530
Firms with missing ISIN values	2.596
Firms which are not on NYSE/NASDAQ	10.176
Firms with missing quarterly data	435
Firms with missing stock market data	1.603
Firms with missing values for changeBKVLPS	33
Final number of observations	14.848

Note: this is a summary of the sample selection process

3.4 Cumulative abnormal returns

To calculate the firm-specific market return, the cumulative abnormal returns (CAR) will be used. Other dependent variables that could have been applied are total stock returns, however, the total stock returns are susceptible to market-wide influences. Another possibility is to test whether the forecasting ability has improved. First, the daily abnormal return for each firm during the event window is calculated. The earnings announcement of a firm is my event of interest. The event window is two days before the earnings announcement and two days succeeding the earnings announcement. The estimation window is the year prior to the earnings announcement, except for the two days which prior to the earnings announcement [-365, -3]. This will prevent the event from influencing the estimated return (MacKinlay, 1997). The S&P 500 index is used to calculate the estimated return. This will provide a better insight in the event effect than a constant mean return model because the portion of the return that is related to the variation in the market return is removed. Using DataStream the estimated return for each firm per event is calculated. By subtracting the estimated return from the actual return, the abnormal return is calculated for each day in the event window. The sum of the abnormal returns of the five days is the CAR.

A market model is used to calculate the abnormal returns. The market model used to find the return per firm is as follows (Chaney & Philipich, 2002):

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon$$

Where:

$R_{i,t} = Expected\ return\ of\ firm\ i\ on\ day\ t$

$\alpha_i = intercept\ for\ firm\ i$

$\beta_i = beta\ for\ firm\ i$

$R_{m,t} = return\ on\ the\ S\&P\ index\ on\ day\ t$

$\epsilon = error\ term$

The intercept is the estimated alpha, which is a measure that compares the performance of the investment with the market index. The beta is the systematic risk of a firm compared to the market as a whole. The abnormal return is the difference between the actual return and the expected return of firm *i* on day *t*.

$$AR_{i,t} = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{m,t})$$

Where:

$AR_{i,t} = abnormal\ return\ for\ firm\ i\ on\ day\ t$

$R_{i,t} = actual\ return\ for\ firm\ i\ on\ day\ t$

$\hat{\alpha}_i = average\ intercept\ for\ firm\ i$

$\hat{\beta}_i = average\ beta\ for\ firm\ i$

$R_{m,t} = return\ on\ the\ S\&P\ index\ on\ day\ t$

$\left(\hat{\alpha}_i + \hat{\beta}_i R_{m,t}\right) = expected\ return$

Because a five-day window is used, the cumulative abnormal returns is calculated to show the total market reaction for the event window (Chaney & Philipich, 2002).

$$CAR = \sum_{t=0}^{T} AR_{i,t}$$

Where:

$CAR = Cumulative\ Abnormal\ Returns$

$T = number\ of\ days\ in\ the\ event\ window = 5$

$t = the\ earnings\ announcement, which\ is\ issued\ on\ t = 0$

$AR_{i,t} = Abnormal\ returns\ for\ firm\ i\ on\ day\ t$

3.5 Control variables

This thesis examines the relation between a firm's earnings and how the investors react. However, there are other influences in the relation. The cost of debt for small firms is higher than for big firms (Titman & Wessels, 1988). Therefore there will be controlled for firm size by using LogAssets. A logarithm of the assets is used because there is a high skewness in the total assets, which gives the firms with a high amount of total assets too much effect on the total sample. The logarithm will scale the observations differently, so they will follow the normal distribution, which will decrease the asymmetry between big and small firms. The growth of a firm influences the security prices via expected future economic benefits for the investors (Cho & Pucik, 2005). To control for the firm growth the change in book value per share per year is changed. The change per year in book value per share (changeBVP) is taken and divided by book value per share of the previous year. There are time-anomalies on the stock market. Investment firms that have a positive or negative result over a five-year period

seem to have a result in the opposite direction in January. Individual investors that have to pay taxes, sell their stock for tax related reasons in December and buy stock in January (Thaler, 1987). Other time anomalies are the two financial crises that took place during my sample period. Abnormal stock returns are the returns adjusted for market-wide effects. Time anomalies are market-wide effects. By using the Cumulative Abnormal Returns there is controlled for these time anomalies. The environment or certain risks are also diminished because of the use of Cumulative Abnormal Returns. The risk is the beta in the market model and the environment influences the α of a firm. Investors are loss averse and therefore they react differently to losses than to profit (Kahneman, Knetsch & Thaler, 1991). Therefore there is controlled for losses by using a dummy variable that turns 1 if the firm has reported a loss. For institutional ownership is controlled by using the 13F filing reports (McConnel & Servaes, 1990). Investors that have more than 100 million in assets have to report this quarterly to the SEC, those investors are seen as institutional investors. These filings are reported in the Thomson Reuters database, under the institutional 13F holdings s34 Master file. Using the shares held and shares outstanding in 1000s, the total amount of shares that institutional investors have in a firm at the end of the fourth quarter is divided by the total amount of shares outstanding.

3.6 Earnings per share

Following the seminal paper of Ball & Brown (1968), to test whether there is a reaction in abnormal returns to the earnings announcement. The earnings announcement is used instead of the annual report because the earnings announcement excludes other information included in the annual report (Ball & Brown, 1968). Earnings Per Share (EPS) is used as a proxy for the earnings announcement, because for the first hypothesis this thesis wants to examine whether there is a stock market reaction to the earnings announcement. The price-earnings ratio is commonly used as a valuation model. However, for the first hypothesis it does not matter whether the price-earnings ratio is used or the EPS, because the stock market reaction in the five-day window surrounding the earnings announcement is examined. The announcement of the price-earnings ratio and EPS is at the same time. Therefore there should be no difference between the two as a proxy for the earnings announcement. There are two databases where one can collect the earnings announcements. The first is the I/B/E/S forecasting earnings announcements. The second is the Compustat quarterly database, where the earnings announcement of the fourth quarter is used. Then the earnings announcements of

the preceding quarters are publicly available which makes the total earnings of the firm of that year publicly available. The reason that the I/B/E/S database is not used is that there are for some firms multiple forecasting announcements, which gives those firms multiple event dates that might influence each other. Therefore the Compustat quarterly database is chosen. To test the first hypothesis an OLS regression analysis is performed. To perform an OLS regression the results should follow the following six assumptions (Poole & O'Farrel, 1971), which are tested in chapter 4.3:

1. The values of dependent and independent variables are observed without measurement error.
2. The linearity assumption, the relation between the dependent variable and the independent variables are linear.
3. The mean of each conditional distribution is zero.
4. The variance in the error term is constant in all those distributions (homogeneity)
5. There is normality in the distribution of the error term.
6. The independent variables are linearly independent of each other.

The OLS regression that will be performed is as follows:

$$CAR_{i,t} = EPS_{i,t} + LogAssets_{i,t} + changeBVP_{i,t} + percTS_{i,t} + Loss_{i,t} + \varepsilon$$

Where:

$CAR_{i,t} = Cumulative\ Abnormal\ Return\ per\ firm\ for\ a\ five\ day\ window\ around\ the\ event\ t$

$EPS_{i,t} = earnings\ per\ share\ for\ firm\ i\ at\ event\ t$

$LogAssets_{i,t} = a\ logarithm\ of\ the\ total\ assets\ of\ firm\ i\ for\ year\ t$

$changeBVP_{i,t} = the\ change\ in\ book\ value\ per\ share\ for\ firm\ i, for\ the\ year\ t\ compared\ to\ year\ t_{-1}$

$percTS_{i,t} = the\ percentage\ of\ the\ total\ amount\ of\ shares\ held\ by\ instutional\ investors\ for\ firm\ i\ at\ year\ t$

$Loss_{i,t} = dummy\ variable\ which\ is\ 0\ if\ firm\ i\ has\ a\ profit\ in\ year\ t, otherwise\ 1$

$\varepsilon = the\ error\ term$

3.7 RNOA and RFLEV

To test to which part of the earnings announcement the investors react, the Return on Net Operating Assets (RNOA) and Return on Financial Leverage (RFLEV) are calculated following Nissim and Penman (2003). RNOA and RFLEV will be calculated as follows:

$$RNOA = \frac{Operating\ Income}{NOA}$$

$$RFLEV = FLEV * (RNOA - NBC)$$

All the following information will be taken from Compustat. Therefore the Compustat abbreviation will be in brackets following the variable. Operating Assets are the total assets (AT) minus the financing Assets. Financing Assets are the Cash and short-term investments (CHE) and investment and advances other (IVAO). Financing liabilities is the sum of Debt in Current Liabilities (DLC), Long-Term Debt-Total (DLTT), preferred stock (PSTK), Preferred Dividends in Arrears (DVPA) and Minority Interest-Balance Sheet (MIB) minus the Treasury Stock – Preferred (TSTKC). Net financing debt is the Financing Liabilities minus the Financing Assets. Common Equity is Common/Ordinary Equity (CEQ) plus Treasury Stock – Preferred (TSTKC) minus Preferred Dividends in Arrears (DVPA). Net operating Assets is the Net financing debt plus common equity. Operating liabilities is the operating assets minus net operating assets. Net financing obligations is the financing liabilities minus the financing assets. Tax is calculated by subtracting Earnings Before interest (EBITDA) from Earnings Before Interest and Taxes (EBIT). Net financing expense is the Interest expense total (XINT) after Tax plus dividends-preferred (DVP) minus interest income and related income (IDIT) after Tax plus minority interest in income (MII). Comprehensive net income is the net income (NI) minus preferred dividends (DVP) plus the change in marketable securities adjustment (MSA). By calculating the net income Nissim and Penman (2003) are not followed because there are many missing variables for the cumulative translation adjustments, so those are left out of the calculation. Operating income is the Net financing expense plus the comprehensive net income. Return on Net Operating Assets is the operating income divided by the average NOA. Return on Financial leverage is the financial leverage times the RNOA-NBC. Financial leverage (FLEV) is the net financing debt divided by common equity. The net borrowing rate (NBC) is the net financing expense (NFE) divided by the average net financing obligations (NFO) (Nissim & Penman, 2003).

To find the association between abnormal stock return and operational information, the return on net operating assets (RNOA) is used. The association between abnormal stock return and financing information can be found in the return on financial leverage (RFLEV). The relation between CAR and RNOA/RFLEV shows information content of RNOA and RFLEV.

$$CAR_{i,t} = RNOA_{i,t} + RFLEV_{i,t} + LogAssets_{i,t} + changeBVP_{i,t} + percTS_{i,t} + Loss_{i,t} + \varepsilon$$

Where:

$CAR_{i,t} = Cumulative\ Abnormal\ Return\ per\ firm\ for\ a\ five\ day\ window\ around\ the\ event\ t$

$RNOA_{i,t} = Return\ on\ Net\ Operating\ Assets\ for\ firm\ i\ per\ year\ t$

$RFLEV_{i,t} = Return\ on\ Financial\ Leverage\ for\ firm\ i\ per\ year\ t$

$LogAssets_{i,t} = a\ logarithm\ of\ the\ total\ assets\ of\ firm\ i\ for\ year\ t$

$changeBVP_{i,t} = the\ change\ in\ book\ value\ per\ share\ for\ firm\ i, for\ the\ year\ t\ compared\ to\ year\ t_{-1}$

$percTS_{i,t} = the\ percentage\ of\ the\ total\ amount\ of\ shares\ held\ by\ instutional\ investors\ for\ firm\ i\ at\ year\ t$

$Loss_{i,t} = dummy\ variable\ which\ is\ 0\ if\ firm\ i\ has\ a\ profit\ in\ year\ t, otherwise\ 1$

$\varepsilon = the\ error\ term$

3.8 Summary and Conclusion

The accounting standards board objective is to increase the usefulness of the financial statements. That can be done by increasing the information content of the financial statements, this will lower the monitoring costs of the investors. Previous research has shown that investors react to the earnings announcement. However, there is uncertainty if the market will react within the five-day event window applied in this thesis. To exclude the market-wide effects, the abnormal stock returns are used to test the first hypothesis:

$$H1: Investors\ react\ to\ the\ earnings\ announcement$$

A reaction in the stock market shows that the investors react within the five-day window. However, if there is no significant reaction this could mean that the event window is too short or that the earnings announcement is clouded by, among others, financing information. The

difference in persistence between the operational and financing information makes separating that information useful for forecasting future economic profitability. If investors appreciate the usefulness a reaction in the stock market is expected. Therefore the second hypothesis is stated as follows:

$$H2: Investors\ value\ the\ disaggregation\ of\ financing\ and\ operational\ information$$

A stronger relation between operational information and CAR than between financing information and CAR confirms the second hypothesis. To test both hypotheses an event study will be performed with the earnings announcement as the event. The event window will be a five-day window [-2; +2]. The sampling period will be from 1 January 1995 until 31 December 2014. Financial firms are excluded, all firms have an average total value of equity of at least $10 million and the average operating assets, average net operating assets and average common equity are positive. This led to a total sample of 3834 unique firms.

The cumulative abnormal returns are calculated to show the total market reaction for the event window. The abnormal returns are calculated by subtracting the expected returns for firm i from the actual return of firm i for earnings announcement *t.*

$$CAR = \sum_{t=0}^{T} AR_{i,t}$$

There are multiple factors that could influence the CAR. Therefore, LogAssets will be used to control for firm size. To control for firm growth changeBVP is added in the regression. Investors are loss averse so a dummy variable for Loss is added. For institutional ownership is controlled by the percentage of shares held by institutional investors per firm for each year. The following OLS regression is used for the first hypothesis:

$$CAR_{i,t} = EPS_{i,t} + LogAssets_{i,t} + changeBVP_{i,t} + percTS_{i,t} + Loss_{i,t} + \varepsilon$$

To test the second hypothesis RNOA and RFLEV replace EPS in the regression. RNOA is calculated by dividing the operating income by the net operating assets and the return on financial leverage is the net borrowing costs subtracted from the RNOA times the financial

leverage. The following two OLS regressions are used to accept or reject the second hypothesis:

$$CAR_{i,t} = RNOA_{i,t} + RFLEV_{i,t} + LogAssets_{i,t} + changeBVP_{i,t} + percTS_{i,t} + Loss_{i,t} + \varepsilon$$

4 Empirical results and analysis

4.1 Introduction

In this chapter, the dataset that is used to perform the regressions to answer the hypotheses is described, followed by the testing of the assumptions of the OLS. After that, an explanation is given on how the observations are winsorized to exclude the outliers. Following the descriptive statistics, the actual results that confirm or reject the null hypotheses are presented and the hypotheses are answered. In the sensitivity analysis, the comparability with the total Compustat database is given.

4.2 Descriptive statistics

To test both hypotheses an OLS regression is performed. The sample period is from 01-01-1995 until 31-12-2014 and after implementing the sample criteria and excluding observations with missing values the total number of observations is 14.848. Table 2 describes the descriptive statistics of the sample that is used to perform the three regressions to test the hypotheses. The bottom and upper 1 per cent are winsorized to exclude the extreme variables. CAR will be used as dependent variable and has a mean of 0,0039042. This means that the sample group has outperformed the S&P 500 over the five-day period surrounding the earnings announcement with less than $0,01. This seems correct, otherwise the sample would not be comparable to the total S&P 500 index. Due to winsorizing the minimum and maximum CAR are not extreme. The observations for EPS have no surprises and the average is 1,044156. For RNOA there were many extreme variables like -3.202,06 per cent. Therefore the mean was minus 134 per cent. This seems highly impossible. After winsorizing for the extreme 1 per cent the average was still minus 22 per cent. The lower 23,3 per cent was negative, the other 76,7 per cent was positive. Therefore the negative RNOA had a significant impact on the sample. After winsorizing for the upper and lower 5 per cent, the average RNOA was 7 per cent. That is still quite low, however, it is possible, and see chapter 4.5 comparable to the total Compustat sample. Still, the minimum is a negative RNOA of 96,54 per cent and a positive RNOA of 67,74 per cent. Many of the firms with an extreme negative RNOA were pharmaceuticals, data processing firms and similar industries. Notably, the highest 5 per cent consisted of the same types of firms. For RFLEV the average is as expected, however, the minimum and maximum values are still quite extreme after winsorizing, with a negative value of minus 403,16 per cent and a maximum value of 781,74

per cent. A major part of the firms with an extreme negative RFLEV compensated that with an extreme positive RNOA and vice versa. ROCE has a normal average of 7,2 per cent. LogAssets is normally distributed so, therefore, there are no strange values. During the sample period, the book value increased with an average of 10 per cent per year. Some firms have no institutional ownership, therefore, the minimum is 0. The average percentage of ownership is 42,29 per cent. DummyLOSS is a dummy variable, therefore all the observations are 0 or 1.

Table 2 Descriptive statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
CAR	0,00390	0,093967	-0,26967	0,31450
EPS	1,04416	2,00069	-4,72	9,58
RNOA	0,07009	0,34612	-0,96544	0,69742
RFLEV	0,07517	1,11157	-4,03162	7,81742
logAssets	6,34173	2,08794	2,18437	11,74581
changeBVP	0,10285	0,49431	-0,89021	3,31814
percTS	42,2865	37,8724	0	116,6637
dummyLOSS	0,24360	0,24360	0	1

Note: These are the descriptive statistics for the total sample of 14.848 observations

4.3 Assumptions OLS

Additional tests have been performed to check whether the assumptions of OLS hold up. First, if the independent variables are highly correlated, one speaks of multicollinearity. Multicollinearity diminishes the predictive power of a regression. Therefore a multicollinearity check is run to check the correlation between the independent variables. The correlation between RNOA, RFLEV and EPS can be ignored because these variables will not be run in the same regression. Only the variable dummyLOSS is partly correlated with RNOA and EPS, which can be seen in Table 4. This is not surprising because the firms' net income is used to calculate RNOA and is used to determine the dummy value. The same goes for earnings per share and dummyLOSS. Another way to check for multicollinearity is to check the variance inflation factor (VIF) after a regression is run. A VIF higher than 10 would be troublesome. RNOA was the highest with a VIF of 2,46 so there are no multicollinearity problems, which is one of the assumptions of the OLS model, this can be seen in Table 3.

Table 3 VIF test

Variable	VIF
RNOA	2,46
dummyLOSS	1,84
RFLEV	1,50
logAssets	1,19
percTS	1,12
changeBVP	1,04

Note: these are the results of the VIF test, which is performed to test for potential multicolliniearity problems.

Table 4 multicollinearity test

	RNOA	RFLEV	EPS	percTS	logAssets	Change BVP	Dummy LOSS
RNOA	1						
RFLEV	-0,5411	1					
EPS	0,4805	-0,1095	1				
percTS	0,1386	-0,0806	0,1525	1			
logAssets	0,2387	-0,1089	0,4135	0,3162	1		
changeBVP	0,1329	0,0132	0,1297	-0,0270	-0,0462	1	
dummyLOSS	-0,6394	0,2006	-0,5823	-0,1476	-0,2695	-0,1375	1

Note: these are the results of the multicollinearity tests performed to test for potential multicolliniearity problems.

Second the White's test and the Breusch-Pagan for heteroskedasticity in the variance of the residuals. Both test the null hypothesis that the variance of the residuals is homogenous. To justify the assumption of the OLS that there is homogeneity, the null hypotheses should not be rejected. However, both tests show heteroskedasticity, see table 5 and figure 1. There is a clear pattern in the residuals in the OLS model. The problem that occurs with heteroskedasticity is that OLS applies equal weight to every observation, while observations with a large variance contain less information than observations with a small variance. Another problem is that the standard errors are biased, fortunately, the significance tests are virtually unaffected.

Table 5 Heteroskedasticity tests

Source	Chi2	Df	P
Heteroskedasticity (White)	737	19	0***
Skewness	98	5	0***
Kurtosis	680	1	0***
Heteroskedasticity (BP)	257	0***	

Note: these are the results of the White's test and the Breusch-Pagan test, to test for potential heteroskedasticity problems. *** means significant on a 1 per cent level

Third, to check the linearity assumption normal distribution graphs were plotted for all the variables used in the regressions (see figure 2 until 8). CAR, EPS, RNOA and RFLEV are normally distributed, however, EPS, RNOA and RFLEV have a small increase on the outside of the distribution. PercTS is not equally distributed, which can be explained by the fact that there are a large number of firms that do not have any institutional owners and some firms only have institutional owners. The reason that logAssets is applied as a logarithm is that than the observations will be normally distributed, which can be seen in figure 7. ChangeBVP follows the normal distribution. Unfortunately, the mean of every conditional distribution is not zero. Finally, to check the normality in the error term, a normal distribution graph was plotted for the error term. There is normality in the error term so this confirms the OLS assumptions see figure 9.

4.4 Results

To reduce the information asymmetry in the capital market, investors try to gain inside information by analysing the financial statements. The objective of the accounting standards board is to increase the usefulness of financial statements for its intended users. Increasing the usefulness of the financial statements will lower the monitoring costs by increasing the information content of the financial statements. The expectation is that investors will react to the earnings announcement within a five-day window around the earnings announcement. Therefore the first hypothesis is developed as:

$$H1: Investors\ react\ to\ the\ earnings\ announcement$$

The OLS regression shows that EPS does not have a significant correlation with CAR, see the P-value of EPS in table 6. Therefore the first hypothesis must be rejected. This is not what Ball & Brown (1968) found, however, they used a full year as a time window. Apparently, a five-day window is too short to find a significant relation between EPS and CAR for this sample. This does not mean that the EMH should be rejected. Although it states that all historical information should be reflected in the stock prices, this does not imply that all the information should lead to a significant change in the CAR. It is possible that the information content of EPS is too low to provoke a significant reaction. On top of that, there might be a significant reaction in the stock price but not in the abnormal returns of that particular stock. It is also possible that a mistake is made in the collection of the data or during the merging and

processing of the data. A problem with the research design could be that the S&P 500 index is used as the comparing index, however the market reaction might be different for smaller firms on the EPS. Another possibility is that the test might be influenced because not all the OLS assumptions hold up. Maybe, applying the sample criteria influenced the outcome. There is also the possibility that there is an error in the Stata code. However it is unsure what the problem is.

Table 6 OLS regression for EPS on CAR

CAR	Coefficient	P-value
EPS	0,00045	0,375
percTS	0,00006	0,009
logAssets	-0,00034	0,428
changeBVP	-0,00427	0,007
dummyLOSS	-0,00822	0,000
Intercept	0,00564	0,040
Adjusted R-squared	0,27%	
Number of observations	14.848	

Note: These are the results of the OLS regression performed for the first hypothesis. The variables are winsorized for the top and bottom 1 per cent. The stars indicate the level of significance for 10, 5 and 1 per cent respectively.

To help the investors analyse the financial statements of a firm the FASB and IASB started a joint project in which they propose to present the financial statements in a new format. In their proposal it is proposed to divide the financial statements into five sections: business, financing, income tax, discontinued operating and multi-category transactions. Momentarily the financial statements are still divided in the original way, therefore to test whether the investors would appreciate the separation between business and financing information an OLS regression is performed which tests the relation between the RNOA and CAR in a five-day window around the earnings announcement. Therefore the second hypothesis is developed as:

$$H2: Investors\ value\ the\ disaggregation\ of\ financing\ and\ operational\ information$$

As one can see in table 7 the relation between RNOA and CAR is significant. This confirms the second hypothesis. This is in accordance with Feltham & Ohlson (1995), they showed that applying the OpFin Disaggregation improved the valuation model. Nissim and Penman (2001) applied the OpFin Disaggregation in their forecasting model, where the disaggregation improved the forecasting ability of their model. Lim (2014) was the first to test the information content of the OpFin Disaggregation, there was a relation between the yearly stock price and the OpFin Disaggregation. Table 7 shows that there is no significant relation

between RFLEV and CAR which is in accordance with Modigliani & Miller (1968) who showed that financing information has zero net value and therefore is of no interest. The joint project between the FASB and IASB should continue because the investors value the OpFin Disaggregation. This would increase the information content of the financial statements for its intended users.

Table 7 OLS regression for RNOA and RFLEV on CAR

CAR	Coefficient	P-value
RNOA	0,00884	0,011
RFLEV	-0,00047	0,583
percTS	0,00005	0,013
logAssets	-0,00032	0,420
changeBVP	-0,00442	0,005
dummyLOSS	-0,00468	0,054
Intercept	0,00473	0,089
Adjusted R-squared	0,31%	
Number of observations	14.848	

Note: These are the results of the regression performed to test the second hypothesis. The variables are winsorized for the top and bottom 1 per cent, except for RNOA, which is winsorized for the top and bottom 5 per cent.

4.5 Sensitivity analysis

To compare the sample used in the OLS regression, with all firms available in Compustat for the years 1-1-1995 until 31-12-2014. Table 2 and Table 8 are compared, CAR is not compared with the total sample because CAR is firm specific and therefore, this is redundant. EPS is in the sample of the thesis a lot higher than in the total Compustat sample, respectively 1,044156 and 0,6606672. RNOA is comparable between both samples with 7,01% and 6,68%. However, RFLEV differs a little with 7,52% and 5,80%. LogAssets is a little higher in the sample used in the OLS regression. The mean in the Compustat sample is 5,55728, is the mean in the OLS regression 6,341729. This might be explained by that firms with negative assets have been deleted. ChangeBVP is comparable between the two samples with a 10,28% and an 11,16% average increase in book value per share between 1995 and 2014. On the contrary, percTS differs for more than 20%, where the sample used in the thesis is 42,29% and the Compustat sample is 63,48%. The dummyLOSS shows that in the Compustat sample there are more firms that have losses than in the sample used in the OLS regression. This seems a logical consequence because, for the sample, firms with negative (net) operating assets and negative equity are excluded.

Table 8 Descriptive statistics Compustat

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
EPS	98.296	0,66067	2,01692	-6,5	9,47
RNOA	47.576	0,06682	1,90617	-4,75422	5,44864
RFLEV	46.713	0,05799	10,0637	-54,15552	60,15138
logAssets	110.288	5,55728	3,03758	-2,93746	12,19764
changeBVP	87.039	0,11162	1,60177	-6,03822	10,73985
percTS	63.484	37,23064	34,49818	0	115,2019
dummyLOSS	132,126	0,30225	0,45923	0	1

Note: These are the descriptive statistics for the total Compustat database during the sample period after winsorizing.

4.6 Conclusion

The first hypothesis is rejected because there was no significant relation between EPS and CAR. Maybe, the five-day window is not enough to find a significant relation between EPS and CAR, which is quite surprising because following the EMH all information should be reflected in the stock prices. However there are other possibilities, like an error in the research design, research process or data collection. Another possibility is that the EPS is clouded due to financing information, therefore the second hypothesis is tested. The second hypothesis confirmed that the EPS is clouded by RFLEV because there is a significant relation between RNOA and CAR. Therefore one can conclude that the FASB and IASB should continue their joint project to present the financial statements in a different format. Sensitivity analysis was performed to check the comparability with the rest of the Compustat database, the RNOA is comparable, however, other variables differ quite a bit. Some of the assumptions do not hold up, for example, there is heteroskedasticity, therefore the coefficients of the regression might be biased. Fortunately, there is little influence on the significance so the conclusion does not have to be changed.

5 Conclusion

The IASB and FASB started a joint proposal for a new presentation model for the financial statements. They propose to disaggregate the financing and operational information to increase the information content for the investors. Higher information content leads to higher value relevance of the financial statements. If the investors react differently to the operational information than to the financing information, they will appreciate the new presentation model. Therefore the research question is stated as follows:

Is there a different reaction to the operational and financing information by investors, regarding the value relevance?

To answer this research question, first, it is important to know whether the investors react to the earnings announcement. To exclude market-wide factors, the abnormal stock return is used to evaluate if the investors react to the earnings announcement. Unlike the previous literature, there is no significant relation between CAR and EPS. However, a possible explanation is that the five-day period around the earnings announcement is too small to find a significant relation. However there are other possibilities. One is that the EPS is too clouded with financing information, which decreases the information content of the EPS. Therefore the second hypothesis is also tested. Other possibilities are possible errors in the data collection, research design or research process. After controlling for the market-wide effects by using the CAR and controlling for firm size, firm growth, institutional ownership and loss aversion there is a significant relation between CAR and RNOA. There is no significant relation between the CAR and RFLEV. Therefore, there is a significant difference in the reaction by investors on operational information than on financing information.

The outcome of this thesis is for the greatest part according to the prior literature. The part that was not according to the prior literature is that there was no significant reaction to the EPS announcement. Namely, applying the weak form of the EMH the market should react in a timely manner and all historical information is available. There is the possibility that the information is available for the whole market but that the information content is too low to provoke a significant reaction. Possible explanations are explained in the paragraph above. The stock market should react to a firm's earnings because the persistence in these earnings

predicts future period's earnings. The future period's earnings will provide future dividends. Due to a difference in persistence in operational and financing information, it is expected that investors react differently to operational information than to financing information. Modigliani & Miller (1958) showed that the financing information consisted of no net present value. Esplin, et al. (2014) showed that disaggregating operational and financing information is useful for the prediction of the future profitability of the firm. The OpFin Disaggregation is useful to forecast the future ROE of a firm (Nissim & Penman, 2003). Lim (2014) found that the profitability regarding the operating activities has a higher association with stock return than the shareholder profitability regarding the financing activities (Lim, 2014). However, Lim (2014) only used total stock return as a dependent variable, which is influenced by the market-wide factors.

Investors value the OpFin Disaggregation, therefore the FASB and IASB should continue their joint project and introduce the new standards. This will increase the information content and therefore the value relevance of the financial statements.

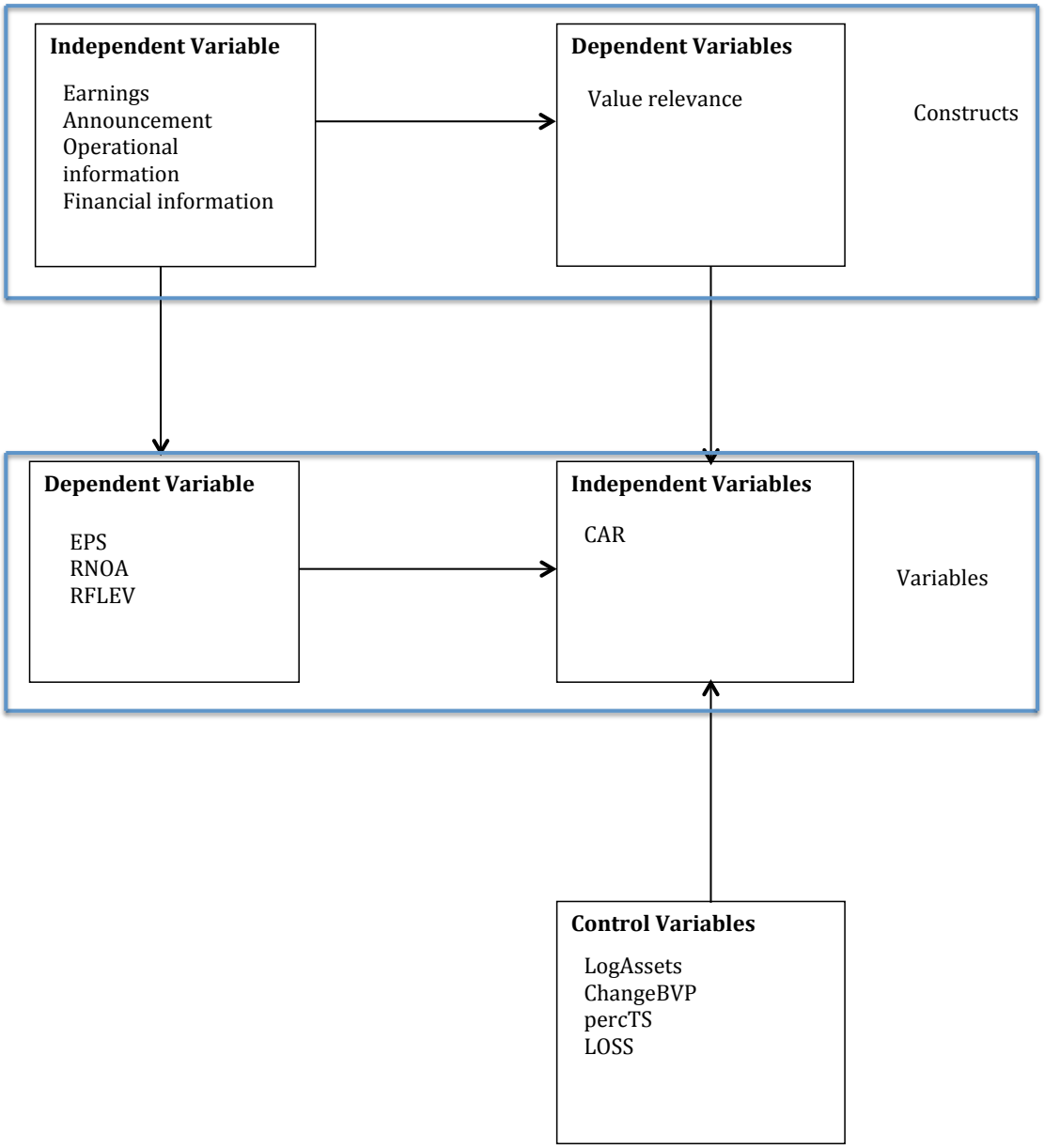
This thesis is subjective to a number of limitations. First, the conditions of the EMH are debatable especially the condition that there are no transaction costs. If there were no transaction costs firms have no reason to hold cash because the accumulation of cash incurs no costs. Second, there are the limitations regarding the databases that are used in the gathering of data. This incurs all the missing data, therefore these observations had to be deleted, see Table 1. On top of that, there are limitations in the determination of institutional investors. In this thesis, there is only determined that a certain institution or individual has more than $100 million in shares of a firm. There is no separation between investment banks and other institutional owners. Third, cash cannot be separated into operational or financing information. However, part of the cash that is held by a firm is for operational purposes and the rest is held for financing purposes. Most of the cash is held for financing purposes, therefore, cash is categorized under RFLEV following Nissim and Penman (2003). Fourth, in this thesis the investing category is seen as financing information. However, some investments are for operational purposes and therefore it might be better to apply them to the operational information. Fifth, the S&P 500 index is used as a market-wide index, however, these are the biggest 500 firms in the United States and they probably have different characteristics than the smaller firms, which are not included in the S&P 500 index. Sixth, there are other users of financial statements than investors, however, only the reaction of

investors to the OpFin Disaggregation is examined. Seventh, there is heteroskedasticity in the error term, therefore the standard errors are biased and the coefficients might be biased.

For future research, I suggest that the stock market reaction to the different components of RNOA is examined. Next to that one could look into different methods to apply the different cash components to the operational or financing section. This thesis also does not look into the difference in the effect on the stock market of financing or investing information. The proposed new presentation model might negatively influence other users of the financial statements, this thesis does not look for other users of the financial statements except investors.

6 Appendices

6.1 Appendix 1 Libby Boxes



6.2 Appendix 2 Figures

Figure 1 Homogeneity test

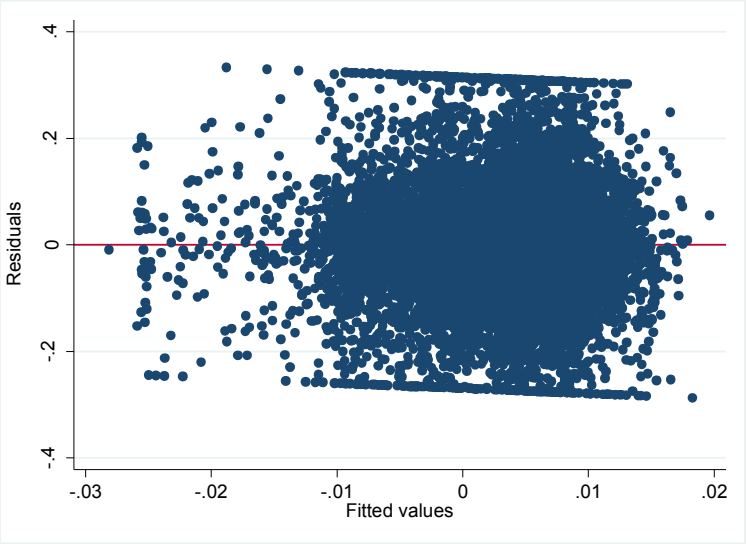


Figure 2 normal distribution CAR

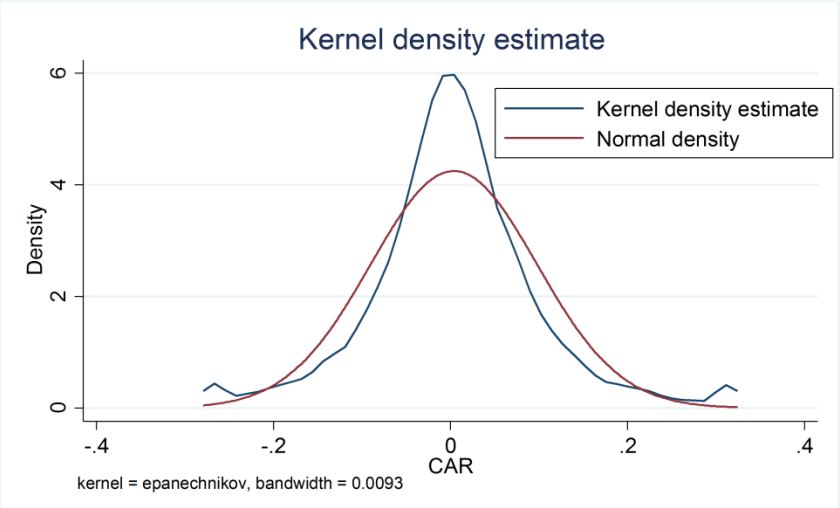


Figure 3 normal distribution EPS

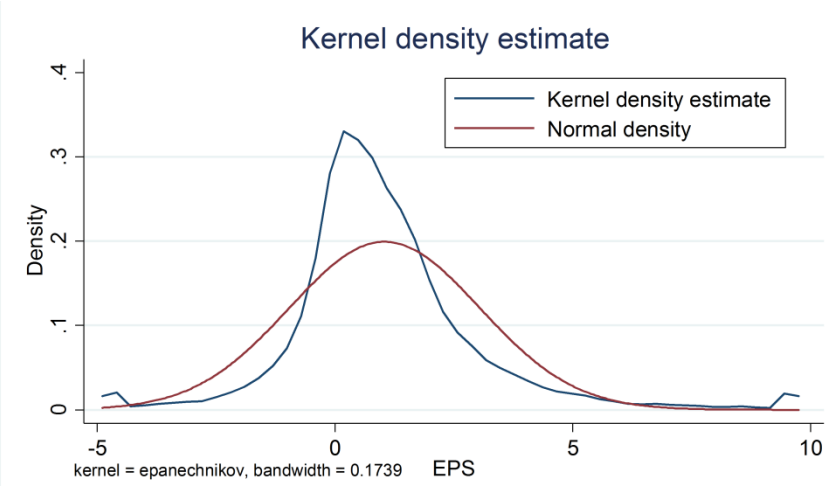


Figure 4 normal distribution RNOA

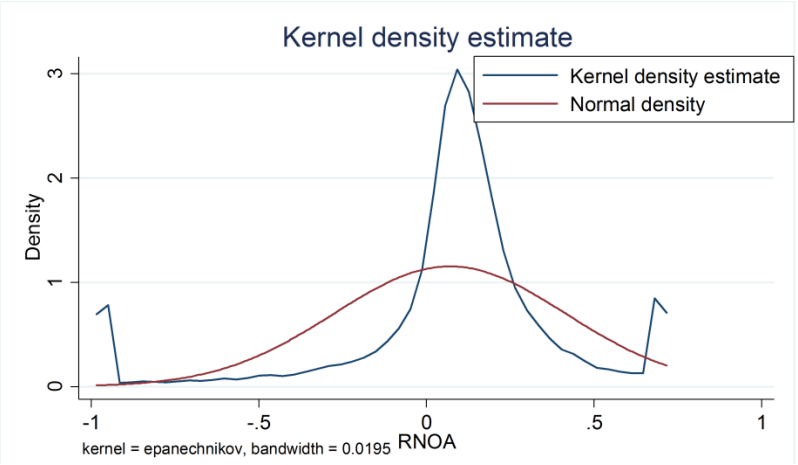


Figure 5 normal distribution RFLEV

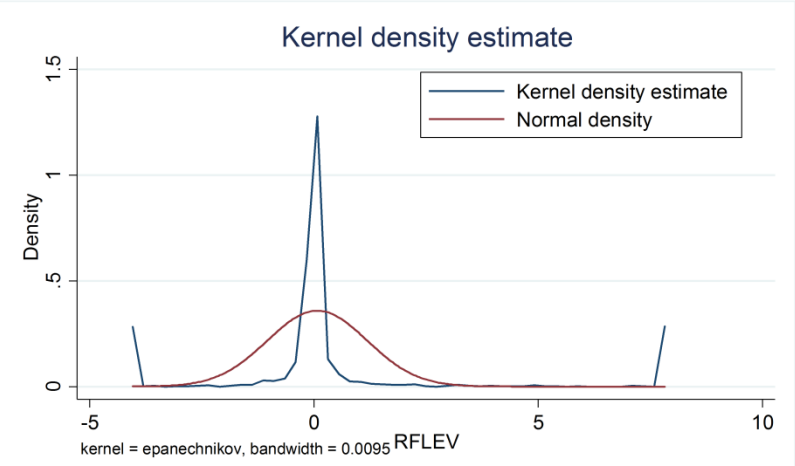


Figure 6 normal distribution percTS

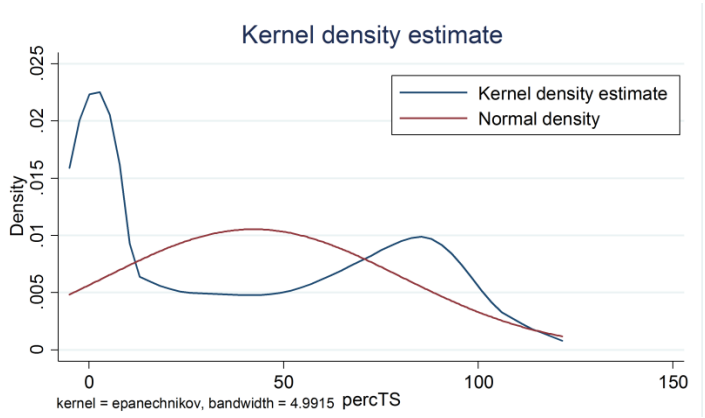


Figure 7 normal distribution logAssets

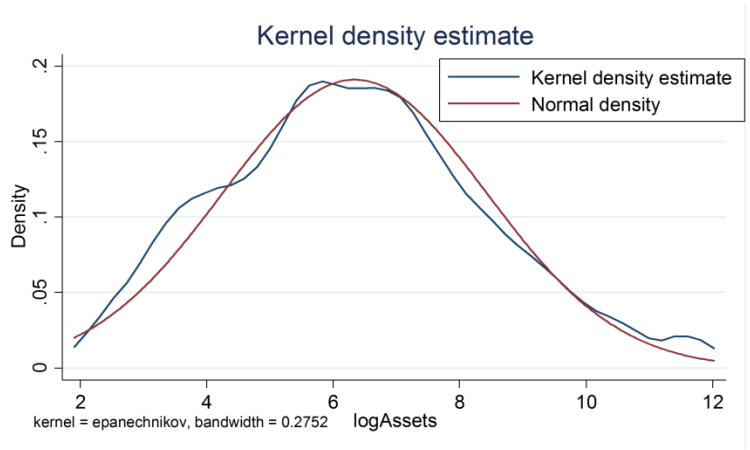


Figure 8 normal distribution changeBVP

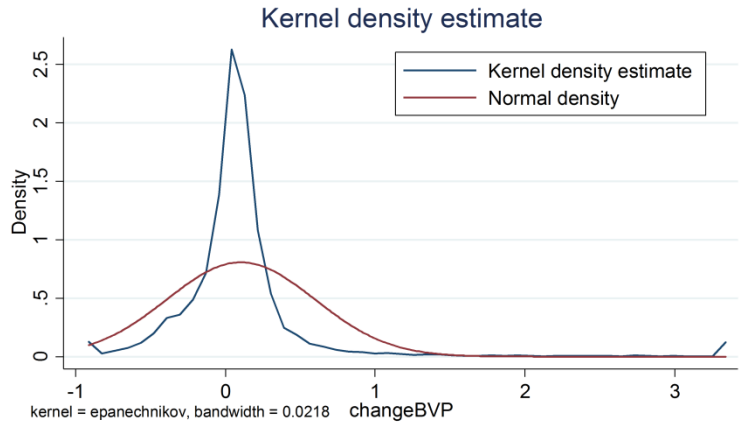
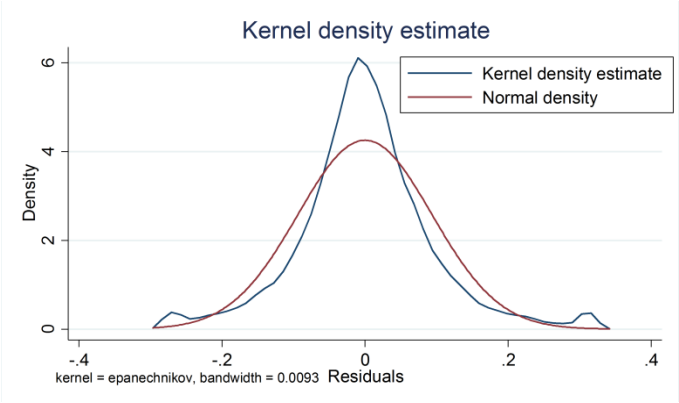


Figure 9 Normal distribution error term



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