Copenhagen Business School
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Do Norwegian Acquirers Manage Earnings Upwards Prior to Share for Share Bids?

An Empirical Analysis of Earnings Management in the Norwegian Takeover Market

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"With all the concern surrounding fraudulent financial reporting, fraud's 'innocent' little brother – earnings management – is often overlooked"

Clikeman (2003)

ABSTRACT

The purpose of this thesis is to contribute to the emerging literature on earnings management ahead of M&A, by conducting an empirical analysis of acquirers in the Norwegian takeover market. Recent studies suggest that acquiring firms in share for share bids tend to manage earnings upwards by accrual manipulation in the period preceding the deal announcement. As the number of shares issued by the acquirer depends on the acquiring firm's stock price on or near the date of deal agreement, the acquiring firm's management has an incentive to increase earnings prior to the takeover. The motive is to raise the market price of the acquiring firm's stocks, and hence reduce the cost of the merger, by using temporarily overvalued equity as a cheap "acquisition currency". Earnings management may have serious implications for the distribution of gains between acquiring and target firm's shareholders, and for which management team emerges from the market for corporate control in command of the target's assets. This paper asks whether this grey area of accounting is prevalent in the Norwegian takeover market, and provide the first analysis of earnings management ahead of share for share bids in a Nordic context. We investigate 64 firms, including 32 share for share bids and 32 cash deals by a Norwegian acquirer, in the period between January 1st, 2006 – January 1st, 2016. We find that earnings management ahead of M&A is not prevalent in the Norwegian takeover market, but that there is an observable tendency of income-increasing earnings management when the relative deal size is large. Three alternative interpretations are proposed: 1) Earnings management is less prevalent in Norway, compared to the countries where evidence have been found; 2) Norwegian acquirers manage earnings upwards prior to share for share bids, but only when the relative deal size is big, and thus the economic benefits high, and; 3) The model is inadequate in testing earnings management on small markets, and/or small samples. We conclude that further research is recommended to determine which one is the most proper.

KEYWORDS: Earnings management, M&A, Norway, capital market motivation, accrual manipulation, deal size

PREFACE

In September 2016, we both received a job offer from Deloitte AS (Oslo) in their Financial Advisory department. Since we both learned that working with financial deals and transactions would be a large part of the first step of our career, it became natural to search together for a topic relating to this for our upcoming thesis. The research area of earnings management prior to M&A was chosen as it covers several interesting topics within our field of study. Among various approaches, empirical evidence on how acquiring firms manage earnings upwards prior to share for share bids in order to buy the target company at a cheaper cost, notably caught our attention. A closer look revealed that similar research including Scandinavian takeover markets were nearly non-existing. This made us curious about the state of the Norwegian takeover market, and the research question of our thesis therefore asks: "Do Norwegian acquirers manage earnings upwards prior to share for share bids?"

The thesis is written as the finalizing part of our Master's degree at Copenhagen Business School, and equals 30 ECTS. The aim of the thesis is to present our ability to engage in in-depth study and independently describe, analyze and process complex issues at the expected academic level. The process of writing has been rewarding, as we have gained further knowledge within areas such as accounting, financial markets, corporate governance and regression analysis. A special thanks to Aleksandra Gregoric for her supervision and expertise that greatly assisted the research. Furthermore, we thank Deloitte Norge AS for access to the database Mergermarket.

Eli Aunemo
May 2017

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May 2017

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1. INTRODUCTION

1.1 BACKGROUND

Over the recent years, accounting manipulation and earnings misrepresentation of reported earnings have been revealed through a number of worldwide corporate scandals. In the light of these revelations, an emerging interest in how corporations pursue their financial reporting have led to an increased attention towards correct and fair accounting. Earnings management may have negative impact for investors, as they are given false or misleading information by the company's management. An efficient capital market is based upon information flows, and if the information is incorrect, it will not be possible for the markets to value securities correctly (Xie et al., 2001). Principal-agent theory suggests that earnings management arise when managers promote their own self-interest through opportunistic behavior, at the expense of shareholders. The problem exists in situations where the managers are motivated to act in their own best interests, which are conflicting to those of the different stakeholders of the firm. For example, shareholders will generally seek to maximize the long-term value of the firm, whereas managers might have self-interests or a shorter horizon. In the light of controversies associated with M&A deals in literature, this thesis provides an analysis of earnings management ahead of share for share bids.

Recent studies suggest that acquiring firms in share for share bids, tend to manage earnings upwards by accrual manipulation in the period preceding the deal announcement. In this kind of corporate takeover (i.e. an equity financed acquisition) the consideration received by the target firm's shareholders is the acquiring firm's stock. The number of shares issued by the acquirer depends on the acquiring firm's stock price on or near the date of deal agreement (Botsari and Meeks, 2008). With the ultimate goal of reducing the cost of the merger, the acquiring firm's management has an incentive to increase earnings prior to the takeover in order to raise the market price of the acquiring firm's stock. Thus, temporarily overvalued equity can be used as a cheap "acquisition currency" (Rhodes-Kropf and Viswanathan, 2004). Arguably, the target firm's board and management have incentives to assure that the financial statements are free of manipulation, as they might fear the threat of litigation if they

do not perform their duties on behalf of their shareholders. However, also managers of the target firm may be short-term oriented (due to retirement or illiquid stock options) or receive personal benefits from the acquiring firm in exchange for their consent. Consequently, earnings management may have serious implications for the distribution of gains between acquiring and target firms' shareholders. Shareholders of the bidding firm would not necessarily have supported the deal if they had not been misled about the firm's quality of earnings. If a deal is exclusively motivated by managers' short-term gains, this is generally not good news for the more long-term oriented shareholders. On the other hand, existing shareholders of the acquiring firm might support the act of earnings management ahead of share for share bids, since a lower exchange ratio minimizes the likelihood of both earnings and voting power dilution. If the earnings management procedure has been successful in boosting the bidder's share price, the shareholders of the target firm will be offered a deal 'premium' generated by overvalued equity. In the complete absence of asymmetric information, target shareholders can benefit from accepting the deal and promptly selling the shares they obtain from the takeover firm. However, this is an unrealistic assumption and target shareholders will often end up losing value instead by holding onto overvalued shares (Shleifer and Vishny, 2003).

Schipper (1989) explain that there are several reasons why researchers are able to observe earnings management, whereas users of the managed earnings often do not. For example, researchers can use large historical data sets to statistically document patterns of behavior consistent with earnings management within a sample, without necessarily being able to identify one particular "bad firm". The first researchers to look at earnings management by acquiring firms in equity finance mergers, was Erickson and Wang (1999). After examining 55 mergers in the US takeover market, completed between 1985-1990, they conclude that acquiring firms manage earnings in the periods prior to the deal announcement. More specific, they found that total accruals were manipulated particularly in the quarter immediately preceding the offer. The results of their study also indicated that the degree of positive (income-increasing) earnings management was positively related to the relative size of the deal. Although these findings have been challenged by opposing evidence (e.g. Heron and Lie, 2002),

the subsequent literature focusing on share-swap acquisitions is largely consistent with the findings of Erickson and Wang. For example, Botsari and Meeks (2008) provide evidence of aggressive accounting in the UK takeover market, between 1997 and 2001. Further, Rahman and Bakar (2002) look at Malaysian share acquiring firms during the period of 1991-2000. The results of the study provide evidence that acquiring firms in share for share bids manage earnings upwards in the year prior to the acquisition.

In Scandinavia, however, this topic is currently under-researched. Although there are a handful of studies looking at earnings management in related settings, this specific area has received little attention. We find the case of Norway particularly interesting to investigate, as the country has several distinctive features within corporate governance and market characteristics. For instance, Norway has a mixed economy, where the state has large ownership positions in key industrial sectors such as energy, telecommunication, financial, materials and industrial. Moreover, Norway has high legal protection and very little corruption. Financial audit by an external auditor is mandatory for all Norwegian listed firms. In fact, the vast majority of publicly traded firms in Norway are audited by a Big 4 firm, which in literature is generally associated with high audit quality (e.g. Craswell et al. (1995); Eilifsen and Knivsflå (2016).

Further, in comparison to the US, UK and many other countries, Norway differ notably in ownership concentration. Large owners with blocks of 30% and more are not uncommon, and there is often more than one large owner. Theory presents many benefits from high ownership concentration, including incentives and power to monitor firm management. On the other hand, large owners may result in expropriation, selfdealing or collusion with management at the expense of minority shareholders. The theoretical frameworks provide ambiguous assumptions about earnings management in the Norwegian context, and we argue that empirical testing is necessary to provide any insightful evidence of whether Norwegian acquirers manage earnings ahead of share for share bids.

1.2 RESEARCH QUESTION

The thesis is guided by the following research question:

'Do Norwegian acquirers manage earnings upwards prior to share for share bids?'

In an empirical study, we investigate 32 completed share for share bids by a Norwegian acquirer within the period January 1st, 2006 – January 1st, 2016. A control group of 32 pure cash deals is formed to compare findings. Earnings management is proxied by the level of discretionary accruals in the periods surrounding the deal. Further, we examine whether earnings management is more prevalent prior to share for share bids when the relative deal size is large. This thesis provides the first analysis, to our knowledge, of earnings management by acquirers prior to share for share mergers in the Norwegian takeover market.

1.3 SCIENTIFIC APPROACH

Bryman & Bell (2011) suggest that research can follow two different approaches: 1) Deductive and 2) Inductive. In this study, a deductive approach is applied, meaning that hypotheses are deduced in compliance with former research results and existing theory in the particular research field. In other words, a deductive research approach explores a known theory or phenomenon and tests if that theory is valid in a given circumstance. The emerging literature on earnings management ahead of M&A already covers a range of theories on the subject, whereas this thesis develops similar hypotheses in a Norwegian context. In the next step, the established hypotheses need to be analyzed by evaluating the available data and results. Then, the established hypotheses can either be rejected or accepted. In accordance with the deductive research approach, an extensive research design is applied. An extensive research design is the attempt to determine the generality or commonality of phenomena and processes by examining a statistically significant sample, in relation to a wider population.

Further, Bryman & Bell (2011) emphasize that researchers should consider three important criteria: 1) reliability 2) replication and 3) validity. Reliability deals with the extent to which the analytical measures are stable and data collection techniques are valid. Replication concerns with to what extent the results can be replicated by other researchers. Validity relates to the comprehensiveness of the results and conclusion, and should be considered while conducting quantitative research to improve the research quality. This thesis strives to comply with the three aforementioned research criteria as proficient as possible. The reliability and validity criteria are addressed by collecting data from recognized secondary databases: Compustat and Mergermarket. These two databases can be considered reliable and are likely to contain correct information to a major extent, given their frequent use in the related literature.

For capacity reasons (e.g. time and costs) it is generally impossible to examine the whole population, and therefore, a sample must be selected. A sample is a smaller subset of the population, and for reliability reasons when generalizing, this selection must be representative. This includes certain requirements such as the sample size and how the sample is selected (criteria or randomization). Details about the sample selection is explained in subsection 6.2.3. Furthermore, the methodologies undertaken in this thesis to answer the research question closely follows previous literature and the associated approaches to the research on similar topics. Therefore, it can be assumed that these steps are reliable and valid. However, no studies are without weaknesses and limitations, and these are thoroughly discussed in chapter 9. Regarding the replication of the study, all methodological steps and decisions are explained in the thesis as extensive as possible in chapter 7. Researchers who wish to replicate this study should therefore have an adequate guidance.

1.4 DISPOSITION

To guide the reader through this thesis, it has been divided into ten chapters. In chapter 1, the introduction aims to clarify the purpose of the research and present the background necessary for the reader to put into its right context. Further, it presents the research question and the scientific approach. Chapter 2 introduces the theoretical frameworks of the thesis, including the two main topics M&A and earnings

management. In Chapter 3, a literature review of previous research on earnings management ahead of share for share bids is presented. Chapter 4 introduces the specific context of our analysis, namely the case of Norway. Chapter 5 develop testable hypothesis, by combining theoretical and context specific expectations. Chapter 6 describes the empirical methodology of the thesis, including a description of the models, data and sample. Moreover, it transforms the hypotheses from conceptual to operational. Chapter 7 presents the empirical findings. Chapter 8 contains an analysis and discussion of the empirical findings in chapter 7, including alternative interpretations, implications and suggestions to future research. Chapter 9 discusses the limitations of the thesis. Finally, a summarizing conclusion is presented in chapter 10.

2. THEORY

In this chapter, the theoretical frameworks of the thesis are presented. First, the market for corporate control (M&A) is introduced. The second section of this chapter gives an introduction to earnings management and relevant aspects.

2.1 MERGERS AND ACQUISITIONS

2.1.1 The market for corporate control

Mergers and acquisitions (M&A) are often referred to as the "market for corporate control", consisting of a bidder, the acquirer, and a seller, the target company. A merger means combining two companies to form a new company, whereas an acquisition refers to the purchase of one company by another in which no new company is formed. However, these two terms are often described interchangeably, hence the abbreviation M&A. The majority of all acquirers pay a substantial acquisition premium when purchasing the target company. Data based on US deals from 1980 to 2005 shows that the acquirer on average pay a premium of 43% over the premerger price of the target. The global takeover market is highly active, averaging more than $1 trillion per year in transaction value (Berk and DeMarzo, 3rd edition). Generally, M&A theory divides transactions into three categories by the relation between the bidder and the target: Horizontal mergers, vertical mergers and conglomerate mergers. A horizontal merger is a transaction within the same industry, whilst a merger where the target's industry sells or buys from the acquirer's industry is referred to as a vertical merger. A conglomerate merger is when the target and the acquirer are operating in unrelated sectors. The characteristics of a transaction is regulated by the motivation behind the merger, i.e. the source of synergies.

2.1.2 The Takeover Process

The first step of the takeover process is where the acquirer determines the initial offer. The initial offer is based on two different approaches, namely a relative valuation method where the target is compared to a comparable company, and a projection and valuation of the expected cash flows resulting from the takeover. A key issue in the case of mergers and acquisitions is to quantify and discount the additional value

created, the takeover synergies, after the deal is completed. From a bidder's perspective, the takeover decision is only profitable if the synergies created exceeds the acquisition premium paid. Synergy effects refer to the value added from combining two or more forces. As synergies are hard to quantify, the stock price reaction of the acquirer after the announcement can be used as an indicator on whether the investors assess the bid as over- or underpaid. Once the valuation of the target is completed, the acquirer makes a public announcement to purchase a large block of shares in the target company at a specific price, also known as a tender offer. At this stage, the bidder must determine the method of payment. There is no guarantee that the takeover will take place at the tender offer price. Firstly, the board of directors may not accept the tender offer and recommend the target shareholders not to tender their shares. Alternatively, the offer may be rejected by regulators such as antitrust-laws. Finally, the takeover must be approved by both the board of directors of the acquirer firm and the target company, and put the question to a vote of the shareholders of the target. In a friendly (or 'recommended') takeover, the board of directors support the deal, and negotiates with potential acquirers, before the offer is put to a shareholder vote. In a hostile takeover, however, the board of directors of the target company fights the takeover attempt. In these cases, the acquirer may try to persuade existing shareholders to vote out target management (often referred to as "proxy fights"). Proxy fights in the US are usually brought by minority shareholders with substantial holdings (Becht et al., 2007).

2.1.3 Merger waves

The takeover market is characterized by merger waves, indicating that merger activity is greater during economic expansion compared to when the market faces a recession. Merger activity also correlates with bull markets, as many of the same technological and economic conditions that lead to bull markets additionally motivate managers to reshuffle assets through mergers and acquisitions (Berk and DeMarzo, 3rd edition). Consequently, M&A activity has varied greatly over the recent century. Since the late 1960s, there has been four merger waves in US history. DePamphilis (2011) states that merger waves in Europe seem to follow those in the US, with a slight delay. Waves are characterized by being cyclic, where a volume increase is followed by a decrease.

However, each of the four waves has distinctive features as they are driven by different factors. The increase in M&A activity in the 1960s is known as the "conglomerate wave", as deals often involved acquisitions in unrelated industries. Bidders built up diversified groups by adding capital and know-how to the targets. At the time, it was thought that the conglomerate business form offered great financial advantages, while this idea later has later been moderated. In the "hostile" or "bust-up" takeover wave of the 1980s, raiders financed by bank debt and junk bonds acquired and split up the conglomerates of the 1960s, as the conglomerate organization was no longer efficient (Bhagat et al., 1990). In the late 1990s, the US and world economies experienced a large wave of "strategic" or "global" deals that were more likely to be friendly, and to involve companies in related businesses. These mergers were often designed to create strong firms on a scale that would allow them to compete globally (Berk and DeMarzo, 3rd edition). The next and latest big merger wave began by the end of 2004, notably in industries such as telecommunications and software. Moreover, this wave had private equity playing an increasing role. The latest merger wave was put to an end by the financial crisis of 2008.

2.1.4 Economical motives to merge

The economical motives to merge are generally equivalent to the motives of acquiring firms' shareholders. In the view of bidding firms' shareholders, a merger is only reasonable if the combined firms are worth more together than separate. Synergies created from transactions are generally put into two categories, namely cost reductions and revenue enhancements. Cost reduction is the easiest synergy to achieve, which often includes reducing the workforce and eliminating excess resources. On the other hand, revenue enhancements generally translate into gaining new customers or expanding into new markets. Firstly, a company may create synergies through economies of scale, where costs are reduced by producing goods in a higher volume. Secondly, the company may also benefit from economies of scope, in which companies gain from cost reductions by combining distribution and marketing costs of different types of related goods. Two firms within the same industry producing products at different stages of the production cycle may be motivated to merger, i.e. vertical mergers. The main benefits of vertical integration often include improved

coordination. Moreover, a merger or an acquisition can be driven by the need of expertise in particular areas in order to compete more effectively. This is in many cases argued as a more efficient solution than hiring new employees, as the company can benefit from purchasing a company with talented individuals in an already functioning unit. Also, an acquirer may argue that they can run the company more efficiently than the current management does, and expect efficiency gains after a takeover.

2.1.5 Separation of ownership and control

As outlined in the last paragraph, there exist numerous economically motivated, shareholder-driven incentives to merge. Neoclassical economic theory assumes that markets are efficient and that the fundamental objective of mergers is to create synergy effects, and thus maximize shareholder value. However, studies have shown that this is not always the actual outcome of a merger after completion (e.g. Franks et al. (1991); Agrawal et al. (1992)). Principal-agent theory supplements the neoclassical theory by attributing post-merger negative stock performance to agency problems, due to the separation of ownership and control. Agency problems arising from this separation have caught researchers' attention for many years. In 1776, Adam Smith wrote: *"The directors of joint stock companies, however, being managers of other people's money than their own, it cannot well be expected, that they should watch over it with the same vigilance with which the partners in a private copartnery frequently watch over their own…. (Jensen og Meckling 1976, pp. 305)".* One key distinction in the motives of shareholders and the managerial ones, is that shareholders are often long-term oriented, whereas managers often have a relatively shorter horizon.

2.1.6 Managerial motives to merge

If managers face little threat of being fired or replaced, they are free to run the firm in their own best interest (Hartzell et al. 2004). This may result in managers who make decision that benefit themselves at the shareholders' expense. Managers of bidder company may have conflicting goals in mind beyond the owners' welfare, such as on-the-job perks, additional pay and prestige. Many CEOs hold only a small fraction of their firm's stock, and hence may not bear enough of the cost of an otherwise unprofitable merger that increases their personal benefits. For example, an opportunistic CEO who owns 1% of the company may be willing to destroy $100 in

shareholder value, if the present value of additional compensation exceeds USD 1m. These incentives are usually constructed by the board of directors, and can both be a result of poor monitoring or the belief that the expansion strategy is correct although the stock market disagrees.

Moreover, managers can be motivated to increase the size of the company through a merger, due to the additional pay and prestige that follows or 'empire building'. Empire building in a merger setting, is the attempt to increase the size and scope of the manager's power and influence. Executives may be more concerned with expanding their business, staffing levels, and gain greater resource control, compared to developing and implementing actions to benefit company shareholders. The failure to screen out empire builders may facilitate acquisitions that do not provide the best growth opportunities for the corporation.

Another explanation for unprofitable mergers is managers' overconfidence: Mergers with a low potential to create value may be pursued, due to the fact that managers overestimate their own abilities. Psychological research reveals that people in general tend to be overconfident in their abilities, and that it usually takes repeated failures for people to change their beliefs of being above-average at some activities. Richard Roll (1986) proposed the "hubris hypothesis" to explain takeovers, which state that overconfident CEOs pursue acquisitions with a low chance of value creation because they truly believe that their ability to manage is great enough to succeed. This hypothesis is distinctive from the theories involving conflicting interests, as the overconfident and irrational CEOs truly believe that they are maximizing value for the shareholders. In contrast, CEOs with conflicting interests know that they are deteriorating shareholder value, but obtain personal gains from doing so.

Conclusively, both the conflict of interests and overconfidence by acquiring firms' managers can end up deteriorating value for shareholders of the bidding firms. Furthermore, also the managers of target firms can have conflicting motives, to the shareholders of their firm. A merger is more likely to go through by the consent of target firms' shareholders, if the deal is recommended by the target firm's CEO.

However, in the case of stock acquisitions, target managers are likely to have relatively short time horizons due to, for instance, retirement or illiquid stock options (Shleifer and Vishny, 2003). Moreover, target CEOs may achieve personal benefits in exchange of a deal agreement.

Whereas numerous high-profile merger discussions have collapsed due to managers' inability to reach compromises over personal benefits, there are many examples of lucrative packages of personal benefits negotiated by target CEOs, conditional upon an agreement to their firms' acquisitions (Hartzell et al., 2004). A self-interested executive will not only bargain over the price to be paid to target shareholders, but also over who will occupy executive positions in the new, merged company, who will sit on the board of directors, location of the headquarters, company name and brand, and of course executive compensation. Hartzell et. al (2004) look at when certain target CEOs negotiate large cash payments in the form of special bonuses or "golden parachutes". The negotiated payments are positively associated with the CEO's prior excess compensation, and negatively associated with the likelihood that the CEO becomes an executive of the acquiring firm. Their analysis suggests that target shareholders receive lower transaction premiums in deals involving extraordinary personal treatment of the target CEO. Moreover, they find very high turnover rates for target CEOs both at the time of acquisition and, for those who remain employed, for several years thereafter. While many of these agreements have been portrayed as improper self-interest in news media, Hartzell et al. (2004) propose that these kinds of negotiations may actually serve an important economic role: Since target CEOs potentially give up substantial expected utility from both future compensation and lost ability to extract personal benefits by selling the firm, negotiations of personal benefits may provide a necessary lubricant for the market of corporate control.

2.1.7 Medium of payment

Deals can be financed by multiple sources, as for instance stocks, cash, debt instruments, options, or a mix of the methods mentioned. However, the most common payment methods are by stocks and cash. In a cash transaction, the acquirer simply pays for the target shares in cash. In a stock-swap transaction, the acquirer issues new

shares to finance the transaction. The "price" is determined by the number of bidder shares received in exchange for each target share, multiplied with the market price of the bidder's stock. This is often referred to as the exchange ratio. Rhodes-Kropf and Viswanathan (2004) state that mergers involving stocks are inherently different from deals financed by cash as they involve a valuation problem. Both shareholders and managers of the target firm will be concerned about whether the valuation of the bidder's shares is correct. Moreover, the announcement of a takeover will often affect the value of the bidder's shares itself. Hence, valuation is of great practical concerns in share for share bids for both bidder and target firm. Further, Shleifer and Vishny (2003) propose that acquisitions are driven by stock market valuations on the merging firms. They present an arbitrage model in which rational managers operate in efficient markets, and stock acquisitions are used especially by overvalued bidders who, due to future inevitable market corrections, expect to experience long-run negative returns on their shares. They argue that stock considerations are likely to be chosen under the combination of three circumstances: 1) Market valuations must be high, and there must be a supply of (highly) overvalued bidding firms, in addition to undervalued (or less overvalued) targets. 2) The market perceives an opportunity for synergies, which makes the merger both attractive in the short-run, and enables the bidders to pay a premium and yet still enhance their long-run claim on capital. 3) Target managers have short-term horizons, or alternatively offered personal benefits to consent to the deal (as elaborated in subsection 2.1.6).

2.1.8 Summary

A merger involves the combination of two companies to form a new company, whereas an acquisition refers to the purchase of one company (target) by another (bidder) in which no new company is formed. The global takeover market is characterized by merger waves, which indicate that M&A activity is greater during economic expansion compared to when the market faces a recession. The economical motives to merge, i.e. the objectives of acquiring firms' shareholders, is to generate synergy effects, and thus maximize shareholder value. However, studies have shown that this is not always the actual outcome of a merger after completion. Agency theory attributes less successful mergers (in terms of value-creation) to managerial motivation: Managers of bidder

company may have conflicting goals in mind beyond the owners' welfare, such as on-the-job perks, additional pay and empire building. Moreover, managers may overestimate their own abilities and thereby pursue mergers with low potential to create value. Also, managers of target firms may have conflicting interests in comparison to the shareholders of their firm. Conflicting interests, overconfidence and differences in time horizons can, altogether or separately, facilitate inefficient investments in terms of unprofitable merger agreements. Conclusively, merger deals agreements sometimes have value-reducing effects for shareholders of both bidder and target firm. Furthermore, Shleifer and Vishny (2003) argue that stock considerations are likely to be chosen under certain circumstances, notably when there is a supply of (highly) overvalued bidding firms, in addition to undervalued (or less overvalued) targets.

2.2 EARNINGS MANAGEMENT

2.2.1 Introduction to earnings management

Earnings, or 'net income', is an income statement bottom-line summary item. Earnings have informative value for investors and analysts, as earnings represents the firm's value adding activities. There exist many different definitions of earnings management in the literature. In this paper, we use the recognized definition of Healy and Wahlen (1999, p. 368):

«Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers».

In other words, earnings management involves discretion by managers to obtain certain outcomes. This exercise may have negative impact for investors, as they are given false or misleading information by the company's management. Financial information is used to set security prices in the capital market, and investors use financial information to decide their investment strategy. An efficient capital market

is based upon information flows, and if the information is incorrect, it will not be possible for the markets to value securities correctly (Xie et al., 2001).

There are essentially two types of earnings management: "Real earnings management" and "accounting-based earnings management". Real earnings management, or 'real activities manipulation', involves management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds (Roychowdhury, 2006). Examples of this are changing investment policy, failing performance of maintenance or neglect of research and development. In this paper, however, we will be focusing on accounting-based earnings management. More specifically, we examine to what extent companies use discretion to influence results in their earnings release. A company's ability to exercise discretion involves, among others, the valuation of accounts receivable, deposits, liabilities and assessments of impairments. A closer look at accounts receivable reveals a large degree of discretion in allowance for doubtful receivables and actual losses on receivables. Hence, managers have the ability to affect the balance and performance of the company in their preferred direction. Since this exercise is largely based on a discretionary assessment, it is difficult for others, such as auditors, to overrule the assessment that has been made. Outsiders, e.g. shareholders, must therefore rely on the financial statements of the firm, and trust that they present a true and fair view.

Although earnings management may be of such great magnitude and creative character that it qualifies as accounting manipulation (i.e. financial statement fraud), it must be noted that these two terms are not synonymous. For the purpose of this thesis, we interpret the main difference as a) a question of magnitude, and; b) whether the discretion by managers have exceeded the legal frameworks. In other words, unlike financial statement fraud, earnings management involves the selection of accounting choices which conform with the relevant accounting standards. In this thesis, we will not focus on fraud, but on the dubious 'grey area' of earnings management. We follow Thomas and Zhang's (2001) argument; that the importance of earnings management should not solely be evaluated on the basis of its magnitude, but also on the basis of its frequency. Earnings management of smaller magnitude, is less likely to be

discovered than earnings manipulation of criminal or fraudulent character. Hence, earnings management is likely to be a more rampant problem than accounting manipulation of fraudulent character.

2.2.2 Capital Market Motivation

Managers' incentives of performing earnings management is often motivated by meeting or beating certain earnings benchmarks. Graham, Harvey and Rajgopal (2005) describe the dominant motivation for earnings management as capital-market related. Capital Market motivation refers to the incentive for managers to manipulate earnings in an attempt to influence short-term stock price performance, as accounting information is commonly used by investors and financial analysts to value stocks (Healy and Wahlen, 1999). Interestingly, Healy and Wahlen (1999) refer to numerous studies proving that investors assess earnings as even more informative than cash flows in their stock valuation, despite the risks associated with earnings management. A recent survey by EY[1] shows that also Norwegian investors value financial statements as the most important source of information, when making investment decisions or recommendations.

2.2.3 Managers' self-interest

Principal-agent theory suggests that earnings management arise when managers promote their own self-interest through opportunistic behavior, at the expense of shareholders. The problem exists in contexts where the agents are motivated to act in their own best interests, which are conflicting to those of the principal(s). Focusing on capital market motivation, many motivational factors for managers have been put forward in a growing literature. Two examples of earnings management with capital market motivations, are 'income-smoothing' and 'big-bath' accounting: Income smoothing refers to accounting techniques to level out net income fluctuations from one period to the next. In general, investors are more willing to pay a premium for stocks with steady and predictable earnings, in contrast to stocks by companies whose earnings are subject to unpredictability and fluctuations (Moses, 1987). Big-bath

[1] Magma (2014): https://www.magma.no/undervurderer-regnskapsprodusentene-betydningen-av-arsregnskapsrapporteringen (Downloaded 18/02/2017)

accounting refers to when earnings are improved in subsequent periods at the expense of today's earnings. A common example is when a company experience a change of CEO. The new CEO has a long time horizon, and thus incentives to increase earnings in subsequent periods. To ensure this, current earnings may be reduced to build a "cookie jar reserve" (Ronen and Yaari, 2011). Consequently, earnings expectations will be reduced and reserves can be triggered into future periods to improve performance. The underlying incentive is to make an illusion of a major "clean-up" of the former management, when in fact the improvement mainly is a result of earnings management.

Other self-interested motives for managers to engage in earnings management are remuneration packages (Healy, 1985; Gaver et al. 1995), meeting company forecasts (Kasznik, 1999) or analyst forecasts (Burgstahler and Eames, 2006), and attempts to avoid debt covenant constrains (Defond and Jiambalvo, 1994). Furthermore, studies have shown that managers "overstate" earnings in periods surrounding equity offers. Empirical evidence implies that firms report positive (income-increasing) unexpected accruals prior to seasoned equity offers (Teoh, Welch and Wong, 1998b), IPOs (Teoh et al. 1998a) and stock-financed acquisitions (Erickson and Wang, 1999 Schilit (2010); Botsari and Meeks, 2008). Common for all these motives, is that they are practical examples of the more theoretical term 'moral hazard'. Moral hazard refers to when one person or entity takes more risks because someone else bears the cost of those risks, i.e. behaves opportunistically.

2.2.4 Opportunities

In accounting-based earnings management, the company's management has many opportunities of influencing the accounts in a desirable direction. Schilit (2010) examines some of the greatest accounting scandals of modern time, including Enron and WorldCom, and explored the methods used to manipulate earnings. As previously mentioned, there are no clear distinction between earnings management and fraud. Hence, the accounting adjustments outlined by Schilit (2010) are also good examples of earnings management mechanism which not necessarily qualify as fraud:

- Premature revenue or expense recognition
- Increase revenues by one-time gains
- Postpone income or expense to subsequent periods

It is important to emphasize that, in a non-fraudulent context, these three mechanisms actually can be in accordance with the accounting rules. It is the underlying purpose, and the associated abuse of accounting flexibility and discretion, which make the procedures dubious. Modern accounting principles state that the income statement should present an accurate picture of the firm's economic activities, rather than the actual cash flow from sales or expenses. The deviation between earnings and cash flow from operations, is captured by accruals. Accrual-based accounting requires a movement of revenues and costs to their appropriate period, which is not necessarily the period when the payment or expense is registered. Healy and Wahlen (1999) describe this flexibility to make subjective decisions regarding timing of revenue and costs, as an opportunity for managers to manage earnings in a preferable direction. The principles of accrual-based accounting are split into non-discretionary (normal) and discretionary (abnormal) elements. Whereas non-discretionary accruals are the expected level based on factors such as industry, firm size and growth (Erickson and Wang 1999), discretionary accruals are accounting items that require the exercise of judgment by management. Managers can use their knowledge about the business and its opportunities to select estimates that match the company's true economics, i.e. increasing the value of financial statements as a form of communication (Healy and Wahlen, 1999). However, managers' use of judgment may also be subject to opportunistic behavior motivated by their self-interest.

The problem of earnings management is magnified by asymmetric information, i.e. the fact that managers of an acquiring firm have superior access to information about the company than any outsiders (Erickson and Wang, 1999). In sum, managers' use of judgment in financial report has both benefits and drawbacks: Benefits include potential improvements in communication of private information to external shareholders, whereas drawbacks involve the potential risk of earnings management (Healy and Wahlen, 1999).

2.2.5 Earnings management ahead of M&A

As already introduced in subsection 2.1.5, the conflict of interest between managers and shareholders in a corporation, derives from the separation of ownership and control. Stockholders will seek to maximize the long-term value of the firm, whereas managers might have self-interests or a shorter horizon (due to for example turnovers or illiquid stock options). In a M&A context, both the shareholders of the bidding and target firm must to a large extent rely on what the managers of the bidding firm present to them. The shareholders of the bidding firm cannot directly monitor and ensure whether the management is acting in their best interest. In a share for share corporate takeovers, managers of the acquiring firm have an incentive to manipulate earnings in the period prior to the announcement: In these kinds of deals, the consideration received by target shareholders is the acquiring firm's stock. The total number of shares issued by the bidder to obtain control is calculated based in the bidding firm's stock price on or near the takeover agreement date (Botsari and Meeks, 2008). The exchange ratio (i.e. the number of shares received in exchange for each target share, multiplied with the market price of the bidder's stock) is inversely related to the acquiring firm's stock price. The relation between the acquiring firm's stock price and the number of shares issued gives managers of the bidding firm an incentive to increase accounting earnings prior to the takeover, with the hope of raising the market price of its outstanding equity. In other words, the main motive of the acquiring firm is to reduce the cost of buying the target. Moreover, in a share for share corporate takeover, earnings management may affect certain terms of the deal, and whether the bid succeeds.

The target firm's board and management have strong incentives to assure that the financial statements (including reported earnings) are free of manipulation, as they might fear the threat of litigation if they do not perform their duties on behalf of their shareholders. However, as elaborated in subsection 2.1.6, target managers may be short-term oriented (due to retirement or illiquid stock options) or receive personal benefits. The latter can be a payment from the acquirer, for example through the acceleration in the exercise of stock options or severance pay. Moreover, target managers can be offered "golden parachutes", i.e. top positions in the new or acquiring

firm. Consequently, the target management benefit by cashing out or keeping a good job. In cases where target managers sell out, both they and the bidder management benefit by effectively getting rid of overvalued equity: the target through personal sale, and the bidder through issuance. Conclusively, if the personal short-term gains of target managers exceed the potential loss of the firm, target managers might support the deal in target shareholders' disfavor.

Opportunistic behavior, or 'moral hazard', by the two different management teams (bidder and target) in combination with asymmetric information can generate irreversible consequences for the wealth of the respective shareholder groups. For example, shareholders of the acquiring firm would not necessarily have supported a merger if they had not been misled about the firm's quality of earnings. If a deal is exclusively motivated by managers' short-term gains, this is generally not good news for the more long-term oriented shareholders. On the other hand, existing shareholders of the acquiring firm might support the act of earnings management prior to share for share bids for at least two reasons: First, the existing shareholders of the acquiring firm may prefer a higher stock price (and hence a lower exchange ratio) to minimize the likelihood of earnings dilution. Second, a stock issue in connection with a merger dilutes voting power and control. Some of the acquiring firm's shareholders might support and earnings management in cases where the manipulation allows the firm to pay a premium it otherwise would not afford, however these cases are often associated with inefficient investments from the shareholders' perspective: The acquiring firm's CEO may strive for empire building, increased pay or other personal benefits that may emerge from the deal, instead of adding value to the shareholders.

Regarding the shareholders of the target firm, this group receive a 'premium' which (if the earnings management has been successful from the acquiring firm's viewpoint) is generated by overvalued equity. In the complete absence of asymmetric information, target shareholders can benefit from selling the shares they obtain from the takeover firm. However, this is an unrealistic assumption and in reality target shareholders might rather lose value by holding onto overvalued shares (Shleifer and Vishny, 2003).

To summarize, earnings management ahead of share-financed bids can have serious consequences for the wealth of both bidder and target shareholders, and for which management team emerges from the market for corporate control in command of the target's assets (Botsari and Meeks, 2008). An alternatively approach is presented by Shivakumar (2000) who argues that earnings management before share swaps is not intended to mislead investors, but instead the only rationale response to pre-anticipated market behavior. He argues that since bidders in no credibly way can signal complete absence of earnings management, investors will treat all firms announcing share for share bids as having overstated prior earnings. Consequently, the market will discount the bidders' stock prices. Similar, Louis (2004, p.122) characterize the issue of earnings management prior to equity-financed acquisitions as follows: *"(...) the market expects a firm to inflate its earnings prior to a stock swap and, consequently, discounts its stock price at the announcement of the stock swap whether the firm manages earnings or not. Anticipating this market behavior, an acquirer's best response is to manage earnings."*

2.2.6 Restraints and barriers

One way to restrain agency problems in connection to earnings management, is through corporate governance mechanisms; the system by which a corporation is controlled and directed. Among many definitions, Ronen and Yaari (2011, pp. 220) explain that *"corporate governance deals with the rights and responsibilities of company's management, its board, shareholders and various stakeholders".* The central issue of corporate governance is to understand which agency problems exists in the relation between company insiders and outsiders. Shleifer and Vishny (1997) emphasize that it is insufficient with only one or a few corporate governance mechanisms: It is the total sum of many mechanisms which yields an efficient system. Corporate governance can be assessed on both country-level (institutional frameworks) and firm-level, in which the latter is dividable into external and internal mechanisms (e.g. external audit and ownership concentration, respectively).

Research has shown that the institutional framework of a country can affect the occurrence of earnings management. All else being equal, companies operating in countries with effective legal systems, where the chances of prosecution are high, will

engage in less earnings manipulation than companies in countries where the legal system is less efficient (Burgstahler et al., 2006). In other words, strong law enforcement is likely to decrease the amount of financial malpractice. Moreover, Leuz, Nanda & Wysocki (2003) find in a comparative analysis of 31 countries that earnings management is negatively associated with the quality of minority shareholder rights and legal enforcement, i.e. strong investor protection. Investor protection refers to the extent which the commercial law and its enforcement protect investors from expropriation by company insiders.

Managers' incentive to manipulate accounting information increases when the user is uninformed or unsophisticated. But in the case of share for share mergers, the target firm's management is not uninformed (Erickson and Wang, 1999). In contrast to their shareholders, the target firm's executives and board have many resources to evaluate the acquirer's financial statements, such as the appointment of external advisors like accountants, investment bankers and auditors. External advisors are market-induced corporate governance mechanisms, which can reduce information asymmetry in share for share acquisitions. The appointed advisors of the target firm are informed users of accounting information, and hence likely to be familiar with the various earnings management techniques that exists. An acquiring firm may assess the likelihood of earnings management detection to be high, and fear that such a revelation will threaten the completion of the transaction. Alternatively, the target firm may demand a higher exchange ratio. These disincentives may restrain the acquiring firm from managing earnings upwards ahead of share for share bids.

In a review of nine studies, Kinney and Martin (1994) conclude that auditing reduces positive bias in pre-audit net earnings and net assets. In other words, an important economic role by an external auditor is to monitor and control earnings management. However, the extent to which external audit is expected to detect and reduce earnings management, depends on audit quality. DeAngelo (1981) defines audit quality as the joint probability of detecting and reporting material financial statement errors. In literature, audit quality is strongly associated with auditor size. For example, Craswell et al. (1995) find that Big 4 firms (KPMG, PWC, Deloitte, EY) devote more resources

to staff training and development of industry expertise relative to non-Big 4 auditors. Big 4 auditors are also more likely to invest in information technology and advanced techniques to detect earnings management, due to their size. Also, Big 4 auditors are in better position to negotiate with (or report) clients who might use aggressive accounting practices, compared to non-Big 4 auditors (Gibbins et al., 2001). Compared to smaller auditors, big auditors have more to lose in the event of a loss reputation due to their large client base, and consequently greater incentives to protect their brand name and screen out disreputational clients (Gibbins et al. 2001). In a recent study, Krishnan (2003) provides that discretionary accruals for firms audited by non-Big 4 auditors are greater than those reported by Big 4 auditees.

Further, ownership concentration is an example of an internal corporate governance mechanism. Blockholders (large owners) may help reduce agency problems, such as earnings management, as they have both the incentives and the capability to influence what happens in the company. For example, Bolton and Von Thadden (1998a, 1998b) argue that one potential benefit of large shareholders is that monitoring will take place on an ongoing basis, in contrast to a corporation with dispersed ownership where monitoring and intervention will only occur in situations of crisis. In other words, large owners may act as "watchdogs" on behalf of minority investors ("free-riders"). Fama and Jensen (1983) illustrate a bell-shaped relationship between ownership concentration and economic performance. Since a large owner has the power and incentives to ensure that managers maximize firm performance, all shareholders will benefit from greater ownership concentration up to a certain point. But beyond this point, the 'entrenchment effect' kicks: When the largest owner is close to complete control, he effectively manages the company. The largest owners' risk aversion will consequently be intensified, due to an increasingly undiversified portfolio. Moreover, the largest owner may start to enjoy private benefits of control, which can be value-reducing to the firm and hence its shareholders.

Blockholder power is mainly channeled through the board of directors, as large owners in principle are able to appoint board members representing their interests (Becht et al., 2007). If the largest owner has majority control of the board, the blockholder can

indirectly hire (or fire) management. Moreover, blockholders can exercise power by initiating favorable decisions, or possibly by blocking unfavorable decisions (Becht et al., 2007). There exist certain laws and regulations which impose limits on these powers, however these vary significantly across countries. Conclusively, high ownership concentration may serve as a barrier to earnings management, but it can also empower the opportunities due to the entrenchment effect. Whether ownership concentration poses an opportunity or limitation in the context of earnings management, will depend on the level of concentration and different circumstances. For example, Leuz et al. (2003) suggest that countries which economies have relatively dispersed ownership, in addition to strong investor protection and large stock markets, exhibit lower levels of earnings management than countries with relatively high ownership concentration, weak investor protection, and less developed stock markets.

On a final note, the most important constraint to earnings management is that it is not costless. The costs associated with earnings management can be classified into two categories: the costs of detected and the costs of undetected earnings management (Marquadt and Wiedmann, 2004). Costs of undetected earnings management include, among others, constraints on the company's future reporting flexibility. Earnings management in a previous accounting period constrains managers' ability to manage earnings in the current period. Moreover, high levels of accruals may result in a decreased correlation between earnings and cash flows. This measure is commonly used as a measure of earnings quality, which can affect the company's accounting credibility. Costs of detected earnings management include enforcement actions by the regulatory bodies, earnings restatements, shareholder litigations and negative coverage in business media. For companies caught in manipulating earnings, these situations are generally associated with significant abnormal returns (Botsari and Goh). Further, Beneish (1999) investigates the penalties related to earnings overstatements in firms that are subject to accounting enforcement actions by the SEC. He reports that sanctioned managers suffer both monetary and reputation losses (e.g. they are more likely to be fired and less likely, once fired, to find subsequent employment or serve on a board of directors). Desai et al. (2006) provide evidence that the board's reaction is, in most cases, quick and decisive in displacing managers found to manage earnings.

Also, a significantly lower re-hire rate for managers of firms who restated their earnings, indicate that the external labor market also serves significant reputation-related penalties for displaced managers.

2.2.7 Efficient Market Hypothesis

There is conflicting evidence whether earnings management actually has an effect on stock prices (Healy and Wahlen, 1999). The essential questions are whether the market see through earnings management or not, and whether markets are efficient. Fama's (1970) efficient market hypothesis (EMH) states that it is impossible to "beat the market" because the stock prices in the market always reflect all relevant information (i.e. stock markets are efficient). Therefore, according to this theory, stocks will always trade at their fair value, making it impossible for investors to either buy undervalued stocks or to sell overvalued stocks. Hence, it should be impossible to outperform the market. The hypothesis is divided into three forms: "Weak", "semi-strong" and "strong". Weak-form efficiency involves that prices on traded assets (such as stocks) reflect all historical publicly available information. The semi-strong-form efficiency involves that prices reflect all historical and new publicly available information. Lastly, the strong-form efficiency claims that prices reflect all public and private information, i.e. hidden "insider" information. Although the hypothesis assumes that the population on average is correct, the theory does not require that individuals behave rational. On the contrary, EMH states that when new information is presented, many investors will both over- and underreact. More specifically, the theory expects investors' reactions to be randomly and normally distributed, so that the net effect on market prices cannot be reliably exploited to make an abnormal profit. In other words, the theory claims that everyone can be wrong about the market, but the market as a whole will always be right.

Although EMH is highly recognized within modern financial theory, the theory is both disputed and controversial. Detractors point to evidence of theory dissension: For example, investors such as Warren Buffett have consistently beaten the market over long periods of time, which by EMH's definition should be impossible. Further, critics also point to event studies such as stock market crashes (e.g. 1987, when the Dow

Jones Industrial Average fell by over 20% in one single day). DeFond and Park (2001) find that the market anticipates only 19–23% of the pricing implications of abnormal accruals, implying that investors only partially account for suspected earnings management. Also, Dechow and Skinner (2000) suggest that market participants underutilize publicly available financial statement information, and that investors are easily fooled by relatively simple earnings management practices. The general assumption of this thesis, is that markets are semi-strong efficient, i.e. the implication that share prices adjust to new publicly available information very rapidly, such that excess returns cannot be earned by trading on that information. This assumption supports managers' incentive to manage earnings, as boosted earnings will affect stock prices effectively in the short run, and private information, such as the true motives of discretionary decisions, will be unknown to investors. Hence, stock prices reflect all new public information, but they are traded at a higher value than if private information were incorporated too (i.e. in a strong-form efficient market).

2.2.8 Models for measuring earnings management

Schipper (1989) explain that one advantage researchers have in observing earnings management, in contrast to the users of managed earnings (i.e. public stakeholders), is that researchers can use large historical datasets to statistically document patterns of behavior consistent with earnings management. In literature, there exists various approaches and designs to uncover earnings management. For the vast majority, accruals are used as a proxy for measuring earnings management (Dechow et al, 1995). Accruals are likely to represent a favored instrument for managers who intend to manipulate reported earnings, as accruals have relative low cost in contrast to sub-optimal operating decisions with potential reduction of shareholder value (Peasnell et al., 2000). Moreover, accruals are of opaque nature and thus often difficult to observe directly. Also, studying accruals reduces the problems associated with the inability to measure the effect of various accounting choices on earnings (Watts and Zimmerman, 1990).

There exist many different accrual models. Healy (1985) tests for earnings management by comparing total accruals (scaled by lagged total assets) across the

earnings management partitioning variable. DeAngelo (1986) looks at changes in total accruals, assuming that the first differences have an expected value of zero under the assumption of no earnings management. Further, Jones (1991) propose a model for detecting abnormal accruals. Thomas and Zhang (2001) find that the Jones model (1991) is the only model out of six comparable models which has predictive ability to measure accruals. Dechow et al. (1995) have developed a modified version of the Jones Model, in an attempt to eliminate the original model's imprecisions. The merits and drawbacks of the Jones and Modified Jones models have been thoroughly explored (e.g. Guy et al. (1996), Rangan (1998), McNichols (2001), and Fields et al. (2001)), and a more detailed description of this model is found in chapter 6.

2.2.9 Summary

Earnings management involves discretion by managers to obtain certain outcomes. In accounting-based earnings management, the company's management has many opportunities of influencing the accounts in a desirable direction, for example by managing discretionary accruals. Managers' use of judgment in financial reporting is a double-edged sword, as it can both improve the communication of private information to external shareholders; but at the same time pose a potential risk of earnings management. Earnings management may have negative impact for investors, as they are given false or misleading information by the company's management. Managers' incentives of performing earnings management is often motivated by an attempt to influence short-term stock price performance, i.e. they are capital-market motivated. For example, in share for share corporate takeovers, managers of the acquiring firm have an incentive to manipulate earnings in the period preceding the merger. This may result in serious consequences for the wealth of both bidder and target shareholders, and for which management team end up controlling the target's assets (Botsari and Meeks, 2008). One way to restrain agency problems in connection to earnings management, is through corporate governance mechanisms. Corporate governance can be assessed on both country-level (institutional frameworks) and firm-level, in which the latter is dividable into external and internal mechanisms (e.g. external audit and ownership concentration, respectively). Further, the assumption that markets are semi-strong efficient, supports managers' incentive to manage earnings,

as boosted earnings will affect stock prices effectively in the short run, and private information, such as the true motives of discretionary decisions, will be unknown to investors. Hence, stock prices reflect all new public information, but they are traded at a higher value than if private information were incorporated too (i.e. in a strong-form efficient market). Conclusively, earnings management is often measured by the level of discretionary accruals, as these items are likely to represent a favored instrument for managers who intend to manipulate reported earning, due to its opaque nature.

3. EMPIRICAL EVIDENCE

This chapter includes a literature review of earnings management prior to share for share bids. The first part present empirical evidence from the US, Asia and Europe. The second part introduces the recent literature focusing on causality and preventive factors.

3.1 EARNINGS MANAGEMENT AHEAD OF M&A

3.1.1 Evidence from the US

The first researchers to look at earnings management by acquiring firms in equity finance mergers, was Erickson and Wang (1999). After examining 55 mergers in the US takeover market, completed between 1985-1990, they conclude that acquiring firms manage earnings in the periods prior to the deal announcement. More specific, they found that total accruals were manipulated particularly in the quarter immediately preceding the offer. The results of their study also indicated that the degree of positive (income-increasing) earnings management was positively related to the relative size of the deal. Moreover, Erickson and Wang (1999) also analyze discretionary accruals for target companies, as also target firms can face incentives to manage earnings ahead of mergers. However, they find no significant evidence of earnings management by target companies. The authors argue that by the time the acquirer initiates a bid, it is too late for the target firm to manage its earnings. In contrast, a bidder can identify its targets and time its acquisitions.

Heron and Lie (2002) come to a different conclusion than Erickson and Wang (1999). They reexamine the relation between the method of payment in acquisitions, earnings management, and operating performance using a sample of 859 (427 of which were paid with stocks only) acquisitions conducted in the US between 1985 and 1997. In contrast to Erickson and Wang (1999), they find no evidence that acquirers manage their earnings prior to share or share bids. Moreover, when they partition the sample according to the method of payment (cash, equity or mixed), no significant difference in the use of discretionary accruals across the payment categories is identified. A similar conclusion is reached when a multivariate regression is conducted, by using

the fraction of cash-financing as the dependent variable and discretionary accruals as explanatory variables. Heron and Lie (2002) argue that their findings are superior to Erickson and Wang (1999), due to a greater sample size, and a methodological improvement[2] which have been adopted in many subsequent studies. They acknowledge, however, that quarterly data may capture earnings management more efficiently than annual data.

The remaining literature covering the US takeover market is, however, generally consistent with the empirical findings of Erickson and Wang (2002). Louis (2004) examines publicly traded companies in the US, but offer a more recent insight with sample mergers completed in the period between 1992-2000. Through an examination of 373 mergers (incl. 263 pure stock swaps), the study shows that the reversal effects of pre-merger earnings management are significant determinants of both short- and long-term performance of share for share bidders. Consistent with earlier research (e.g. Erickson and Wang, 1999), the study provides strong evidence suggesting that bidders overstate their earnings in the quarter preceding a share-swap merger announcement.

3.1.2 Evidence from Asia

Further, Rahman and Bakar (2002) looked at Malaysian share acquiring firms in the period between 1991-2000. Similar to Erickson and Wang, their study hypothesizes that the process of acquisition may provide incentives for managers to make accounting choices that increase the earnings of the firm. They investigate a sample of 125 share acquiring and 158 cash acquiring firms during 1992-2000. Additionally, 125 industry- and size-matched non-acquiring companies for each year are selected to form a control group. The results of the study provide empirical evidence that acquiring firms in share for share bids manage earnings upwards in the year prior to the acquisition. Further, Higgins (2013) suggests that also Japanese acquirers systematically report positive abnormal long-term accruals prior to merger announcements. The paper shows that the observed earnings management behavior is

[2] The 'Industry-year Approach', which is further explained in subsection 6.1.5.

consistent with economic theories governing the benefit and cost that can result from earnings management.

3.1.3 Evidence from Europe

Koumanakos and Georgopoulos (2005) were the first to examine earnings management by acquiring firms in a European capital market context. They investigate a sample of 42 acquirers over the period 2001-2003 listed on the Athen Stock Exchange, but do not distinguish between cash and equity mergers. Their results provide insignificant evidence of earnings management. Considering the inclusion of cash mergers, this may reconcile with the study of Erickson and Wang (1999) which found no evidence in the sample of acquiring firms involved in cash mergers.

Botsari and Meeks (2008) analyze 42 UK publicly traded firms which were undertaking share swap acquisitions during the period 1997–2001. Following Kothari, Leone and Wasley (2005), the study adopts a performance-matched discretionary accrual approach. Performance matching incorporate other factors which may affect the firms' "normal accruals", which earnings management models (e.g. the widespread Standard- and Modified Jones) are unlikely to capture. They find that UK publicly traded companies engage in income-increasing earnings management in the year immediately preceding the deal announcement, and that this earnings management is mostly concentrated on working capital accruals. Moreover, their results suggest that earnings management may start as early as two years preceding the deal announcement. They support this finding by insights given by M&A practitioners who have revealed that managers often decide expansion strategies through acquisitions, before they have a specific target in mind as early as 1-2 years prior to the date of the offer. Further, Botsari and Meeks (2008) also present evidence of a reversal effect of accruals in the period immediately following completion date, when a balance sheet based measure of accruals is adopted. However, this evidence is not significant when a cash flow based measure of accruals is included in the analysis. This discrepancy is interpreted by the authors as follows: Negative accruals observed in the year immediately after completion under the balance sheet approach reflect changes in

balance sheets which may be direct impacts from the transaction. When a "cleaner" cash flow approach of accruals is used, these impacts are less obvious.

3.2 IDENTIFYING CAUSALITY AND PREVENTIVE FACTORS

In more recent studies, the research approach has shifted towards identifying explanatory and preventive factors of earnings management. In a current working paper on earnings management ahead of M&A by Botsari and Goh, the authors evaluate a range of corporate governance mechanisms and the extent to which these mechanisms can restrain opportunistically-driven M&A decisions. More specific, the paper examines factors which can curtail or exacerbate managers' incentive to overstate earnings through discretionary accruals in the period preceding the announcement of share for share bids. Similar to Botsari and Meeks (2008), the analysis is based on a sample of UK publicly traded firms undertaking equity-financed mergers and acquisitions (but in an extended period of 1997-2004), indicating similar tendencies of accrual-based manipulation prior to the deal. In a supplementing analysis, the authors investigate the impact of the following corporate governance mechanisms: The effect of audit quality, board composition, managerial ownership. Moreover, variables regarding deal characteristics and economic incentives are included in the model. First, only partial evidence was found that when the bidder is audited by a Big 4 auditor, managers' discretion over accrual reporting is mitigated. The authors comment that this may imply that auditors (even by Big 4 firms) cannot eliminate earnings management behavior completely. Secondly, the impact of managerial ownership supports the convergence-of-interest hypothesis for low executive ownership levels, and the 'entrenchment hypothesis' as executive ownership structure increases. Regarding the deal-specific factors, the paper suggests that earnings management is an increasing function of the economic benefits arising from such a strategic behavior. Lastly, the analysis also provides evidence of a positive relation between the level of discretionary accruals and the deal premium. The authors suggest that a bidder engaging in income-increasing earnings management will be able to pay a higher "apparent" premium, as the "real" premium will be substantially smaller.

In a Norwegian context, Eilifsen and Knivsflå (2016) investigate how audit firm size and large auditor-provided non-audit services (NAS) affect accruals quality around large equity issues (IPOs, acquisitions, private sales etc.) for Norwegian public companies from 1999 to 2013. They provide evidence of poorer accruals quality around large equity increases, and that non-Big 4 audit firms are associated with lower accruals quality in these cases, compared to Big 4 audit firms. Eilifsen and Knivsflå's (2016) findings indicate that accruals quality deteriorates around large equity issues and acquisitions, consistent with earnings management taking place. The authors conclude that the effect of audit firm size is mixed and dependent on the provision of auditor-provided NAS. More specifically, they find that large audit firms provide better accruals quality around large equity issues relative to smaller audit firms, when the provision of NAS is low or moderate.

4. THE CASE OF NORWAY

Chapter 4 introduces the specific context of our analysis, namely the case of Norway. The chapter begins with a brief introduction to the Norwegian context. Further, the characteristics of the Norwegian M&A market, regulatory frameworks and corporate governance systems are discussed.

4.1 THE NORWEGIAN CONTEXT AT A GLANCE

Norway is one of the most international economies in the world, as the country is very open to both inward and outward portfolios and foreign direct investments (Randøy and Nielsen, 2002). The Norwegian economy is a combination of market economy and a Nordic welfare model with a comprehensive social security system. The petroleum industry accounts for 1/4 of the country's GDP. Moreover, Norway is a major shipping nation and has the world's 6th largest merchant fleet, with 1412 Norwegian-owned merchant vessels.

The Norwegian regulated market place, the Oslo Stock Exchange (OSE), offers a full product range including equities, derivatives and fixed income instruments. Public companies can list their shares on either the OSE or Oslo Axess. The OSE is the common choice for larger companies with a long history and a significant shareholder base, and involves a full IPO in accordance with EU requirements, whereas Oslo Axess is suitable for companies with less than three years of history, but wish to signal quality and obtain benefits of being listed in a regulated market.

The country has an effective legal system with high legal protection. The analysis by Bhattacharya et al. (2003) of earnings opacity in 34 countries for the period 1986-1998, shows that Norway has the second least amount of earnings opacity. Earnings opacity is defined as *"the extent to which the distribution of reported earnings of firms in that country fails to provide information about the distribution of the true, but unobservable, economic earnings for firms in that country"* (Koumanakos and Georgopoulos (2005, p. 675)). Nevertheless, a number of accounting scandals have been revealed in Norway over the recent years. Looking at recent scandals where

accounting manipulation has been the most central feature, Finance Credit (2002), Sponsor Service (2003), Fast Search & Transfer (2008), Troms Kraft & Kultur (2013) and Lunde Gruppen (2011) are all cases in point. One denominator in common for these five scandals, is that income was manipulated and that both investors and banks were intentionally misled by the financial reporting.

4.2 THE NORWEGIAN M&A MARKET

4.2.1 The Norwegian takeover process

With respect to public takeovers, M&A transactions and processes in Norway are quite similar to most other parts of Europe (Aabø-Evensen & Co, 2014). In Norway, once a company has decided to make a voluntary takeover bid, both the OSE and the target company shall be notified without pause. Thereafter and as soon as possible, the OSE must make the notification available to the public. In general, corporate transactions do not require consent from Norwegian authorities. In other words, regular share purchases can usually be completed within the timeframe agreed upon by the two parties (although standard waiting time due to relevant competition law will usually apply). Considering voluntary tender offers, the offer period must be somewhere in between two and ten weeks. For mandatory offers, the offer period must be at least four weeks but no more than six weeks. However, how long it actually takes from the date on which a potential bidder starts preparing a takeover until the merger is completed, may vary significantly. Premiums of public deals in Norway commonly range from 20% to 40% on the last 30 days' average trading prices, although there are a few examples of substantially higher offers (Aabø-Evensen & Co, 2015).

Technically, Norwegian law does not distinguish between friendly and hostile takeovers, and both types of offers are accepted. Nevertheless, there are certain provisions stating that a bidder should dedicate extra review and attention whenever a hostile transaction is contemplated. For instance, there are restrictions on a target's freedom to make certain corporate decisions after the target's board has been notified about the offer. Although most deals in Norway are recommended by the target board, hostile offers are not uncommon: For example, in 2013, 32% of the tender offers launched were not recommended by the targets' boards (Aabø-Evensen & Co, 2015).

Pursuant to Norwegian law, a mandatory offer is triggered during stakebuilding on a transfer of shares where the acquirer obtains control of at least one third (33.3%) of the voting rights in a listed Norwegian company. In other words, the acquirer must make an unconditional offer to buy the remaining shares on terms as good as its most recent purchase. Minority shareholders of the target company are allowed to sell out at the same price that the new controlling shareholder paid before the change of control[3]. The obligation to issue a mandatory offer in Norway is repeated when the ownership exceeds both 40% and 50% of the votes. However, repeated offers are not mandatory when the thresholds are passed in connection with the original mandatory offer. When an acquirer enters into a transaction which triggers the mandatory offer rules, the acquirer must immediately notify both the target company and the Oslo Stock Exchange about the transaction, and inform whether it intends to either: a) resell all or part of the shares or; b) make an offer for the remaining shares. The acquirer can avoid the mandatory offer by selling the shares exceeding the relevant threshold within four weeks. If not, the acquirer must prepare a mandatory offer document which cannot be retracted at a later stage. Certain exceptions apply to the law of mandatory offers, the most practical being when shares are acquired in mergers or demergers (Aabø-Evensen & Co, 2015).

4.2.2 Consideration

Cash is the most commonly used consideration in acquisitions by Norwegian listed companies. Looking at the public Norwegian takeover market (where both acquirer and target firm are listed on the OSE), there were zero bids launched included a share component in 2014. In 2013, only 9% of the total public M&A volume involved pure equity or a mix of equity and cash, and none of these transactions were successfully completed (Aabø-Evensen & Co, 2015). The main difference between offering cash and other considerations in Norway, is the amount of information required to be

[3] In comparison, the current threshold for mandatory offers is 30% in Germany and the UK. In the US, there is no requirement to make a mandatory offer. However, in certain states, the other shareholders can demand that the bidder purchase their shares at a fair price when a bidder gains voting power of a certain percentage of a company (20% in Pennsylvania, 25% in Maine and 50% in South Dakota).

published and the process for finalizing the documentation. If the consideration is cash, it will be sufficient for the bidder to prepare a relatively standardized offer document. On the other hand, if the consideration is shares, the bidder shall obtain the necessary corporate resolutions to issue the securities. The offer document must include qualified information similar to that of a prospectus, which is necessary for an investor to make properly informed assessment of the issuer's prospects (Aabø-Evensen & Co, 2015. This prospectus or offer document must thereafter be reviewed by the Norwegian FSA and the Norwegian regulated stock market (the Oslo Stock Exchange). In conclusion, the structure of share for share offers in Norway are more complex compared to deals financed by cash.

4.2.3 The Norwegian M&A market (2006-2015)

In the period between 2006-2015, there were 3263 completed M&A deals in Norway. As can be seen in Table 1, the deal volume peaked in 2014 with a number of 567 transactions, while 2009 contained the lowest volume with 140 completed deals. 2009 is also the observation with the lowest deal value, with a total value[4] of EUR 3.534m and an average deal value of EUR 47 000. Considering the records with an identifiable deal value in Mergermarket, the highest deal value is observed in 2006, with a total value of EUR 43.487m and an average deal value of EUR 0.298m.

Table 1

M&A Overview in Norway 2006-2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Σ
Total No. of M&A in Norway	238	268	200	140	225	251	334	504	567	536	3263
Records with disclosed value	146	158	108	76	110	109	124	200	216	186	1433
Total value	43.487	23.191	8.993	3.534	18.226	13.690	11.593	16.880	18.229	19.624	177.477
Average deal value	0.298	0.147	0.083	0.047	0.166	0.126	0.093	0.084	0.084	0.106	-

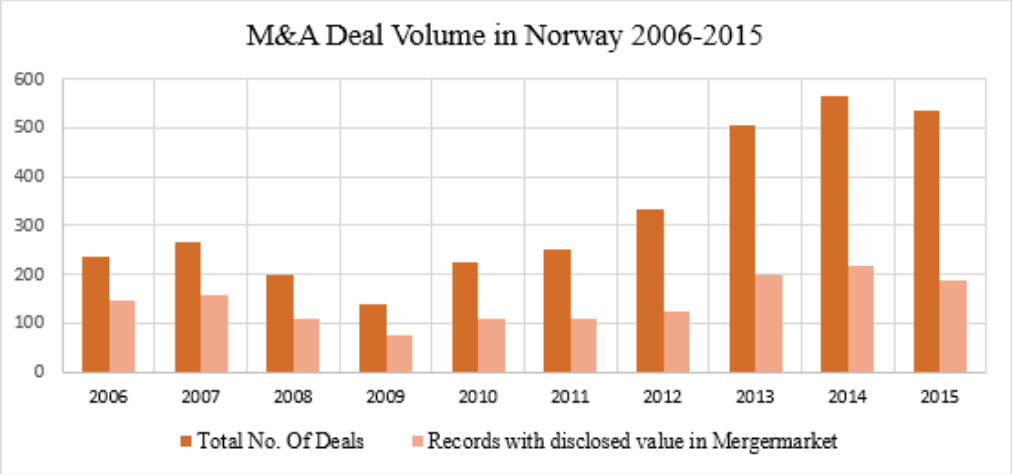
All values stated in MEUR.

DePamphilis (2011) states that merger waves in Europe seem to follow those in the US, with a slight delay. Norway experienced a similar wave to most recent wave of 2003-2007, although it was relatively short. Combined with the general recovery of

[4] The real total deal value is substantially higher, as only 44% of the total number of transactions during the period have an identifiable deal value.

the international economy, country-specific factors further strengthened the trend of increase in mergers; In 2006-2007, Norway had low interest rates, strong NOK, positive economic outlooks and an "all time high" stock market were all indications of increased merger activity. In a global comparison, the Norwegian economy was not hit particularly hard by the financial crisis in 2007. Partly, this can be explained by continued activity in the petroleum and offshore industry which amounts for a significant part[5] of the Norwegian business environment. However, a negative growth in deal volume of 34% and 43% is observable in 2008 and 2009, respectively. Figure 1 illustrates the M&A deal volume in Norway between 2006-2015, based on Table 1.

Figure 1



In 2010, M&A deal values and volumes in Norway bounced back after falling off sharply in the preceding years. According to 'The Annual Review of Mergers & Acquisitions in the Nordic Region 2011, the Norwegian deal market *"exhibited the fastest growth across the Nordic region, with aggregated deal value rising by 55.9% and 82.9% year-on-year to a total of 145 transactions collectively valued at EUR 10.54 billion[6]".* However, a substantial decline in oil and gas prices in 2015 led to a

[5] Currently, the energy sector amounts for 12/62 companies, and 35% of the total market value of the OSEBX (data collected 07/0316).

[6] These numbers deviate from Table 1, because a significant part of the deal values are marked as "undisclosed" in Mergermarket.

drop in Norwegian M&A activity, as nearly 50% of Norwegian listed companies operate in energy related industries. The M&A market continued to decline in Q1 2016, and witnessed a volume reduction of 12% compared with the same period of 2015. Due to collapsing oil prices and continuous negative outlooks for the Norwegian economy, foreign investors consequently retreaded from the Norwegian M&A market. However, the Norwegian M&A market started to pick up again at the end of the second quarter of 2016, resulting from a revival in the capital market and major economies.

4.3 NORWEGIAN REGULATORY FRAMEWORKS

4.3.1 The takeover market

The Norwegian takeover market is regulated by a comprehensive statutory framework. Since Norway is a member of the European Free Trade Association ("EFTA") and the European Economic Area ("EEA"), the majority of EU regulations regarding M&A transactions are also implemented in Norwegian law. The most important laws regulating M&A transactions in Norway is the Private Limited Liability Companies Act ("LLCA"), the Public Limited Liability Companies Act ("PLLCA"), and the Partnership Act. Moreover, tender offers and other transactions involving public companies with listed stocks in a regulated marketplace in Norway (i.e. the OSE) are subsequently subject to the Securities Trading Act ("STA") and the Securities Trading Regulation ("STR"). Both the STA and STR intend to prevent market abuse and insider trading by regulating prospectus and information requirements, and by providing detailed regulations with respect to tender offers involving listed securities. In addition, the OSE offer supplementing rules, guidelines and recommendations for publicly traded companies. Lastly, these aforementioned corporate-specific laws constitute the framework basis, and can be supplemented by various, more general regulations (e.g. the Contracts Act, Sale of Goods Act, Tac Act, Competition Act etc.).

Further, market manipulation is considered a serious matter in Norway. Market manipulation may refer to the dissemination of information, which is likely to give false, incorrect or misleading signals regarding financial instruments, when the person or entity making the dissemination either knew, or should have known, that the information was false, incorrect or misleading. Anyone who willfully or negligently

commits market manipulation may be penalized by a fine or imprisonment. Violations through market manipulation may be considered as fraud, which is a serious offence under the Norwegian criminal code. The latter states that the maximum sentencing of committing fraud is six years. Even if market manipulation or any other violations related to tender offers for listed companies do not qualify as fraud, the same actions may be criticized by the OSE if they deviate from "good market practice". Criticism from the OSE will often attract attention from the media, which consequently may lead to significant and costly bad-will. Based on Norwegian tort law, civil claims may also be held against the bidder, the target company or its directors personally. However, according to Aabø-Evensen & Co (2014), such litigations are rare amongst Norwegian takeover transactions.

4.3.2 Accounting

The Norwegian Accounting Standards Board (Norwegian: *Norsk Regnskapsstiftelse*) sets standards in Norway by development and interpretation of accounting standards. The development of Norwegian GAAP (NGAAP) represents a harmonization between Norwegian and international accounting theory and research, developed within the statutory framework. Due to increased globalization, and consequently a need for aligning financial reporting across the European countries and continents, the International Financial Reporting Standards (IFRS) became an important accounting standard internationally in the 1990s. IFRS Standards are mandated for use by more than 100 countries, including the EU. In Norway, all listed companies are required to use IFRS since 2011. The standard is described on the official website[7] as follows: *"IFRS Standards is a single set of accounting standards, developed and maintained by the International Accounting Standards Board (the Board) with the intention of those standards being capable of being applied on a globally consistent basis—by developed, emerging and developing economies—thus providing investors and other users of financial statements with the ability to compare the financial performance of publicly listed companies on a like-for-like basis with their international peers."*

[7]IFRS Official website: http://www.ifrs.org/About-us/Pages/What-are-IFRS.aspx (Downloaded 08/04/2017)

4.4 CORPORATE GOVERNANCE

4.4.1 Institutional environment

The Norwegian corporate governance practices are highly influenced by the Public Companies Act (PCA). The PCA determines legislations regarding the role and authority of the general meeting, and the remuneration, elections, obligations and the role of the board of directors, the general manager and the auditor. An additional provider of corporate governance guidelines, is the Norwegian Code of Practice for Corporate Governance (from here: 'the Code'). The Code offer more detailed guidelines for what should be implemented or described in Norwegian listed companies. The Code has a "comply or explain" policy, meaning that companies will be expected to either comply with the Code or explain why they have chosen an alternative approach. The Code is revised every few years, but usually with very small changes. One significant change in 2009, however, involved a new requirement stating that the company should establish an internal audit committee with a majority of independent directors. This was further included in the PCA, making the requirement legislative, in contrast to many other recommendations of the Code.

The board of directors of Norwegian listed companies has an overall managing function and a supervisory function over the company and the CEO. However, the ultimate authority lies in the general meeting. Chairman-CEO duality is not allowed in Norwegian publicly traded firms. Randøy and Nielsen (2002) state that this enhances the monitoring role of the chairman of the board.

Kaplan (1998) implies that corporate governance in Scandinavia is moving closer to the Anglo-American corporate governance system, due to the recent increase in foreign equity ownership. This involves, among others, greater emphasis on incentive-based CEO compensation. Historically, the level of CEO compensation in Norway has been low compared to other developed countries. Following Randøy and Nielsen (2002), this may be explained by at least three interconnected factors: First, Norway has been ruled by Social Democrats almost continuously since the end of World War II, which have led to a strong equalitarian culture which have "penalized" exceptionally high wage earners by legislation and tax policies. Second, the influence of social democratic politics has resulted in union representation on the boards of most

listed corporations in Norway. Approximately 1/3 of all supervisory boards, as well as regular board positions, are reserved for employee representatives. Third, Norway is recognized by relatively strong minority shareholder rights, which may have produced vocal resistance against high levels of CEO compensation (Randøy and Nielsen, 2002).

Also, Eilifsen and Knivsflå (2016) state that Norway and its financial reporting and auditing environment is characterized by high investor protection and strong legal enforcement. External audit is mandatory for all Norwegian listed firms, and the vast majority of public companies in Norway are audited by a Big 4 firm, which in literature is associated with high audit quality (e.g. Craswell et al. (1995); Eilifsen and Knivsflå (2016)). Further, all firms auditing public firms in Norway are subject to supervision by the Norwegian FSA. This audit includes not only the audit of assignments, but primarily the audit company's quality control system (Deloitte, 2016).

4.4.2 Blockholders

In a global context, Norway differ from many economies in both ownership concentration and ownership identity. Table 2 shows the largest and second largest owners of the companies included in the OBX, i.e. the 25 most traded securities on the Oslo Stock Exchange, based on six months turnover rating. This overview illustrates notably three distinctive characteristics of ownership structure in Norwegian corporations. First, the largest owner has an average block of 35.26%, ranging from a minimum of 10.09% to a maximum of 77.83%. In comparison to both the US and UK, Norway has a much more concentrated ownership structure. The largest owner will often have effective control of the company, whereas in the US and UK the largest owner typically owns less than 5% (Thomsen & Conyon, 2012). Owners with a share larger than 20% are considered to be controlling, as long as no one else has any large concentration of shares (Berk and DeMarzo, 3rd edition). The rationale behind is that, if the other 80% is a dispersed group of many different shareholders, it will be tremendously challenging to coordinate activities to outvote the largest blockholder.

Table 2

Market Value and Ownership Concentration of the OBX Index

OBX Company	Market value*	Largest owner	% share	2nd largest owner	% share
STATOIL	485106	Government of Norway	67.00	National Insurance Fund	3.20
DNB	220702	Government of Norway	34.00	DNB Savings Bank Fd.	9.00
TELENOR	210354	Government of Norway	53.97	National Insurance Fund	4.29
NORSK HYDRO	103815	Government of Norway	34.30	National Insurance Fund	6.10
YARA INTERNATIONAL	91665	Government of Norway	36.20	Norwegian National ISF	5.90
ORKLA	77109	Canica	24.47	National Insurance Fund	7.98
GJENSIDIGE FORSIKRING	66446	Gjensidigestilftelsen	77.83	National Insurance Fund	4.86
MARINE HARVEST	58528	Geveran Trading Co Ltd	16.02	National Insurance Fund	6.98
AKER BP	47114	Aker Capital AS	40.00	BP Global Investment Ltd.	30.00
SUBSEA 7	44321	Siem Industries, Inc.	21.30	National Insurance Fund	8.90
STOREBRAND	25574	Folketrygdfondet	12.81	JP Morgan Chase Bank London	6.55
SCHIBSTED	23389	Blommenholm Industrier AS	25.00	National Insurance Fund	7.60
LERØY SEAFOOD	22390	Austevoll Seafood ASA	52.09	National Insurance Fund	4.33
SALMAR	20306	Kverva AS	53.40	National Insurance Fund	7.15
TGS-NOPEC GEO. CO.	18641	National Insurance Fund	10.10	The Bank of NY Mellon	7.60
AKER SOLUTIONS	14160	Aker Kværner Holding AS	40.56	Aker ASA	6.37
BAKKAFROST	12654	Jacobsen	18.60	Nordea Bank AB Denmark	7.50
NORWEGIAN AIR SHUTTLE	8568	HBK Invest AS	24.60	National Insurance Fund	9.10
FRONTLINE	7835	Hemen Holding Ltd.	48.40	Ship Finance International Ltd.	6.50
DNO	7819	RAK Petroleum Holdings	40.45	Swedbank Generator	2.25
PETROLEUM G.S.	7754	Ferd AS	10.09	Kiltearn Partners LLP	8.13
GRIEAG SEAFOOD	6956	Grieg Holding AS	49.97	OM Holding AS	3.00
BW LPG	5990	BW Group	44.41	JP Morgan Chase Bank London	8.20
SEADRILL	3465	Hemen Holding Ltd.	24.40	Ting Jinquan	7.20
REC SILICON	2613	UMOE AS	21.16	National Insurance Fund	4.11

*MNOK April 5th 2017

Secondly, the second largest owner is also relatively large. The average stake of the second largest owner is 7.34%, ranging from 2.25% to 30.00%, which in a global context is rare.

Lastly, Table 2 shows that the five largest companies measured by market value on the OBX, have the Government of Norway as the largest owner. Moreover, the state-owned National Insurance Fund[8] is the largest owner of one, and the second largest owner of 12, of the companies on the OBX. Norway has a mixed economy, where the state has large ownership positions in key industrial sectors, such as the petroleum sector (Statoil), hydroelectric energy production (Statkraft), aluminum production (Norsk Hydro), the largest Norwegian bank (DNB), and the largest telecommunication

[8] The National Insurance Fund (Norwegian: Folketrygdfondet) is the managing body of the Government Pension Fund Norway (commonly referred to as 'the Oil fund'). The Government Pension Fund Global is the fund into which the surplus wealth produced by Norwegian petroleum income is deposited.

provider (Telenor). In sum, the government controls approximately 30% of the stock values for companies listed at the Oslo Stock Exchange.

4.5 SUMMARY

To summarize, Norway has an effective legal system with high investor protection, little corruption, and generally strong domestic corporate governance regimes. The takeover market is regulated by a comprehensive statutory framework, which is highly influenced by the regulations of EU. Market manipulation is considered a serious offence under the Norwegian criminal code, and based on Norwegian tort law, civil claims may be held against the accused. Since 2011, all Norwegian public companies are required to keep accounts in accordance with IFRS. The board of directors in Norwegian firms has an overall managing function and a supervisory function over the company and the CEO. Chairman-CEO duality is prohibited. Kaplan (1998) implies that the corporate governance in Scandinavia is moving closer to the Anglo-American system, for examples by greater emphasis on incentive-based CEO compensation. Further, Norway has very high ownership concentration in public firms. Large owners with blocks of more than 30% shares are not uncommon, and there is often more than one large owner. Moreover, the government controls approximately 30% of the stock value at the OSE. How the different characteristics of Norway may influence the level of earnings management, will be discussed in the next chapter.

5. HYPOTHESES DEVELOPMENT

This chapter presents the development of hypotheses. Hypotheses are derived based on theoretical assumptions supported by empirical evidence. Additionally, we discuss whether these may or may not apply to the case of Norway.

5.1 THEORETICAL EXPECTATIONS

As elaborated in subsection 2.2.5, theory implies that acquiring firms' managers have an incentive to manipulate earnings prior to share for share bids. The consideration received by target shareholders in these kinds of bids, is the acquiring firm's stock, and the exchange ratio (i.e. the number of shares received in exchange for each target share, multiplied with the market price of the bidder's stock) is inversely related to the acquiring firm's stock price on or near the takeover agreement. This relation provides managers of acquiring firms an incentive to manage earnings upwards prior to the takeover, with the motive of reducing the cost of buying the target. Earnings manipulation may influence critical factors as whether the bid succeeds, and for which management team will control the target's assets. Moreover, as discussed in subsection 2.1.6, theory suggests that managers may wish to acquire due to managerial motives such as empire building, overconfidence or personal economic benefits.

5.2 CONTEXT SPECIFIC EXPECTATIONS

The theoretical suggestions that managers manipulate earnings upwards prior to share for share bids, are supported by empirical evidence as elaborated in chapter 3. Nonetheless, the prevalence of earnings management prior to share for share bids in the Norwegian context is currently an underresearched area. As outlined in chapter 4, Norway has many distinctive characteristics regarding both the M&A market, regulatory frameworks and corporate governance, which may influence the prevalence of earnings management. Firstly, theory suggests that the institutional framework of a country can influence the level of earnings management. Research have shown that companies operating in countries with effective legal systems, where the chances of prosecution are high, will involve less in earnings management activities compared to countries with less efficient legal systems (Burgstahler et al., 2006). Norway is

characterized by is characterized by high investor protection and strong legal enforcement and thus, according to theory, expected to engage in less financial malpractice, all else being equal. The analysis of Bhattacharya et al. (2003) further suggest that Norway with low earnings opacity, may have less problems with earnings management compared to countries with high earnings opacity, due to greater earnings transparency and more informative financial statements. However, recent accounting scandals violates the assumption that accounting manipulation in Norway is non-existing.

Further, external audit is mandatory for all Norwegian public firm, and most publicly traded firms in Norway are audited by a Big 4 firm, which in literature is associated with high audit quality. High audit quality may facilitate disincentives to manage earnings, and restrain the bidding firm from managing earnings upwards prior to share for share bids. However, only partial evidence is found that when the bidder is audited by a Big 4 firm, managers' discretion over accrual reporting is mitigated (Botsari and Goh). The authors comment that this may imply that auditors (even Big 4 firms) cannot eliminate earnings management completely.

Furthermore, Norwegian public firms have generally very high ownership concentration. As illustrated in Table 2, large owners with blocks of 30% and more are not uncommon, and there is often more than one large owner. Theory presents many benefits from high ownership concentration, including incentives and power to monitor firm management. On the other hand, large owners may result in expropriation, self-dealing or collusion with management at the expense of minority shareholders. In other words, ownership concentration may serve as a barrier to earnings management, but it can also empower the opportunities due to the entrenchment effect. Moreover, most of the theoretical literature on large shareholders only considers ownership structures where all of the remaining shareholders are small. Hence, more than one large owner further complicates the already ambiguous interpretation of blockholders' influence on earnings management. Although large blockholders are common in Norway, literature provides little evidence of owners expropriating personal gains from minority shareholders (Dyck and Zingales, 2004;

Nenova, 2003). Moreover, Norway has a mixed economy, meaning that the government has large ownership positions in key industrial sectors. Literature implies that the effects of large owners on earnings management also depend on ownership identity. It is reasonable to assume that a government owner will have certain objectives which differ from shareholder value maximization. However, the effect of government ownership on earnings management is currently undocumented.

To summarize, Norway's strong domestic corporate governance regimes (including mandatory audit and high audit quality) are assumed to pose a preventing power to earnings management. On the other hand, the country's distinctively high ownership concentration in publicly listed firms might speak for a higher level of earnings management. In addition to many opposing forces, the impact of state-owned blocks are also unclear in this setting. Considering the ambiguous implications of the theoretical framework, we find poor indications that Norway deviates notably from the theoretical expectations. Furthermore, Norway has been subject to a handful of recent studies indicating earnings management in other contexts. For example, Eilifsen and Knivsflå (2016) empirical analysis of Norwegian public companies from 1999 to 2013 provide evidence of poorer accruals quality around large equity increases. Moreover, Pettersen and Søderberg (2016) find empirical evidence on 'big baths' in the context of CEO turnovers in a large sample of Norwegian firms. We conclude that empirical testing is necessary to provide any insightful evidence of whether Norwegian acquirers manage earnings ahead of share for share bids.

5.3 HYPOTHESES

In accordance with the theoretical suggestions in section 5.1, we expect to find evidence of income-increasing earnings management by Norwegian bidders in the period prior to share-swap acquisitions.

H1a: Acquirers listed on the Oslo Stock Exchange manage earnings upwards prior to share for share bids

Moreover, if earnings are managed upwards in the periods preceding the merger by discretionary accruals, it is likely discretionary accruals are reduced or reversed after the transaction has been completed. This theoretical expectation has been supported by empirical findings (e.g. Botsari and Meeks, 2008).

H1b: Discretionary accruals are reduced or reversed post M&A

Further, acquiring firms' managers have an incentive to increase reported accounting earnings preceding share-swap mergers, which in theory is described as an increasing function of the available economic benefits, which can be generated by such opportunistic behavior (Erickson and Wang, 1999). We define the economic benefits as the economic benefits of the acquiring firm's managers, which may or may not be consistent with the economic benefits of the firm, and hence the company shareholders[9]. The economic benefits can be proxied by the relative size of the transaction: If the size of the target firm is relatively small compared to the size of the acquiring firm, the economic benefits from increasing the stock price by managing earnings upwards will also be relatively small (Botsari and Goh). Since earnings management is not without costs, the incentives for the acquiring firm's managers to manipulate earnings are reduced, due to small economic benefits. Vice versa, if the size of the target is relatively large to the size of the acquiring firm, the economic benefits at stake are of greater magnitude. Therefore, we expect that the incentives to manage earnings prior to share for share bids are greater for relatively large deals rather than for relatively small deals.

H2: Income-increasing earnings management prior to share for share bids is more likely to occur when the relative deal size is big.

[9] Deviations of the economic benefits of the bidding firm's managers and shareholders may occur due to the separation of ownership and control, as discussed in subsections 2.1.4 through 2.1.6.

6. EMPIRICAL METHODOLOGY

This chapter presents the empirical methodology of the thesis, including a description of the models, data and sample. Lastly, it includes an operationalization of the hypotheses developed in the previous chapter.

6.1 MODIFIED JONES MODEL

6.1.1 Choice of model

There exist various approaches and designs to uncover earnings management. By reviewing previous literature, we find that accrual-based models are the most common for measuring earnings management ahead of share for share bids. Following the discussion of different models in subsection 2.2.8, we conclude that a version of the "Modified Jones Model" is the most proper for our analysis. Dechow, Sloan and Sweeney (1995) test five different accrual-based models, "the Healy model", "the DeAngelo model", "the Jones model", "the Industry model" and a modified version of the Jones Model, and conclude that the latter serves as the best model for detecting earnings management. Moreover, Guay, Kothari and Watts (1996) test the same five models, and conclude that the Standard Jones model and the Modified Jones model are the only models which have the ability to disclose earnings management, while the others are no better than models which totally random parts accruals in discretionary and non-discretionary accruals.

The only difference between the Standard and Modified Jones model is the assumption of whether revenues are exogenous (i.e. non-discretionary) or not. Whereas the Standard Jones model assumes that all revenues are non-discretionary, the Modified Jones model recognize that earnings may be managed through discretionary revenues on credit sales. Naturally, it is easier for managers to exercise discretion over the recognition of revenue on credit sales compared to cash sales (Botsari and Meeks, 2008). For estimation purposes, change in receivables deducted from change in revenues in Equation 2 (in subsection 6.1.2) is the only distinction between the two related models.

Since the introduction of the Modified Jones model (Dechow et al., 1995), merits and drawbacks have been thoroughly explored in the literature (e.g. McNichols (2001), Peasnell et al. (2000a), Thomas and Zhang (2001)). We follow the conclusion of Botsari and Meeks (2008, p. 638): *"while the Jones approach has its limitations, the evidence suggests that no other model is superior in estimating discretionary accruals."* More specifically, we apply a cross-sectional version of the Modified Jones model, as first introduced by DeFond and Jiambalvo (1994). The cross-sectional version is applied in favor of the time-series adaption, as the latter has provided weaker support for the earnings management hypothesis in previous research (Botsari and Meeks, 2008). A number of additional specifications within this model have been made, which will be fully discussed in the following five subsections.

6.1.2 Measuring earnings management

The cross-sectional Modified Jones model involves a two-stage estimation process. First, we use Equation (1) to estimate alpha and beta for each combination of industry and fiscal year included in the event period, using all firms on the Oslo Stock Exchange with available data in the same sector portfolio (GIC code) as the acquirer, which did not experience any share-swap acquisitions in the relevant event years:

$$WCA_{ijp}/A_{ijp-1} = \alpha_{jp} + \beta_{1jp}\,(\Delta REV_{ijp}/A_{ijp-1}) + \varepsilon_{ijp} \qquad (1)$$

WCA_{ijp}	Working capital accruals for portfolio *j* for firm *i* in year *p*
ΔREV_{ijp}	Change in revenue (total sales) for portfolio *j* for firm *i* in year *p*
A_{ijp-1}	Lagged total assets for portfolio *j* for firm *i* in year *p*
ε_{ijp}	Error term for estimation portfolio *j* for firm *i* in year *p*
i	1,…,N company index
j	1,…,J industry-year portfolio index
p	1,…,P fiscal year index

Secondly, after generating industry-year specific estimates of alpha and beta, these estimates are combined with firm-specific data in Equation (2), in order to calculate the estimated discretionary working capital accruals (EDWCA) for each sample firm.

$$EDWCA_{ip} = WCA_{ip}/A_{ip-1} - [a_{jp} + b_{1jp} (\Delta REV_{ip} / A_{ip-1} - \Delta REC_{ip} / A_{ip-1})] \quad (2)$$

EDWCA is calculated by deducting non-discretionary accruals from total working capital accruals. As explained in subsection 6.1.1, change in accounts receivable (ΔREC) is deducted from change in revenue (ΔREV) in Equation 2. All variables are scaled by lagged total assets to reduce heteroscedasticity.

6.1.3 Balance sheet and cash flow approach

There are two different approaches for estimating accruals in the Modified Jones model: The balance sheet approach and the cash flow approach. The two approaches differ in whether accruals are calculated by the balance sheet or cash flow statement, respectively. Although the cash flow approach seems slightly more favored in similar studies, we include both approaches for comparison.

6.1.4 Working capital accruals

Whereas the original Modified Jones model estimates total accruals (i.e. both current and non-current accruals), we follow the conclusion of most recent studies that *"depreciation has limited potential as an instrument of earnings management due to its visibility, rigidity and predictability"* (Botsari and Meeks, 2008, pp 638). In contrast, working capital accrual (current accrual) manipulations are more opaque than non-current accounts. Working capital accruals (WCA) are calculated as follows, dependent on the two different approaches:

$$WCA_{BS} = (\Delta CA - \Delta Cash) - \Delta CL$$

$$WCA_{CF} = NI - OCF - D\&A$$

Working capital accruals calculated from the balance sheet (WCA_{BS}) are defined as the change in non-cash current assets (ΔCA – ΔCash) minus the change in current liabilities (ΔCL). Working capital accruals calculated from the cash flow statement (WCA_{CF}) are defined as the difference between net income before extraordinary items

as reported in the cash flow statement (NI) and operating cash flow (OCF), excluding depreciation and amortization (D&A).

6.1.5 The industry-year portfolio approach

In the basic version of Modified Jones model, the intercept and coefficient(s) of the regression were estimated only once for the whole sample, using within-sample financial data surrounding the transaction. A suggested improvement called the 'industry approach' for samples including a wide range of industries, have later been adopted (Teo, Welch and Wong, 1998a; Botsari and Meeks, 2008). We include this approach by using industry-year specific portfolios for estimating the regression in Equation 1 of the model. Heron and Lie (2002) argue that the approach is superior to the initial, as it captures industry effects during the same period employing out-of-sample firms which are expected to have "normal" accruals.

6.1.6 Performance matching

Kothari et al. (2005) test whether the use of performance matching improves the Modified Jones model, in which they conclude that it does in most cases. Performance matching reduces, to a large extent, the probability of type 1 error (i.e. to erroneously reject the null hypothesis). However, it is also likely that the degree of type 2 errors (i.e. to erroneously accept the null hypothesis) increases. In order to conduct the Modified Jones model with performance matching, a matching company for each sample group company (with as similar features as the sample group company as possible) must be identified. Kothari et al. (2005) argue that a matching company should at least be in the same industry and have very similar ROA (return on total assets) as the sample group company. However, as the number of companies listed on the Oslo Stock Exchange is substantially lower compared to other countries where similar studies have been conducted, performance matching in this case is problematic. Therefore, we have chosen to use the Modified Jones model without performance matching in our analysis.

6.2 DATA AND SAMPLE

6.2.1 Data sources

All sample transactions were drawn from Mergermarket, which provided detailed information regarding bidders, target, deal dates and terms etc. Accounting data for both the test sample, control sample and industry portfolios for the Oslo Stock Exchange 2004-2015 were drawn from Compustat. In cases where only a few accounts were missing, these were retrieved from relevant online financial reports if available.

6.2.3 Sample description

The sample used in our study is based on a subset of the population of successfully completed mergers and acquisitions by Norwegian acquirers between January 1st, 2006 and January 1st, 2016. This population corresponds to a total of 3186 deals. There are two main reasons to focus on this period: First, we wanted to examine recent empiricism, due to relevancy and applicability. Second, a ten-year period was considered necessary to obtain a sufficient sample size. Characteristics of this period are described in subsection 4.2.3.

The initial sample was compiled by using the information and data provided by Mergermarket. Whereas only listed Norwegian bidders were included in the sample, no restrictions were made on the features of the target company. From this full sample, we made two subsets: A test group with pure equity financed deals or a mixture of equity and cash, and a control group of pure cash deals. In order to be included in the initial sample of these two groups, the company or transaction had to fulfill the following criteria:

1. The transaction is financed by either cash, equity or a combination.
2. The acquirer is a non-financial company.
3. The deal is both announced and completed between January 1st, 2006 and January 1st, 2016.
4. The acquirer is a Norwegian company which is, or was at the time of the transaction, listed on the Oslo Stock Exchange.
5. The bidder acquired a majority interest (>50%) in the target company, or ended up holding a majority interest as a result of the transaction.

Further, in cases where multiple transactions have been made by the same company during the sample period, the earliest transaction is retained in the model in order to avoid overlapping data. The reason why transactions with a mix of equity and cash are included in the test sample, is that it is reasonable to assume that a bidding firm with the intention to acquire using its shares, has the incentive to manage earnings regardless of the actual consideration target shareholders receive in the end.

The rationale behind excluding financial companies, is that their financial reporting, regulatory regimes and internal governance structures differ substantially from those of industrial firms. Moreover, financial firms have fundamentally different processes of treating accruals. According to Botsari and Meeks (2008), these are not likely to be captured in a satisfactory manner by expectations models for normal accrual activity. Lastly, the efficacy of the Modified Jones model has so far not been documented on financial firms in the literature.

After additionally excluding all deals with "undisclosed value", the sample selection results in 116 transactions, where 43 transactions are pure share swaps or a mixture, and 73 are pure cash deals. Further, we exclude companies with lack of available accounting data. This exclusion refers to companies with neither an identifiable ISIN number nor financial reports available online for the relevant event years, companies lacking data in Compustat for the entire or parts of the event periods, and/or companies that did not have all the necessary data to calculate the accrual measures. Following Kothari et al. (2004), we also delete observations in which the absolute value of the working capital accruals scaled by lagged total assets are greater than one. Lastly, we excluded companies with less than six peers within their industry.

The total omissions leave us with a final test group of 32 acquiring firms with a total of 100 firm-year observations, and 32 firms with 96 firm-year observations for the control group. At first this may seem somewhat low, but in comparison, Botsari and Meeks' (2008) study of the UK takeover market involved a test sample of 42 transactions.

Furthermore, 47 industry-year specific portfolios with a range of six to 31 peers were formed. The industry-year portfolios include listed companies on the OSE which did not experience a similar event[10] to the one experienced in the test group. Further exclusions for these portfolios relate to lack of accounting data and companies included in the final test group. Table 3 illustrates the final test sample of 32 transactions.

Table 3

Final Test Sample of 32 Transactions

Bidder Company*	Target Company	Deal Value	Consideration	*Cash*	*Equity*	Announced	Completed
DNO International ASA	NORAK Holding AS	186	186	0%	100%	03/09/2011	10/01/2012
DOF Subsea ASA	DOF ASA	153	153	0%	100%	29/01/2007	30/06/2007
Atea ASA	Topnordic A/S	127	100	0%	100%	01/02/2006	08/03/2006
Aker BP ASA	Aker Exploration ASA	118	89	0%	100%	25/08/2009	21/12/2009
Grieg Seafood ASA	Hjaltland Seafarms AS	87	87	0%	100%	24/04/2007	24/04/2007
StrongPoint ASA	CashGuard AB	47	39	0%	100%	16/04/2008	26/08/2008
Awilco Offshore ASA	Offshore Rig Services ASA	42	41	0%	100%	16/11/2006	16/11/2006
AgaTech ASA	Wunderlich Securities, Inc.	33	33	0%	100%	27/05/2013	27/05/2013
Goodtech ASA	Goodtech Intressenter AB	29	45	0%	100%	24/08/2010	01/10/2010
Targovax ASA	Oncos Therapeutics Ltd	27	27	0%	100%	11/06/2015	02/07/2015
Infratek ASA	Fortum Service AS	25	37	0%	100%	24/10/2008	15/01/2009
Saga Tankers ASA	Strata Marine & Offshore AS	21	21	0%	100%	26/02/2015	04/06/2015
Borgestad ASA	Borgestad Industries	19	15	0%	100%	13/06/2013	19/07/2013
Codfarmers ASA	Atlantic Cod Farms AS	18	10	0%	100%	26/08/2011	06/10/2011
Techstep ASA	Secgo Software Oy	14	14	0%	100%	30/04/2007	03/05/2007
Eidsiva Rederi ASA	Dyvi Shipping AS	13	13	0%	100%	16/06/2010	15/07/2010
Inmeta Crayon ASA	Exense Consulting AS	12	12	0%	100%	19/09/2008	19/09/2008
Weifa ASA	Aqualis Offshore UK Ltd	10	9	0%	100%	27/09/2013	08/11/2013
NRC Group ASA	Opera Wireless S L	8	8	0%	100%	20/06/2007	25/10/2007
North Energy ASA	4Sea Energy AS	6	6	0%	100%	27/11/2009	09/02/2010
Norwegian Air Shuttle ASA	Nordic Airlink holding AB	6	16	0%	100%	02/07/2007	30/07/2007
Dolphin Group ASA	StarGen Inc.	5	5	0%	100%	26/01/2007	16/04/2007
Eltek ASA	Nera Networks AS	358	181	10%	90%	29/06/2006	31/10/2006
NEL ASA	H2 Logic A/S	35	35	34%	66%	31/05/2015	25/06/2015
Simrad Optronics ASA	Vinghog AS	36	40	50%	50%	11/12/2006	11/01/2007
Data Respons ASA	Embedit A/S	10	10	50%	50%	27/09/2006	10/10/2006
Roxar ASA	PolyOil Limited	6	6	50%	50%	12/03/2008	12/03/2008
Odim ASA	JMC AS	14	14	64%	36%	08/10/2007	08/10/2007
BWG Homes ASA	Prevesta AB	204	163	80%	20%	26/03/2007	31/05/2007
AF Gruppen ASA	Strom Gundersen Holding AS	198	129	81%	19%	10/11/2011	28/11/2011
TTS Group ASA	Sense EDM AS	74	74	88%	12%	30/04/2007	25/05/2007
Petroleum Geo-Services ASA	MTEM Limited	192	192	96%	4%	20/06/2007	20/06/2007

All values stated in MEUR

*legal name at point of bid

[10] No equity financed acquisitions within a range of +/- 2 years.

Table 4a presents the final sample distributed by fiscal year, and Table 4b presents the final sample by sector.

Table 4a

Final Sample Distributed by Fiscal Year

Fiscal Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Σ
No. Deals in Final Sample	12	20	6	3	7	4	2	5	1	4	64
Test Group	4	11	3	2	3	2	1	3	0	3	32
Control Group	8	9	3	1	4	2	1	2	1	1	32

Table 4b

Final Sample Distributed by Sector

GIC	Sector	Final Sample	Test group	Control group
20	Industrials	21	11	10
10	Energy	15	9	6
45	Information technology	12	6	6
25	Capital goods	2	1	1
30	Consumer	9	2	7
15	Material	3	1	2
35	Health care	2	2	0
Σ		64	32	32

As illustrated in Table 5, the final test sample includes 53.13% cross-border deals, 68.75% pure equity deals and all deals were recommended by the target firm's management. The average deal value is EUR 66.66m (median: EUR 28m), ranging from EUR 5m to EUR 358m. The average consideration paid is EUR 56.56m (median: EUR 34m), ranging from EUR 5m to EUR 192m. The difference between total consideration and deal value is that the latter, in addition to the sum of the consideration paid by the acquirer for the equity stake in the target, includes the value of the net debt in the target. For acquisitions that results in a stake equal to or larger than 50% (one of the stated criteria for being included in the test sample), debt will be consolidated as a result of the purchase and hence, the total deal value equals the consideration plus the target company's net debt.

Table 5

Descriptive Statistics of Final Test Sample					
		No. deals		%	
Cross-border Deals		17		53.13	
Recommended Deals		32		100.00	
Pure Equity Deals		22		0.69	
	Mean	Median	St.dev	Min	Max
Deal value	66.65	28.00	83.62	5.00	358.00
Consideration	56.56	34.00	60.30	5.00	192.00

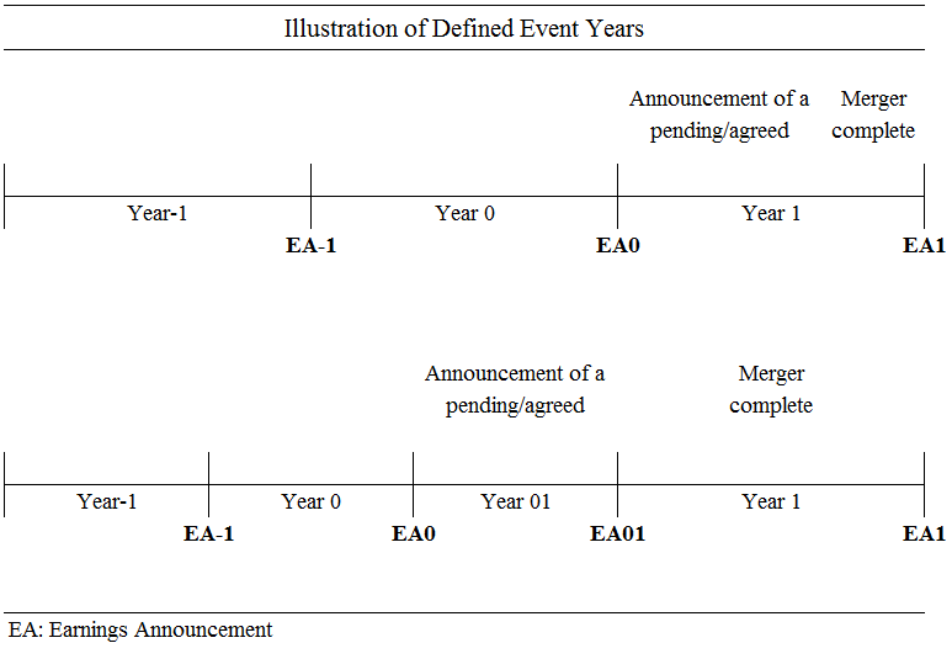
Values in MEUR

6.2.4 Identifying relevant event years

The research question of this paper is whether Norwegian acquiring firms manage reported earnings prior to share for share bids. Hence, the model requires an identification of possible years of manipulation. Previous research identifies earnings management as early as two years preceding the offer. Through insights from Mergermarket, we have identified announcement date and completion date for all transactions in the test sample. Following Botsari and Meeks (2008), we define Year 0 is defined as the first year with an earnings release[11] preceding the announcement of the deal, Year -1 is the second year with an earnings release preceding the announcement of the deal, and Year 1 is the first year with an earnings release following the deal announcement. For 28 out of 34 companies included in the test group, Year 1 contains the earnings announcement which also reports the completion of the deal. An extra period, Year 01, is made for the four companies with an earnings announcement between the announcement date and completion date. Figure 2 illustrates the defined event years.

[11] We have exclusively considered annual earnings announcements.

Figure 2



6.2.5 Currency

According to the older Accounting Act of 1977 (cf. § 4.2), Norwegian companies were obligated to present financial statements in local currency, i.e. Norwegian kroner (NOK). This provision applied until 1998. In the current Accounting Act, entities pursuant to § 3-4 are allowed to present financial statements in "*Norwegian kroner or the currency operations are linked to (functional currency)"*. In other words, data downloaded from Compustat might not exclusively show accounting data in Norwegian kroner. The model, however, scale all values by lagged total assets and thus eliminates this problem.

6.2.6 Industry classification

In international studies conducted on larger markets, Standard Industrial Classification (SIC) codes are commonly used to distribute companies into industry portfolios. We find this narrow definition problematic for our sample, as the number of listed Norwegian companies is substantially lower than in for instance the UK and US. Notably, since we have a criterion of minimum six listed companies within each industry group, the use of SIC codes would reduce our sample in a way which could deteriorate the explanatory power of the model. Instead, we use the Global Industry

Classification (GIC) sector standard. The GIC sector division involves 11 different sectors in which 10 are represented on the Oslo Stock Exchange, whereas the final test sample represents eight[12].

6.3 OPERATIONALIZATION OF HYPOTHESES

6.3.1 Hypothesis 1a

To test the hypothesis that acquirers on the Oslo Stock Exchange manage earnings upwards prior to share for share bids, we conduct a two-sided t-test for the residual means and a Wilcoxon signed rank test for the residual medians. More specifically, we test whether the average and median EDWCA are significantly different from zero. As the t-test assumes that the prediction errors follow a normal distribution, the Wilcoxon signed rank test is included as this non-parametric test eases the normality assumption of the underlying variable. A two-sided test is applied as the mean and median values can be both positive and negative, i.e. higher and lower than $\mu = 0$.

6.3.2 Hypothesis 1b

Further, we test the hypothesis that EDWCA are reversed post deal completion. Firstly, we test the overall significance of EDWCA being different from zero in Year 1, based on a two-sided t-test for the residual means and a Wilcoxon signed rank test for the residual medians. Then, we conduct a one-sided t-test to control whether the average discretionary working capital accruals is significantly lower in Year 1 compared to Year 0. In other words, we test whether there exists a reversal effect of accruals post-merger.

6.3.3 Hypothesis 2

With regard to Hypothesis 2, we want to examine whether income-increasing earnings management is more likely to occur when the relative deal size is big. This is tested by running a multiple regression model, while controlling for additional factors, which may influence earnings management. In this model, we consider only the first year

[12] 'Financials' are systematically excluded, 'Utilities' were not represented in the final sample, and 'Telecommunication services' is excluded due to less than six peers on the OSE.

with an earnings release prior to the merger announcement, Year 0. The choice of independent variables is based on former research results and theory in the particular research field, in addition to an assessment of whether the variables fulfill the requirements of the classical linear regression model (CLRM).

DEPENDENT VARIABLE

The dependent variable is estimated discretionary working capital accruals (EDWCA) based on the balance sheet approach, which serves as a proxy for earnings management.

HYPOTHESIS VARIABLE

Relative deal size

In accordance with theory, we expect the managers' incentive to be an increasing function of the economic benefits of the acquiring firm's managers, which can be generated from such activity. As a proxy for the economic benefits from managing earnings, we use the relative size of the transaction. More specifically, we expect the acquiring firms' earnings management (measured by discretionary working capital accruals) to be an increasing function of the relative deal size, defined as the deal value divided by the total assets of the acquiring firm in Year 0.

CONTROL VARIABLES

Firm size

We use the natural logarithm of total assets as a control variable, which serves as a proxy for firm size. The reason why we control for size effects is due to the evidence of less flexibility and lower incentives for larger firms to overstate earnings (Francis et al, 2012). Thus, we expect a negative coefficient of the firm size variable. This means that the larger the company is, measured by total assets, the lower the probability that the firm will engage in income-increasing accrual manipulation.

Options

We include a dummy variable, which takes the value 1 if the CEO receives stock options as part of their compensation, and 0 otherwise. The motivation for including

stock options as a control variable, is due to the emerging research on the relation between equity-based executive pay and earnings management. On the one hand, the wealth of the CEOs who receive stock options will be more sensitive to short-term stock prices compared to CEOs who does not receive such equity-based compensation. Consequently, this exposure may increase the incentives to boost short-term stock prices (Cheng et al, 2005). On the other hand, CEOs with high equity-based compensation today are more likely to receive high equity incentives in the future, and therefore, will benefit from smoothing earnings. Consistent with this argument, Cheng et al. (2005) find that high equity compensated managers are less likely to report large positive earnings surprises compared to managers who receive low equity-based compensation. Due to its ambiguous effect on earnings management, we will not make any strong assumptions of the sign of the variable's coefficient.

Age

The natural logarithm of the company age is used as a control variable. The age of the firm is counted from its establishment to the year preceding the merger announcement. Previous research argues that old companies are more likely to have a sound business model and a lower level of information asymmetry (Ahmad-Zaluki et al., 2011). Moreover, older companies tend to have a low level of earnings management as they have a reputation to protect, and are aware of the rules and codes that govern their practices (Bassiouny et al, 2016). Thus, we can expect older companies to have less incentives and/or opportunities to engage in earnings management. Therefore, we predict a negative relationship between the age of the company and the degree of earnings management.

MULTIPLE REGRESSION MODEL

After a detailed review of the dependent variable, hypothesis variable, and the control variables, we end up with the following regression model:

$$EDWCA = \alpha + \beta_1 \text{ Relative Deal Size} + \beta_2 \ln \text{ Total Assets} + \beta_3 \text{ Options} + \beta_4 \ln \text{ Age}$$

The model is analyzed and commented in section 7.2.

7. EMPIRICAL FINDINGS

In this chapter, we present the results of the models described in chapter 6. First, we review the results of the cross-sectional Modified Jones model. Then, we look at the output of the multiple regression model, and discuss the assumptions of the classical linear regression model (CLRM).

7.1 CROSS-SECTIONAL MODIFIED JONES MODEL

7.1.1 Test group

In Table 6, we present descriptive statistics for the 47 industry-year specific estimates of alpha and beta, under both the balance sheet and cash flow approach. We have applied the cross-sectional Modified Jones model for each industry-year portfolio. As presented in Equation 1 in subsection 6.1.2, we regress working capital accruals on the change in revenue. Both variables are scaled by lagged total assets. The alpha represents the intercept, while the beta is the coefficient of change in revenues scaled by lagged total assets. Further, we test the significance of the alphas and betas based on a two-tailed t-test for means and a Wilcoxon signed rank test for the medians. More precisely, we test whether the mean and median of alphas and betas are significantly different from zero.

The average estimated beta according to the balance sheet approach is 0.0801, while the median is equal to 0.0393. The cash flow approach yields an average and median beta of 0.0042 and -0.0193. Under the balance sheet approach, the p-values of the t-test and Wilcoxon signed rank test are 0.1001 and 0.1491, respectively. The corresponding p-values based on the cash flow approach are 0.9325 and 0.6094. Hence, across both approaches, the mean and median betas are not significantly different from zero. The average R^2 for the regression equations is 0.1253 under the balance sheet approach, and 0.1425 based on the cash flow method. The reported

measures of fit are similar to the reported measures in related studies (e.g. Botsari and Meeks, 2008)[13].

Table 6

Descriptive Statistics for the Estimated Regressions under the Cross-Sectional Modified Jones Model

Balance Sheet Approach					
	Mean	Median	Std.dev.	Min	Max
a	-0.0112	-0.0049	0.0553	-0.1367	0.1432
(p-value)	(0.1716)	(0.2357)			
b	0.0801	0.0393	0.3271	-0.6563	1.0027
(p-value)	(0.1001)	(0.1491)			
R-sq.	0.1253	0.0733	0.1366	0.0021	0.5294
Adj. R-sq.	0.0456	0.0018	0.1476	-0.1931	0.4639
No. of obs.	17	17	7.8485	6	31
Cash Flow Approach					
	Mean	Median	Std.dev.	Min	Max
a	**-0.1214*** **	**-0.1244*** **	0.0647	-0.3069	0.0094
(p-value)	(0.0000)	(0.0001)			
b	0.0042	-0.0193	0.3413	-0.9606	1.1885
(p-value)	(0.9325)	(0.6094)			
R-sq.	0.1425	0.0412	0.2104	0	0.8224
Adj. R-sq.	0.0653	-0.0265	0.2291	-0.2244	0.7928
No. of obs.	17	17	7.8485	6	31

Significant results are marked in bold, and the corresponding p-values are given in paranthesis.
The symbols *, **, and *** indicate 1%, 5% and 10% level of significance, respectively.

After estimating alphas and betas for all industry-year portfolios, the results are combined with firm-specific data to estimate the residuals. The residuals are, according to the Modified Jones model, the firm-level proxy for earnings management. Equation 2 (in subsection 6.1.2) estimates the residuals as the difference between a company's total working capital accruals and non-discretionary accruals. A company's non-discretionary accruals are derived from the regression line, using the industry-year specific alpha and beta estimates, with the firm's revenue on cash sales scaled by lagged assets as the explanatory variable. The reported firm-level residuals can be interpreted as the level of discretionary working capital accruals as a percentage of lagged total assets.

[13] In a study of Botsari and Meeks (2008) the reported average R^2 for the regression equations was 0.1301 and 0.1730, based on the balance sheet and cash flow approach, respectively.

Table 7 reports the firm-level residuals derived from the cross-sectional Modified Jones model. The first hypothesis we want to test is whether there exists an income-increasing accrual manipulation in the years preceding the merger announcement. In other words, we expect positive mean and median residuals in event years Year -1, Year 0 and Year 01. The test of significance is based on a two-sided t-test for the means and a Wilcoxon signed rank test for the medians. Secondly, we want to test the hypothesis of a mean- and median-reversion of accruals after the deal has been completed. Hence, we expect a reduction in the mean and median residuals from Year 0 to Year 1. To test the significance of the difference, we conduct a two-sample one-sided t-test for the means of Year 0 and Year 1, and a corresponding Mann-Whitney U test for the medians.

Table 7

EDWCA from the Cross-Sectional Modified Jones Model

Balance Sheet Approach				
	Year -1	Year 0	Year 01	Year 1
Mean	-0.0983	0.0484	-0.0526	0.0118
(p-value)	(0.1095)	(0.2744)	(0.1930)	(0.8629)
Median	0.0103	0.0478	-0.0303	-0.0190
(p-value)	(0.3366)	(0.1122)	(0.1250)	(0.9418)
Std. Dev.	0.3144	0.2379	0.0629	0.3846
Min	-1.2459	-0.7726	-0.1424	-0.7997
Max	0.1999	0.5843	-0.0075	0.8678
No. of obs.	28	30	4	31
Cash Flow Approach				
	Year -1	Year 0	Year 01	Year 1
Mean	0.0277	-0.0318	0.0413	0.0468
(p-value)	(0.4038)	(0.5565)	(0.5481)	(0.1386)
Median	0.0312	0.0415	-0.0022	0.0397
(p-value)	(0.3366)	(0.6083)	(1.0000)	(0.1046)
Std. Dev.	0.1726	0.2931	0.1224	0.1741
Min	-0.3895	-1.1094	-0.0496	-0.3812
Max	0.3029	0.3401	0.2192	0.5019
No. of obs.	28	30	4	31

Under the balance sheet approach, the means (medians) for Year -1, Year 0 and Year 01 are -0.0983 (0.0103), 0.0484 (0.0478), and -0.0526 (-0.0303), respectively. The corresponding values according to the cash flow approach are 0.0277 (0.0312), -

0.0318 (0.0415), 0.0413 (-0.0022). The reported p-values for the means and medians indicate that EDWCA is not significantly different from zero across any of the event years and model specifications. Hence, we reject the hypothesis of an income-increasing accrual manipulation in the event years preceding the merger announcement.

Further, we observe that the mean (median) of the EDWCA in the first period with an earnings release after the deal is completed, Year 1, is 0.0118 (-0.019) according to the balance sheet approach. The corresponding value for the cash flow approach is 0.0468 (0.0397). Based on the reported p-values, the mean and median estimated residuals in Year 1 are not significantly different from zero. However, following Hypothesis 1b, we want to test whether there exists a mean- and median-reversion from Year 0 to Year 1. These test results are presented in Table 8.

Table 8

Test of Accrual Reversion from Y0 to Y1	
Balance Sheet Approach	
Mean-reversion	-0.0366
(p-value)	(0.3262)
Median-reversion	-0.0668
(p-value)	(0.1386)
Cash Flow Approach	
Median-reversion	-0.0018
(p-value)	(0.2713)

There is a small reversal of accruals from Year 0 to Year 1 in both the mean and median under the balance sheet approach, and for the median according to the cash flow approach. The two-sample t-test for the means in Year 0 and Year 1, according to the balance sheet approach, yield a p-value of 0.3261. In other words, the mean in Year 1 is not significantly lower than the mean in Year 0. Similarly, the Mann-Whitney U test for the medians resulted in p-values of 0.1386 and 0.2713, based on the balance sheet and cash flow estimates, respectively. Consequently, across all model specifications, the medians in Year 1 are not significantly lower than the medians in Year 0. Consequently, we reject the hypothesis of post-merger reversion of accruals.

7.1.2 Control group

An identical analysis has been conducted for the control group, i.e. the sample with pure cash transactions. Firstly, we test if the EDWCA are significantly different from zero, using a two-sided t-test for the means and a Wilcoxon signed rank test for the medians. Then, we test the significance of the difference in median EDWCA between the sample and control group. In this matter, we will apply the non-parametric Mann-Whitney U test.

Table 9

EDWCA from the Cross-Sectional Modified Jones Model for the Control Group

Balance Sheet Approach			
	Year -1	Year 0	Year 1
Mean	0.0440	-0.0083	0.0368
(p-value)	(0.2262)	(0.7532)	(0.3784)
Median	0.0094	0.0194	0.0068
(p-value)	(0.2785)	(0.7405)	(0.6349)
Std. Dev.	0.1948	0.1435	0.2215
Min	-0.2318	-0.5738	-0.2041
Max	0.9509	0.2095	1.0986
No. of obs.	30	30	29
Cash Flow Approach			
	Year -1	Year 0	Year 1
Mean	-0.0143	0.0262	0.0105
(p-value)	(0.5527)	(0.4533)	(0.6146)
Median	-0.0008	0.0376	0.0329
(p-value)	(0.8176)	(0.3069)	(0.2635)
Std. Dev.	0.1304	0.1886	0.1109
Min	-0.3658	-0.4138	-0.3476
Max	0.2375	0.4783	0.1897
No. of obs.	30	30	29

Table 9 presents p-values from the t-test and the Wilcoxon signed rank test, which indicate that the mean and median discretionary working capital accruals are not significantly different from zero across event years and model specifications. These results, i.e. EDWCA not being significantly different from zero for the group of cash deals, are in line with findings of no earnings management across cash acquirers in previous research (e.g. Erickson and Wang, 1999; Louis, 2004; Botsari and Meeks, 2008).

Further, the test of the differences in median EDWCA between the test and control group presented in Table 10, yields high p-values across all event years and approaches. In other words, the differences in the median EDWCA between these two samples are not significant.

Table 10

Comparison of EDWCA for the Test Group and Control Group

Balance Sheet Approach			
	Year -1	Year 0	Year 1
Median (difference)	-0.0009	-0.0284	0.0258
(p-value)	(0.2749)	(0.2078)	(0.6411)
Cash Flow Approach			
	Year -1	Year 0	Year 1
Median (difference)	-0.0320	-0.0039	-0.0068
(p-value)	(0.2549)	(0.9941)	(0.4256)

7.1.3 Sub-groups

Based on the stated results, we cannot find evidence of earnings management before share for share bids in Norway in the sample period. To reveal possible differences of earnings management across sub-groups, we have included an additional analysis where we divide the test sample based on the following sample characteristics; deal value, first and second half of the sample period, and lastly firm size. In this part of the analysis, we only consider EDWCA in Year 0. Further, only non-parametric tests are conducted on the sub-groups, as the low number of observations in each sub-sample makes the Student's t-test inadequate. First, we test if the median EDWCA are significantly different from zero based on the Wilcoxon signed rank test. Secondly, we conduct a Mann-Whitney U test to test if the differences within the sub-groups are significant.

DEAL VALUE

First, we categorize the test sample based on the value of the deal. Low deal values range from EUR 5m to 27m, and high deal values from EUR 29m to 358m (Appendix

1). From Table 11 we observe that the median EDWCA for low deal values are EUR 0.0335m and 0.0284m, under the balance sheet and cash flow approach, respectively. The Wilcoxon signed rank test yields p-values of 0.978 according to the balance sheet approach and 0.6788 based on the cash flow approach. Consequently, the median EDWCA are not significantly different from zero for low deal values. In contrast, we find a median discretionary accrual of 0.1069 for high deal values based on the balance sheet approach, which is significantly different from zero on a 5% level. Hence, there is evidence of income-increasing earnings management in Year 0 for the sub-group with the highest deal values. The corresponding results under to the cash flow approach is a median of 0.074, but not significantly different from zero.

Table 11

Deal Value: EDWCA in Y0 from the Cross-Sectional Modified Jones Model

Deal Value	Low	High
Balance Sheet Approach		
Median	0.0335	0.1069
(p-value)	(0.9780)	**(0.0256)****
No. of obs.	15	15
Cash Flow Approach		
Median	0.0284	0.0744
(p-value)	(0.6788)	(0.2293)
No. of obs.	15	15

Significant results are marked in bold and the corresponding p-values are given in parenthesis; ***, ** and * indicate 1%, 5% and 10% level of significance, respectively.

In Table 12 we have compared the two sub-groups by conducting a one-sided Mann-Whitney U test, to check the significance of the difference in medians. Based on the balance sheet approach, the difference is statistically significant on a 10% level. More specifically, there is evidence of higher earnings management in transactions where the deal value is high, compared to when the deal value is low. However, we cannot state that the difference is significant for the cash flow approach, based on the p-value of 0.1523.

Table 12

Comparison of EDWCA for Low and High Deal Values	
Balance Sheet Approach	
Median (difference)	0.0734
(p-value)	**(0,0532)****
Cash Flow Approach	
Median (difference)	0.0460
(p-value)	(0,1523)

Significant results are marked in bold and the corresponding p-values are given in parenthesis; ***, ** and * indicate 1%, 5% and 10% level of significance, respectively.

SUB-PERIODS

Further, to reveal possible differences of earnings management in particular periods, we have divided the test group into two categories; 2005-2009 and 2010-2014. The results in Appendix 2 show positive medians for both sub-periods and model specifications. However, based on the Wilcoxon signed rank test, the medians are not significantly different from zero. Moreover, a Mann-Whitney U test shows that the difference between periods is also insignificant (Appendix 3). An identical analysis adjusted for the financial crisis (excluding 2008 and 2009 from the first sub-period) was also conducted. As observed in Appendix 4, the results of this test follow the same pattern of positive median residuals as in Appendix 2. By conducting a Wilcoxon signed rank test, the medians are not significantly different from zero. Further, the difference between the sub-samples is not significant, based on the Mann-Whitney U test (Appendix 5).

FIRM SIZE

Finally, we have studied potential differences in EDWCA based on the firm size[14]. Total assets are used as a proxy for firm size, which range from EUR 67.4m to 520.9m for small firms, and EUR 529.6m to 5392.7m for big firms (Appendix 1). Appendix 6 reports median EDWCA of 0.0536 and 0.0875 of small firms, based on the balance sheet and cash flow approach, respectively. The corresponding values for big firms are

[14] One of the companies in the sample had a value of total assets equal to zero in the year preceding the merger announcement. Therefore, the number of observations is reduced from 30 to 29.

0.0451 and 0.0284. Based on the results of the Wilcoxon signed rank test, the medians are not significantly different from zero. Moreover, the Mann-Whitney U test indicates that the difference in earnings management between small and big firms is insignificant (Appendix 7).

7.2 MULTIPLE REGRESSION ANALYSIS

In this section, we present descriptive statistics and results of the multiple regression model, as derived in subsection 6.3.3. Further, we conduct a robustness test to check whether our results are robust and plausible. The OLS regression requires certain assumptions to be fulfilled, which will be addressed in section 7.3.

7.2.1 Descriptive statistics

Table 13 presents descriptive statistics of the sample of companies included in the multiple regression model. The number of observations in this model is reduced from 30 to 27, due to lack of information for some of the observations included in the Modified Jones model[15]. The mean and median of EDWCA are slightly lower compared to the balance sheet estimates in Table 7. The relative deal size of the sample companies range from a level of 0.0057 to 0.4008, with a mean and median value of 0.0827 and 0.0557, respectively. Further, we observe a great diversity in the firm size (measured by total assets in Year 0) within the multiple regression sample. Total assets range from EUR 67.36m to EUR 539.7m, with a mean of EUR 1298.88m and median of EUR 666m. 44.44% of the companies grant their CEO with stock options as part of their compensation. Additionally, there is a large variety of company age within the sample. The youngest company was established in the year ahead of the merger announcement, while the oldest had existed for 134 years. The mean and median values of the company age are 31.67 and 16, respectively.

[15] 30 observations of Year 0 were included in the Modified Jones model. For the multiple regression model, two of the companies in the initial sample lacked information of the CEO's share options, while one firm had a value of total assets equal to zero in Year 0.

Table 13

Descriptive Statistics for the Multiple Regression Model						
	Mean	Median	Minimum	Maximum	Std.dev.	N
EDWCA	0.0373	0.0463	-0.7726	0.5843	0.2336	27
Relative Deal Size	0.0827	0.0557	0.0057	0.4008	0.0805	27
Total Assets	1289.88	666	67.362	5392.7	1506.74	27
Options	0.4444	0	0	1	0.5063	27
Age	31.6667	16	0	134	35.4542	27

In order to reduce the influence of extreme values of the variables Total Assets and Age, we convert the variables into their natural logarithms. This procedure is common in the literature, especially for small sample sizes (Gujarati and Porter, 2009). The conversion results in a more normal distribution of the values of these variables. Table 14 presents the descriptive statistic of the multiple regression sample including the converted variables. To illustrate the improvement of converting variables into their natural logarithm, we have included scatterplots in Appendix 8, with EDWCA on the y-axis and the independent variables on the x-axis.

Table 14

Descriptive Statistics for the Multiple Regression Model After Redefining Variables						
	Mean	Median	Minimum	Maximum	Std.dev.	N
EDWCA	0.0373	0.0463	-0.7726	0.5843	0.2336	27
Relative Deal Size	0.0827	0.0557	0.0057	0.4008	0.0805	27
ln Total Assets	6.4969	6.5013	4.2101	8.5928	1.2473	27
Options	0.4444	0	0	1	0.5063	27
ln Age	2.7657	2.7726	0	4.8978	1.3712	27

7.2.2 Results of the multiple regression analysis

The results of the multiple regression model are presented in Table 15, and will in the following be analyzed and commented. In practice, it is common to report heteroscedasticity robust estimates, without testing for the presence of

heteroscedasticity (Schmidheiny, 2016). Therefore, we present our results based on both OLS and heteroscedasticity robust estimates.

Table 15

Results of the Multiple Regression Model

		OLS estimates			Heteroscedasticity robust estimates		
	Coefficient	Std. Error	t-value	p-value	Std. Error	t-value	p-value
Intercept	0.0465	0.2574	0.18	0.8583	0.1761	0.26	0.7942
Relative Deal Size	**1.1891****	0.5526	2.15	0.0427	0.4753	2.5	0.0203
ln Total Assets	0.0188	0.0345	0.55	0.5909	0.0226	0.83	0.4139
Options	-**0.2230****	0.0807	-276	0.0113	0.0873	-2.56	0.018
ln Age	-**0.0472****	0.0288	-164	0.1155	0.0176	-2.69	0.0133
F-value	3.44						
P > F	0.0251						
R^2	0.3845						
Adjusted R^2	0.2726						
N	27						

Significant results are marked in bold and the corresponding p-values are given in parenthesis;
***, ** and * indicate 1%, 5% and 10% level of significance, respectively.

THE POWER OF THE MODEL

Firstly, we observe from Table 15 that the F-test of our multiple regression model is statistically significant on a 5% level with a p-value equal to 0.0251, leading to a rejection of the null hypothesis that the true slope coefficients simultaneously equal zero. In other words, we reject the hypothesis that the independent variables in our model together have no effect on earnings management.

The value of R^2 indicates the percentage of the total variation in the dependent variable explained by the regressors in the multiple regression model. Due to the fact that R^2 is a non-decreasing function of the number of regressors included, it is common to present the adjusted R^2 as it adjusts for the number of regressors in the model (Gujarati and Porter, 2009). The adjusted R^2 is 0.2726, which indicates that the independent variables explain 27.26% of the variation in EDWCA. The measure of fit in the model is not impressively high. However, Gujarati and Porter (2008) argue that a low R^2 in cross-sectional regressions is not necessarily problematic. The focus should rather be on whether the model is correctly specified, as well as the plausibility and significance of the correlation coefficients.

HYPOTHESIS VARIABLE

Relative deal size

The coefficient of the relative deal size is equal to 1.1891. The p-values based on the OLS and heteroscedasticity robust estimates are 0.0427 and 0.0203, respectively, which indicate that the coefficient is positively related to EDWCA on a 5% significance level. The result is consistent with Hypothesis 2 that the bidders' EDWCA are an increasing function of the relative deal size. Consequently, we can accept the hypothesis that income-increasing earnings management prior to share for share bids is more likely to occur when the relative size of the deal is big.

CONTROL VARIABLES

Firm size

The natural logarithm of total assets in Year 0 serves as a proxy for firm size, and has a coefficient of 0.0188. The sign of the coefficient is not in line with our expectations of a negative relation between earnings management and firm size, however, the positive relation between firm size and EDWCA is not statistically significant.

Options

The coefficient of the option dummy variable is -0.223, and is negatively related to EDWCA on a 5% level with a p-value of 0.0113 and 0.018 based on the OLS and heteroscedasticity robust estimates, respectively. As discussed in subsection 6.3.3, we have no strong assumptions of the sign of the coefficient. In our model, there is a negative relationship between earnings management and the option dummy variable, which supports the argument that CEOs benefit from smoothing earnings when they are granted stock options.

Firm age

The coefficient of the natural logarithm of age is -0.0472, and is negatively related to EDWCA on 5% significance level based on heteroscedasticity robust estimates (p-value of 0.0133). The negative relation is insignificant based on the OLS estimates. The sign is consistent with our expectations of a negative relationship between firm age and earnings management.

7.2.3 Robustness check

The purpose of robustness checks is to help diagnose model misspecification, by examining the behavior of core regression coefficient estimates after including or excluding regressors (White and Lu, 2010). White and Lu (2010) distinguish between critical and non-critical core variables, where the former are the effects of primary interest. More specifically, only the critical core variables should be subject to the robustness test, i.e. examining whether the variable is insensitive and plausible when adding and removing variables. The critical core variable in the robustness check is the relative deal size, as we are interested in the variable's impact on earnings management. The control variables will serve as non-critical core variables. We use the variable ln Age to perform the check. Table 15 and Table 16 present the multiple regression model before and after removing ln Age, respectively.

Table 16

Robustness Check of the Multiple Regression Model							
		OLS estimates			Heteroscedasticity robust estimates		
	Coefficient	Std. Error	t-value	p-value	Std. Error	t-value	p-value
Intercept	-0.0584	0.2583	-0.23	0.8232	0.1787	-0.33	0.7468
Relative Deal Size	**1.2682****	0.5703	2.22	0.0363	0.4761	2.66	0.0139
ln Total Assets	0.0145	0.0356	0.41	0.6874	0.0239	0.61	0.5509
Options	**-0.2329****	0.0834	-2.79	0.0103	0.0911	-2.56	0.0177
F-value	3.43						
P > F	0.0337						
R^2	0.3094						
Adjusted R^2	0.2193						
N	27						

Significant results are marked in bold and the corresponding p-values are given in parenthesis;
***, ** and * indicate 1%, 5% and 10% level of significance, respectively.

Robustness is required for valid causal inference, i.e. that the critical core variable should be insensitive to adding and removing variables (White and Lu, 2010). By comparing Table 15 and 16, we observe that the coefficient of relative deal size increases by 0.0791 after the exclusion of ln Age. The slightly increase in the coefficient may be evidence of robustness. Further, the sign and the magnitude of the coefficient are consistent with our hypothesis of a positive relationship between the relative deal size and earnings management.

7.2.4 Sub-conclusion

The objective of the multiple regression model is to test Hypothesis 2, while controlling for additional variables that might influence earnings management. We find a positive and significant relationship between earnings management and the relative deal size, based on a 5% significance level. Further, a robustness check of the relative deal size was conducted, resulting in a robust and plausible coefficient which indicates structural validity.

7.3 ASSUMPTIONS OF THE CLRM

Gujarati and Porter (2009) state that ten assumptions of the classical linear regression model (CLRM) need to be fulfilled, in order to make any statistical inference about the dependent and the explanatory variables:

1. The regression model is linear in the parameters
2. The explanatory variables are independent of the error term
3. Zero mean value of the error term
4. Homoscedasticity
5. No autocorrelation between the error terms
6. The number of observations n must be greater than the number of parameters to be estimated
7. There must be variation in the values of the X variables, and there can be no outliers in the values of the X variable
8. No exact collinearity between the X variables
9. No specification bias
10. The error term is normally distributed

7.3.1 Modified Jones model

We apply the OLS regression in the Modified Jones model to estimate the coefficients used to assess discretionary working capital accruals for each specific firm. As the Modified Jones model is a common method for detecting earnings management, we will not discuss whether this model fulfills the requirements of CLRM or not.

7.3.2 Multiple regression model

In this subsection, we will discuss in which extent the multiple regression model in section 7.2 fulfills the requirements of the CLRM.

Assumption 1

The first assumption of CLRM is that the model is linear in the parameters, which can be tested by drawing scatterplots showing all independent variables against the dependent in a pairwise manner. In Appendix 9, we have included scatterplots of EDWCA against relative deal size, ln of total assets, the option dummy variable, and ln of age. The scatterplots show no indications of significant violations of the linearity assumption.

Assumption 2

Second, the explanatory variables should be exogenous, i.e. independent of the error term. When the regressors and the error term correlates, we will face an endogeneity problem with inconsistent estimations of the parameters (Gujarati and Porter, 2009). Independency can be detected by residual plots, where random and patternless residuals imply independent error terms. Gujarati and Porter (2009) argue that in the purpose of estimation and testing, weak exogeneity is necessary. An independent variable is said to be weak exogenous if it the dependent variable does not explain the regressor. In Appendix 10, we observe no clear evidence of patterns in the residual plots. However, it is theoretically difficult to assume that we have included all the relevant factors in our model and that the error term does not correlate with any of the explanatory variables. Therefore, we are careful in the interpretation of our results, and do not claim that the observed relations are causal.

Assumption 3

Further, the CLRMs requires a zero mean value of the error term. More specifically, it assumes that the positive error terms will cancel out the negative, so that their average impact on the dependent variable is zero (Gujarati and Porter, 2009). As reported in Table 17, the mean of the error terms is 0.0465, which slightly deviates from the required zero mean. An explanation of the deviation may be the small sample size,

which is further addressed in chapter 9. However, we do not consider the deviation as a critical issue in the multiple regression model.

Table 17

Error Term	
Mean	0.0465
N	27

Assumption 4

The assumption of homoscedasticity implies that the variance of the error term is constant. In order to test for homoscedasticity in our empirical analysis, we apply the White test. As reported in Table 18, the p-value of 0.8020 indicates that we cannot reject the null hypothesis of homoscedasticity. Consequently, the assumption of constant variance of the error terms is fulfilled.

Table 18

White Test	
Chi-Square	8.6100
Pr > Chi-Square	0.8020

Assumption 5

The assumption of no autocorrelation means that given two observations of the explanatory variable, the correlation between the disturbance terms, is zero. According to Gujarati and Porter (2009), the justification of this assumption depends on the type of data used. Gujarati and Porter (2009) argue that the assumption can often be satisfied if the data is cross-sectional and obtained as a random sample from the relevant population. Hence, we consider this assumption to be fulfilled.

Assumption 6

The 27 observations in the multiple regression sample is greater than the four parameters to be estimated, which indicates that assumption 6 is fulfilled.

Assumption 7

Whether the model has a satisfactory variation in the explanatory variables, can be determined by observing the standard deviations of the independent variables in Table 14. According to Gujarati and Porter (2009), the variance of the explanatory variables should be a positive number, which is fulfilled in our model[16]. The problem with outliers has been mitigated by taking the natural logarithm of variables with extreme values, as elaborated in subsection 7.2.1.

Assumption 8

The absence of multicollinearity means that none of the regressors can be written as exact linear combinations of the remaining regressors, and that there is no high correlation between the explanatory variables in the regression model. To detect multicollinearity in our data, we examine the correlation between all explanatory variables, as well as their Variance Inflation Factor (VIF). Gujarati and Porter (2009) suggest as rules of thumb that a pair-wise correlation coefficient between two regressors in excess of 0.80 and a VIF value above 10, are indicators of multicollinearity. As can be observed from Table 19 and 20, none of the reported values exceed these limits. Thus, we conclude that our model fulfills the assumption of no multicollinearity.

Table 19

Correlation Matrix				
	Relative Deal Value	ln Total Assets	Options	ln Age
Relative Deal Value	1			
ln Total Assets	-0.4121	1		
Options	0.2877	-0.1290	1	
ln Age	-0.1106	0.1133	0.0387	1

[16] The variance is defined as the square of the standard deviation, and hence positive for all variables presented in Table 14.

Table 20

Variance Inflation Factor	
Variable	VIF
Relative Deal Value	1.2976
ln Total Assets	1.2118
Options	1.0932
ln Age	1.0238

Assumption 9

Further, the model needs to be correctly specified. This assumption implies that all relevant variables are included, irrelevant variables are eliminated, and that we have no measurement errors (Gujarati and Porter, 2009). Since it is difficult to detect potential specification bias, we need to rely on that the included variables yield a correctly specified model.

Assumption 10

Lastly, we need to test for the normality assumption of the residuals. The best linear unbiased estimator (BLUE) properties of OLS require assumption 3 through 5 to be fulfilled. However, for the purpose of hypothesis testing, the residuals also have to be normally distributed. We conduct an Anderson-Darling normality test to determine whether the residuals are normally distributed. The underlying null hypothesis is that the considered variable follows a normal distribution (Gujarati and Porter, 2009). Table 21 reports a p-value below 0.005, which leads to a rejection of the hypothesis of normally distributed residuals.

Table 21

Test for Normality		
Test	A^2 Statistic	p-value
Anderson-Darling	1.4596	<0.0050

Sub-conclusion

In this section, we have derived the assumptions of the CLRM, and determined whether our multiple regression model complies with the requirements. By testing

assumption 1 through 8, we have not detected any critical violations, except for the exogeneity assumption. The ninth assumption of a correctly specified model is difficult to assess, and possible violations of the requirement will be addressed in chapter 9. Further, we rejected the hypothesis of normally distributed error terms. The impact of non-normal residuals on our research results will also be discussed in chapter 9.

8. ANALYSIS AND DISCUSSION

In this chapter, we analyze the results of the empirical findings in chapter 7, and comment on the hypotheses. Further, we discuss three alternative interpretations of our findings and suggestions for further research. Lastly, we comment on the theoretical and practical implications of our findings.

8.1 REVISITING THE RESULTS

The results of the empirical analysis are presented in chapter 7. Across all event years and model specifications, and based on the estimated levels of earnings management, we fail to conclude that there is a significant level of earnings management prior to share for share bids in Norway. The Modified Jones model shows that estimated discretionary working capital accruals (EDWCA) are not significantly different from zero in neither the first year with an earnings release preceding the announcement of the merger (Year 0), nor in the second year with an earnings release preceding the announcement of the merger (Year -1). Conclusively, the model indicates that on average, Norwegian acquirers do not manage earnings upwards prior to share for share bids. Thus, we cannot reject the null hypothesis of Hypothesis 1a.

However, by dividing the final test sample into different subgroups, we find that EDWCA are significantly higher in Year 0 for high deal values compared to low deal values. This might indicate that although income-increasing earnings management is not prevalent on average, it is more likely to occur when the deal value (and hence, the economic benefits at stake) is high. However, this finding is only significant under the balance sheet approach, and must therefore be interpreted with caution. The impact of economic benefits at stake and deal value is further addressed in the discussion of Hypothesis 2. No significant results were found with regards to the differences in earnings management between small and large firms, nor when the sample period was split into two periods (2005-2009 and 2010-2014).

Further, the model indicates a small reversal in EDWCA in the first year with an earnings release following the deal announcement (Year 1). However, the reduction is small and insignificant. Also, the measures of post-merger abnormal accruals must be interpreted very carefully in the context of earnings management. Louis (2004) argues that a merger affects accounts in such a complex way that it is difficult to explain and compare the changes in accruals. He notes that the changes in accruals depends on various things, such as what point during the reporting period the transaction is finalized, and the level of restructuring undertaken by the new entity. Conclusively, we cannot reject the null hypothesis of Hypothesis 1b. Moreover, the findings of the control group are consistent with previous studies (e.g. Erickson and Wang, 1999; Louis, 2004; Botsari and Meeks, 2008), as they fail to provide any significant evidence of earnings management.

Hypothesis 2 was derived by the assumption that managers' incentive to manage earnings is an increasing function of the economic benefits which can be generated from such strategic activity. More specifically, it addresses the question whether earnings management prior to share for share bids is more likely to occur when the relative deal size is large. The relative deal size is measured by the deal value divided by the total assets of the acquiring firm. By running a multiple regression model, we find that the relative size of the deal has a positive and significant relationship with the level of earnings management. The multiple regression model suggests that we can reject the null hypothesis of Hypothesis 2, and subsequently claim that income-increasing earnings management by Norwegian acquirers is more likely to occur when the relative deal size is big. However, due to the many limitations stated in chapter 9, we emphasize that this finding must be interpreted with caution.

8.2 INTERPRETATION & SUGGESTIONS TO FUTURE RESEARCH

Reviewing the findings of the empirical analysis, we identify three alternative but non-mutually exclusive interpretations. Based on the results of the analysis, it cannot be claimed that one interpretation is superior to another, and therefore suggest that further research is recommended. The three alternative interpretations are as follow:

1) Earnings management is generally less prevalent in Norway, compared to the countries where evidence have been found.
2) Norwegian acquirers manage earnings upwards prior to share for share bids, but only when the relative deal size is big, and thus the economic benefits high.
3) Norwegian acquirers may or may not manage earnings upwards prior to share for share bids, but the model is inadequate in testing small markets, and/or small samples.

8.2.1 Interpretation 1

The first interpretation suggests that earnings management is less prevalent in Norway, compared to other countries. In a conversation[17] with two partners from Deloitte Norway (Oslo), Tom Husebø (Head of Valuation) and Anne Jones (Lead of Finance and CFO services), we discussed the results of our analysis based on their own professional experience from working with audit and financial deals in Norway. The overall response to the results, was that this came as no surprise, as they observe very few examples of earnings management in this specific context.

"Our impression is that there are limited opportunities [for managers to manipulate earnings], since all public companies are subject to [external] audit. However, some opportunities exist concerning the most discretionary items, where [managers] can make their own assessments. For example, to make or avoid write-downs in certain periods. (…) From our own experience, listed companies have greater opportunities [to boost the stock price ahead of M&A] by using 'guiding'."

Guiding is a common method to present prospective information prior to M&A, and often included in quarterly or annual reports by acquiring firms, prior to deal completion. Guiding often includes information about prospective synergy effects (e.g. increased production).

[17] Phone call conducted on May 9th, 2017.

"Based on the reports [with such guiding], analysts may upgrade their expectations."

Based on these professional insights, our interpretation of low prevalence of earnings management in Norway is strengthened. However, to comment on the relative prevalence between the Norwegian takeover markets and other countries, a comparative analysis needs to be conducted. Following this interpretation, we suggest that future research should focus on why the theoretical expectations do not apply to Norway, and whether managerial incentives are less present due to the specific context, like domestic market conditions or corporate governance mechanisms. For example, earnings management may be less prevalent in Norway due to greater transparency, or because large owners of acquiring firms may have long-term oriented goals aligned with the minority shareholders. As suggested by our contacts in Deloitte, the use of guiding might be a more common tool to inflate stock prices prior to M&A in Norway.

8.2.2 Interpretation 2

The second interpretation indicates that Norwegian acquirers manage earnings upwards prior to share for share bids, but only when the relative deal size is big, and thus the economic benefits high. These results are in line with the theoretical expectations, and Erickson and Wang's (1999) empirical findings in the US takeover market. However, due to the limitations of our analysis described in chapter 9, this interpretation calls for further research and support in the Norwegian context. There is a high likelihood that the relative deal size is explained by other variables, which were not included in the model. For example, large owners may be risk averse and avoid large deals due to the many uncertainties concerning such a strategy. By including more independent variables in the model, for instance the ownership concentration (the percentage-share of the largest owner of the company), the relative deal size might not have a positive and significant relationship with the level of earnings management anyway. We suggest that further research regarding causality is recommended.

8.2.3 Interpretation 3

Finally, the third interpretation suggests that earnings management prior to share for share bids may or may not occur in the Norwegian context, but the existing models are

inadequate in discovering evidence due to small markets, and/or small samples. Statistical models have many advantages as they enable researchers to observe patterns of earnings management through large, historical data sets (Schipper, 1989). However, in the case of small markets and/or small samples, the statistical approach has some limitations, as will be further elaborated in chapter 9.

One way to expand the sample size in this thesis, could be to exclude the control group. This way, a fewer number of equity deals would be rejected in the final test sample (in cases where the first out of several mergers are financed by cash). On the other hand, an exclusion of the control group would eliminate the opportunity to compare the results between share-swaps and pure cash acquisitions. Another approach could be to expand the scope of the thesis, geographically (e.g. include all three Scandinavian countries), or by looking at the incentives to manage earnings in more general terms. For instance, Eilifsen and Knivsflå (2016) include several types of equity issues (IPOs, share-swap acqustions, private sales etc.) in their analysis of accrual quality for Norwegian public firms between 1999-2013. In addition to a longer sample period, this broader sample inclusion yields a 20 times larger sample[18] than what is analyzed in this thesis. Eilifsen responds directly in an email that the results in our thesis *"are not in violation to ours [Eilifsen and Knivsflå, 2016], as there is a tendency of earnings management before [relatively large] mergers and acquisitions. The reason for lack of significance may be few observations".*

In the light of the third interpretation, we suggest that a new approach (e.g. case-based examination) is needed to supplement the weaknesses of the statistical approaches (i.e. the Modified Jones model and the multiple regression model) for smaller samples. Although earnings management may not be widespread and hence not observable in statistical models, it can still be useful to examine individual cases where behavior consistent with earnings management is observable. In the next section, we look closer into one of the observations included in the Modified Jones model.

[18] Eilifsen and Knivsflå (2016) analyze 2064 company-year observations for Norwegian firms with some kind of equity issuance, whereas our narrow analysis of share for share bids includes only 100.

8.3 CASE: SIMRAD OPTRONICS ASA ACQUIRES VINGHØG AS

In this section, we review some of the aspects of the acquisition by Simrad Optronics ASA of target company Vinghøg AS in 2007. This transaction is relevant to study, due to its placement as the most aggressive observation in the Modified Jones model (i.e. the highest level of EDWCA among the test sample) in Year 0 under the cash flow approach (Appendix 11). Moreover, Simrad Optronics' acquisition of Vinghøg has the fifth highest relative deal size within the sample (Appendix 12).

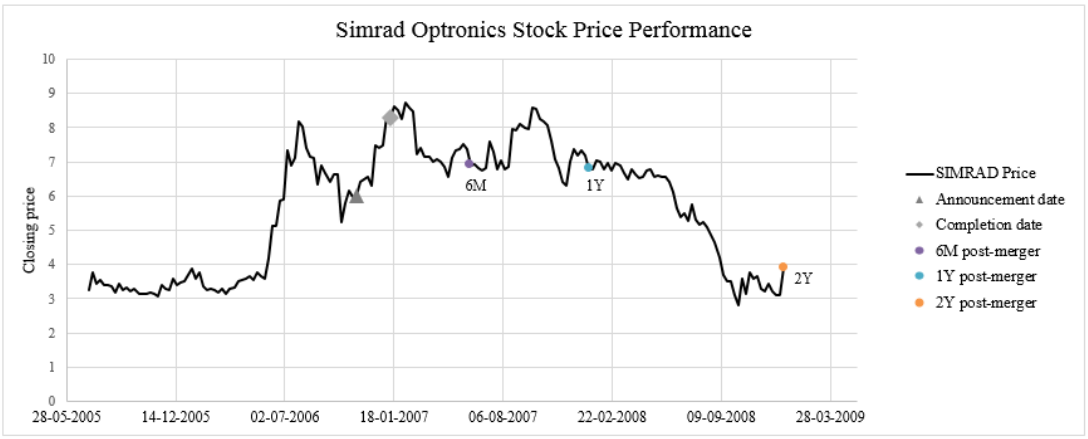
Simrad Optronics ASA (now: Rheinmetall Nordic AS) is a Norway based supplier of military and industrial electro-optical instruments. The company was listed on the Oslo Stock Exchange between July 2005 and July 2010. On December 11th, 2006, the company announced that it would acquire Vinghøg AS, a Norway based mechanical and electro-optical engineering company, from Vingtech Holding AS, the Norway based holding company of Vinghøg. The transaction was part of Simrad's growth strategy, and intended to strengthen Simrad's position in the defense sector. In a stock exchange announcement, Simrad predicted that the merger would create significant synergies, primarily in marketing and product development, but also in production. Simrad Optronics paid a total consideration of NOK 320m (EUR 40m), in which NOK 160m (EUR 20m) was paid in cash, and in shares of the company's common equity for the remaining NOK 160m (EUR 20m).

By January 1st, 2007, Simrad Optronics' Fire & Gas division demerged from the company. In Simrad Optronics' annual report 2006, the company separates the Fire & Gas division accounts from the company accounts. For the accounts' cost side, this is done without distinguishing between different cost items, making it difficult to identify exactly how the costs are distributed in the remaining business. Moreover, due to disagreements regarding the recognition of long-term contracts, the company's initial proposal of annual accounts 2006 were rejected by the Financial supervisory authority of Norway (FSAN). The company consequently complied to the suggested changes in line with FSAN's remarks. Nevertheless, it is noted in the annual report that the management still believed that the initial statements gave a true and fair view of the company. This disagreement may have reinforced the challenges for company

outsiders (e.g. company shareholders) of assessing Simrad Optronicss' earnings quality in the year prior to the acquisition of Vinghøg.

Simrad Optronics is the most aggressive observation of the Modified Jones model under the cash flow approach in Year 0, meaning that the EDWCA level is the highest within the sample. Positive (income-increasing) accruals in the year prior to a share-swap acquisition, indicates behavior consistent with earnings management. Moreover, Simrad Optronics' stock price rose more than 50% two months preceding the deal announcement, supporting the motive of such behavior. However, many factors come into play when assessing one company and one transaction only. Due to the great depth and complexity of such case-study, a brief review and discussion is undoubtedly inadequate in assessing whether the management of Simrad Optronics managed earnings upwards prior to the acquisition of Vinghøg with the opportunistic intentions described in this thesis. However, regardless of these assessments, the transaction was completed when the stock price was close to all-time-high (Figure 3).

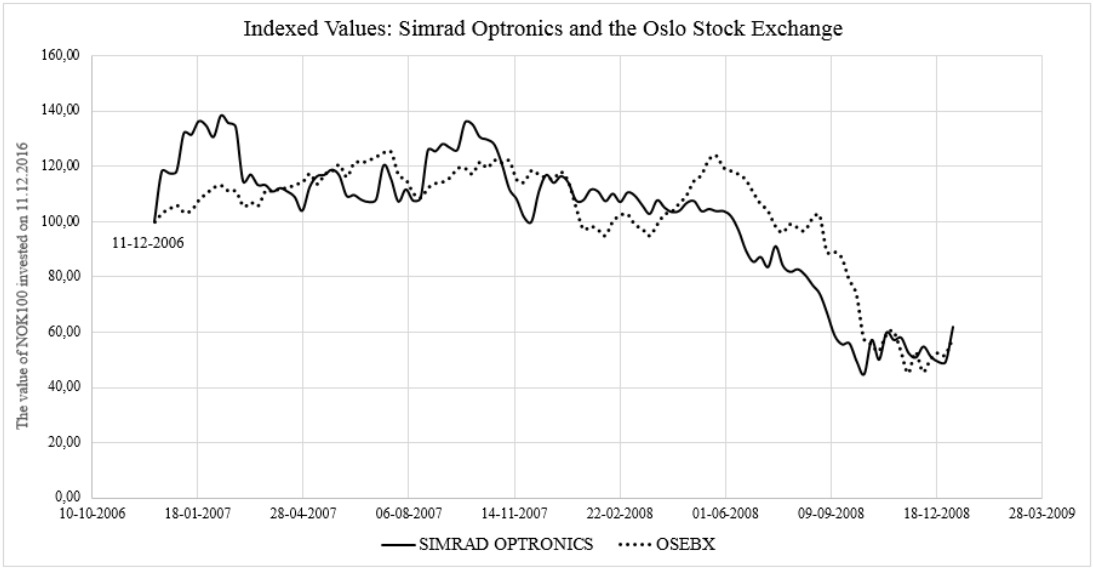
Figure 3



Whereas the share price was NOK 6.31 at the announcement date, the price increased to NOK 8.14 at the day of completion. As a result, the number of shares were decreased, due to the inverse relation of share price and exchange ratio. Furthermore, Figure 3 implies evidence of poor long-term performance post-merger. During a six-month period following the completion date, the share price fell by 13.88% to NOK 6.9. Moreover, the stock performance experienced a total downfall by 16.46% and

45.33% one year and two years post-merger, respectively. An important note is that these years include the Financial crisis. By indexing the stock price and the OSE from the point of announcement date (Figure 4), the negative slope of returns seems similar but somewhat steeper than the overall market. The practical interpretation of this chart is the value development of NOK 100 invested at the day of the deal announcement.

Figure 4



The fact that the transaction was completed with a close to all-time high stock price, may of course be attributable to other reasons than earnings management. For example, there is a possibility that the company's use of guiding (prospective information of synergy effects) affected the market expectations, and hence, the stock price prior to and post-merger. After the merger announcement, the deal was hyped in the business media which may have contributed in boosting the stock price further. In addition to a sharp increase prior to the announcement date, the stock price rose further 7.5% from the announcement until completion date. However, abnormal returns and post-merger performance are major areas of research, which is outside the scope of this thesis. Therefore, a detailed analysis on this will not be included.

To summarize, we suggest that an enhanced and extended version of the case-based approach might be superior to the statistical approach, when it comes to highlighting detailed information about the transactions. Regardless of the reasons or motives

behind, a boosted company stock price contributed in lowering Simrad Optronics' effective cost of acquiring Vinghøg.

8.4 IMPLICATIONS

The thesis contributes to the emerging literature on earnings management ahead of M&A by providing the first analysis, to our knowledge, to test for earnings management by acquirers prior to share for share mergers in the Norwegian takeover market. Additionally, among a majority of evidence of income-increasing earnings management prior to share for share bids in the existing literature, this research adds nuances in terms of presenting a finding with contrary results. The results can be interpreted in various ways as discussed in section 8.2, which can motivate different directions of future studies. Further, there is currently little evidence on causality concerning the research area. This study modestly suggests that when the relative deal size is big, and thus the economic benefits at stake high, income-increasing earnings management is more likely to occur. In short, this paper implies that the current theory lacks proper insight in causality, notably whether incentives to manage earnings are less prevalent in specific contexts, like under certain market conditions or corporate governance mechanisms.

Furthermore, the thesis has some practical implications, as our findings are of particular interest to Norwegian regulators for policy-making purposes as well as to investors in the Norwegian capital market. Our findings indicate that investors in the Norwegian capital market should pay extra attention to mergers and acquisitions, when the deal is financed by stocks and the relative size of the transaction is big. This is due to the likelihood of the acquiring firm's equity being overvalued, and thus undesirable to hold. Notably, extra attention should be dedicated to assessing the earnings quality of the bidding firm: If the bidding firm's net income is higher in the period preceding the merger announcement compared to last year, it represents an economical win for the company. However, existing and potential investors of the bidding firm should notably question: Are these earnings reliable? Is the amount of earnings attributable to higher sales or lower costs, or artificial profits created by accounting anomalies such as, for instance, increased working capital accruals? Does the accounting seem

aggressive, compared to previous periods? Investors and analysts should especially look for variations between the bidding company's cash flow and net income. If the company has high net income but negative cash flows from operations, this is typically a red flag. Moreover, extra attention to relatively large share for share bids should also be devoted by auditors of the acquiring firm. Auditors are known with common methods of manipulating earnings; however, extra attention and resources should be dedicated to situations where the likelihood of presence is suspected to be high. Lastly, due to the numerous limitations of this study (which will be addressed in chapter 9), we suggest that a substantial amount of supplementing research should be dedicated to this specific area, before the practical recommendations can be fully applicable.

8.4 SUMMARY

The results of the model in chapter 7 imply that, on average, Norwegian acquirers do not manage earnings upwards prior to share for share bids. By dividing the final test sample into different subgroups, we find that EDWCA are significantly higher in Year 0 for deals with high values compared to deals with low values. However, this finding is only significant under the balance sheet approach, and must therefore be interpreted with caution. Further, the multiple regression model suggests that we can claim that income-increasing earnings management by Norwegian acquirers is more likely to occur when the relative deal size is big. Conclusively, we answer the research question of this thesis by suggesting that Norwegian acquirers do not manage earnings upwards prior to share for share bids, but that there is more income-increasing earnings management when the deal is relatively big. We propose three alternative interpretations, and conclude that further research is recommended to determine which one is the most proper. A small case examination is included, to highlight some of the aspects which the statistical models fail to capture. Lastly, we suggest that the current theory is lacking proper insight in causality. Also, we suggest that the findings have practical implications for investors and regulators in the Norwegian market, but that further research is suggested for these recommendations to be fully applicable.

9. LIMITATIONS

In this chapter, we address the limitations of the thesis. We discuss methodological weaknesses in the light of four important criteria of research quality: reliability, measurement validity, internal validity and external validity.

9.1 RELIABILITY AND MEASUREMENT VALIDITY

Reliability deals with the extent to which the analytical measures are stable and data collection techniques are valid. The measurement validity concerns whether a measure does really match the research concept, and its intended utilization. Hence, the two criteria of reliability and measurement validity are closely connected. Reliability in secondary data collection is taken into account by using widely recognized secondary databases like Compustat and Mergermarket. These two databases can be considered reliable due to their frequent use in the related literature, and strengthen the likelihood of having correct information in our data set. Moreover, by closely following the approach of previous research in this field, we strengthen the measurement validity. Therefore, we can quite confidently suggest that the measures of our models to a large extent match the research concepts of this thesis. However, there are certain limitations concerning both reliability and measurement validity that we would like to address.

First, many researchers (e.g. Heron and Lie, 2002) suggest that the use of quarterly data in certain circumstances can improve the power of tests for earnings management. In this thesis, we have exclusively applied annual data. There is a risk that patterns of earnings management slip under the radar of annual data. This is because the desired effect of earnings management is expected to be rather short and temporary, and hence more likely to be observable on a quarterly basis. Annual data are chosen nonetheless, as quarterly reports are inadequate in providing the required accounts, particularly on details of current assets and the cash flow statements

Secondly, there is some uncertainty regarding the comparability of accounting numbers in our data set. Since 2005, all listed companies with consolidated financial statements have been required to use IFRS (Eilifsen and Knivsflå, 2016). In 2011, the

same rule extended to all companies listed on the Oslo Stock Exchange, regardless of whether the company prepare consolidated statements or not. As our calculations of EDWCA in the Modified Jones model are based on the change in accounting variables from one year to another, these accounts need to be comparable. Out of a total sum of 100 different observations, we have identified 12 fiscal years in the final sample group which (according to the Compustat variable "accounting standard") are presented in accordance with either Domestic standards (NGAAP) or United States standard (US GAAP). The accounting standards of the remaining 89 fiscal years are marked as "DI: Domestic standards generally in accordance with or fully compliant with IFRS." In other words, there is some uncertainty of the comparability of 12% of the accounts in the sample group. Also, there is some uncertainty associated with the listed companies on Oslo Stock Exchange which are used to make industry-year portfolios, as to whether the statements are prepared according to IFRS or NGAAP between 2004 and 2011. In sum, we recognize these uncertainties regarding accounting standards and comparability as modest but possible sources of errors.

Moreover, we address the possibility that the Modified Jones model and regression analysis is better suitable for a larger population, and a larger sample. The Norwegian takeover market is notably smaller than the UK or US takeover market, and share-swap acquisitions are less common. With regards to the application of the Modified Jones model, the relatively small number of companies listed on the OSE prevents us from including the performance matching approach, as described in subsection 6.1.6. The main benefit of including this approach is that it to a large extent reduces the probability of type 1 error (i.e. to erroneously reject the null hypothesis). However, since the null hypothesis is not rejected as a result of the Modified Jones model, we do not assess the absence of performance matching to have major implications for the analysis. Nevertheless, the industry-portfolio approach has some obvious limitations related to the same issue. In international studies conducted on larger markets (e.g. the UK and US), Standard Industrial Classification (SIC) codes are the common classification for industry portfolio purposes. As this narrow definition is problematic since the number of listed Norwegian companies is relatively small, we divide industries by GIC sector codes classification instead. This division is substantially

broader than the SIC codes, and hence not equally efficient in capturing industry-specific patterns.

Furthermore, the choice of variables in the multiple regression model has been determined based on research and theory in the particular research field. However, variables used in previous research has been excluded or modified in the current regression due to lack of information or bad application to our data. For example, some studies (e.g. Warfield et al. (1995); Becker et al. (1998); Balsam et al. (2003)) have used the absolute value of EDWCA as the dependent variable. This may serve as a better approach, as one can determine the explanatory variables' impact on managers' discretion over accruals, regardless of the expected direction of earnings management. However, Hypothesis 2 of this thesis states that earnings management of income-increasing character is more likely to occur when the relative deal size is big. Earnings management measured by the absolute value of EDWCA will capture the combined effect of income-increasing and income-decreasing abnormal accruals. Therefore, to study the directional impact of the relative deal size on earnings management, it is beneficial that the dependent variable (EDWCA) takes both positive and negative values. This is also done in other studies with similar focus (e.g. Erickson and Wang, 1999).

Moreover, to test the effect of equity-based CEO compensation on earnings management, a simplified solution in terms of an option dummy variable was included, taking 1 if the CEO is granted stock options as part of the compensation, and 0 otherwise. An improvement to the model could have been to include a control variable describing the value of stock options as a percentage of total CEO compensation.

9.2 INTERNAL VALIDITY

Internal validity looks at the causality of the research results, by questioning whether the stated relationships between the variables are true. In section 7.3 we derived assumptions of the classical linear regression model (CLRM) that needs to be fulfilled in order to make any statistical inference about the dependent and the explanatory variables. We have tested for assumption 1 through 8, where we have found no critical

violations, except for the exogeneity assumption. However, assumption 9 of correct model specification is difficult to fulfill, as one in practice is likely to commit several model specification errors. Correct specification includes no omission of relevant variables and exclusion of unnecessary variables (Gujarati and Porter, 2009). Underfitting a model, i.e. omitting a relevant variable from the regression, will generally result in biased and inconsistent coefficients, incorrectly estimated error variance, as well as an invalid hypothesis-testing procedure. However, the only penalty for including an unnecessary variable, i.e. overfitting the model, is larger estimated coefficient variances, and hence, an imprecise probability inference about the parameters. Gujarati and Porter (2009) recommend including regressors that on a theoretical ground directly influence the dependent variable, and which is not explained by other independent variables.

All included variables in the regression are theoretically explained in previous research. However, due to the low number of observations in the regression, we were forced to limit the number of explanatory variables in the regression model. Therefore, we will not rule out that there may be other factors which explain differences in earnings management. Conclusively, our results of the multiple regression model have to be interpreted with caution.

9.3 EXTERNAL VALIDITY

External validity deals with the generalization of the research results, and concerns whether the applied sample is representative beyond the specific research process. First, there are some obvious limitations of dealing with a small sample. Although the sampling fraction in this analysis is similar to several international studies[19], a small sample has some statistically limitations. Dechow et al. (1995) conclude in their review of five different accrual-based models including the Modified Jones model, that none of the models have great power in detecting earnings management of economically plausible magnitude. They state that subtle cases of earnings management in one

[19] For example, whereas this study analyzes 64 transactions (including the control group) out of a total population of 3186 deals, Botsari and Meeks (2008) investigate 90 transactions out of a total population of 3332 deals. The sampling fractions are 2.0% and 2.7%, respectively.

percent of total assets require a sample size of several hundred firms to provide a reasonable chance of detection. In the Modified Jones model, the regressions to estimate discretionary accruals are sometimes conducted with as little as six observations (the portfolio minimum), and the estimated alphas and betas may consequently be inappropriate for the model. Some suggestions to how we could have expanded the sample is discussed in subsection 8.2.3. However, these alternative procedures were mainly limited by the availability of resources (i.e. time, data and capacity). Conclusively, since our study of Norwegian firms is based on a small sample, the results of this study are not sufficient in order to generalize properly.

Furthermore, we find a violation of the normality assumption in the multiple regression model (subsection 7.3.2). Despite the non-normal residuals, Gujarati and Porter (2009) argue that the OLS estimators are still BLUE (best linear unbiased estimator). However, when the violation of the normality assumption is present in small sample sizes we will have inaccurate test procedures. More specifically, violation of the normality assumption means that the t- and F-statistics may not follow the t- and F-distributions. Therefore, due to the low number of observations in the sample we cannot state that the results of our test procedures in subsection 7.2.2 is completely valid.

Lastly, in addition to several sample criteria derived from previous research in the sample selection (e.g. Botsari and Meeks, 2008), a rule of only retraining the earliest transaction in cases where multiple transactions have been made by the same company during the sample period, was added. The rationale behind this rule is to avoid overlapping data, as this could disrupt our findings. However, this selection rule "favors" transactions which occur early in the sample period. Conclusively, the overrepresentation of deals completed in the first half of the period may be attributable to a bias in the sample selection. This may have further implications for the data collection and the final results of the analysis. If earnings management is more prevalent in a company's second or later number of deals during the period, the aforementioned selection criterion will not be able to capture this.

10. SUMMARY AND CONCLUSION

The purpose of this thesis was to contribute to the emerging literature on earnings management ahead of M&A, by examining 64 firms (including 32 share for share bids and 32 cash deals with a Norwegian acquirer) in the period between January 1st, 2006 – January 1st, 2016. Theory, supported by empirical evidence, suggests that acquiring firms in share for share bids tend to manage earnings upwards by accrual manipulation in the period preceding the deal announcement. As the number of shares issued by the acquirer depends on the acquiring firm's stock price on or near the date of deal agreement, the acquiring firm's management has an incentive to increase earnings prior to the takeover. The motive is to raise the market price of the acquiring firm's stocks, and hence reduce the cost of the merger, by using temporarily overvalued equity as a cheap "acquisition currency". Section 2.2 presents several examples of how earnings management may have negative impact for investors, as they are given false or misleading information by the company's management. In short, an efficient capital market is based upon information flows, and earnings management ahead of mergers may have irreversible consequences for the distribution of gains between acquiring and target firm's shareholders. This paper asks whether this grey area of accounting is prevalent in the Norwegian takeover market, and provide the first analysis, to our knowledge, of earnings management by acquirers prior to share for share bids in a Nordic context.

In accordance with theory, we expect to find evidence of income-increasing earnings management by Norwegian bidders in the period prior to share-swap acquisitions (H1a). Moreover, if earnings are managed upwards prior to the merger to the company's stock price, it is likely that earnings are reduced or reversed after the transaction has been completed. Therefore, we expect a reversion of accruals in the period with an earnings release immediately following the completion date (H1b). As previous research identifies earnings management as early as two years preceding the offer, we examine both the first and second year preceding the deal announcement (Year 0 and Year -1, respectively). If earnings management is prevalent, we expect positive (i.e. income-increasing) levels of estimated discretionary working capital

accruals (EDWCA) in the Modified Jones model. Moreover, we expect a reversal effect in the first year with an earnings release following the deal announcement (Year 1). An extra period (Year 01) is added to the model for the companies with an earnings announcement between the announcement date and completion date.

The empirical findings indicate that on average, Norwegian acquirers do not manage earnings upwards prior to share for share bids. This finding is supported by the absence of a significant reversion in post-merger accruals. Consequently, we cannot reject the null hypothesis of Hypothesis 1a and 1b. By dividing the final test sample into different subgroups, we find that EDWCA are significantly higher in Year 0 for deals with high values compared to deals with low values. However, this finding is only significant under the balance sheet approach, and must consequently be interpreted with caution. Further, we expect the incentives to manage earnings prior to share for share bids to be greater when the relative deal size is large (H2). By conducting a multiple regression model with EDWCA as the dependent variable, we find a positive and significant relationship between the relative deal size and earnings management.

Conclusively, we answer the research question of this thesis by suggesting that Norwegian acquirers do not manage earnings upwards prior to share for share bids, but that income-increasing earnings management is more likely to occur when the deal is relatively large. However, due to the many limitations stated in chapter 9, we emphasize that this finding must be interpreted with caution. Three alternative, non-mutually exclusive interpretations are proposed, and we conclude that further research is recommended to assess which one is the most proper: 1) Earnings management is less prevalent in Norway, compared to the countries where evidence have been found; 2) Norwegian acquirers manage earnings upwards prior to share for share bids, but only when the relative deal size is big, and thus the economic benefits high, and; 3) The model is inadequate in testing earnings management on small markets, and/or small samples.

A discussion of the results of this thesis with Deloitte professionals, confirm our overall impression of the empirical findings; that earnings management, on average, is

not prevalent ahead of M&A in the Norwegian takeover market. Insights from this conversation suggest that the use of guiding might be a more common tool to inflate stock prices prior to M&A in Norway.

Furthermore, by including a small case-based examination, we highlight the added insights from including such approach. Lastly, we discuss the theoretical and practical implications of the thesis. The theoretical implications of the thesis point to the lack of proper insight in causality, notably whether incentives to manage earnings are less prevalent in specific contexts, like under certain market conditions or corporate governance regimes.

Finally, we suggest that the thesis has some practical implications, as our findings are of particular interest to Norwegian regulators for policy-making purposes and to investors in the Norwegian capital market. Our findings indicate that investors in the Norwegian capital market should pay extra attention to mergers and acquisitions, when the deal is financed by stocks and the relative size of the transaction is big. This is due to the likelihood of the acquiring firm's equity being overvalued as a result of pre-merger earnings management, and thus undesirable to hold. Notably, extra attention should be dedicated to assessing the earnings quality of the bidding firm. Moreover, also auditors of acquiring firms should pay extra attention to relatively large share for share bids. Auditors are known with common methods of manipulating earnings; however, extra resources should be dedicated to situations where the likelihood of presence is suspected to be high. Finally, due to the numerous limitations of this study, we suggest that a substantial amount of supplementing research should be dedicated to this specific area, before practical recommendations can be fully applicable.

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APPENDICES

APPENDIX 1

Companies in the Sub-Group Analysis: Deal Values and Values of Total Assets

Company Name	Deal Value	Total Assets
AF Gruppen ASA	198	3013
Aker BP ASA	118	5225,316
Atea ASA	127	1727,2
Awilco Offshore ASA	42	0
Borgerstad ASA	19	529,605
BWG Homes ASA	204	2150,358
Codfarmers ASA	18	220,644
Data Response ASA	10	237,534
DNO ASA	186	5392,7
DOF Subsea ASA	153	4078,5
Dolphin Group ASA	5	84,326
Eltek ASA	358	1768,674
Goodtech ASA	29	520,892
Grieg Seafood AS	87	1595,352
Hiddn Solutions ASA	33	441,22
Infratek ASA	25	921
NEL ASA	35	239,179
Norwegian Air Shuttle ASA	6	1061,944
Norwegian Car Carriers ASA	13	868,343
NRC Group ASA	8	170,278
Odim ASA	14	666
PGS-Petroleum Geo-Services	192	1225,753
Saga Tankers ASA	21	447,302
Simrad Optronics ASA	36	264,808
Strongpoint ASA	47	355,616
Tandberg Data ASA	12	93,836
Targovax ASA	27	67,362
Techstep ASA	14	202,374
TTS Group ASA	74	1633,13
Weifa ASA	10	236,039

APPENDIX 2

Sub-periods: EDWCA in Y0 from the Cross-Sectional Modified Jones Model

Fiscal Years	2005-2009	2010-2014
Balance Sheet Approach		
Median	0.0493	0.0365
(p-value)	(0.3168)	(0.2500)
No. of obs.	21	9
Cash Flow Approach		
Median	0.0318	0.0973
(p-value)	(0.6261)	(0.9102)
No. of obs.	21	9

APPENDIX 3

Comparison of EDWCA for Sub-periods (2005-2009 vs. 2010-2014)	
Balance Sheet Approach	
Median (difference)	0.0128
(p-value)	(0.4121)
Cash Flow Approach	
Median (difference)	0.0655
(p-value)	(0.4823)

APPENDIX 4

Sub-periods Adjusted for the Financial Crisis:
EDWCA in Y0 from the Cross-Sectional Modified Jones Model

Sample period	2005-2007	2010-2014
Balance Sheet Approach		
Median	0.0478	0.0365
(p-value)	(0.5509)	(0.2500)
No. of obs.	18	9
Cash Flow Approach		
Median	0.0301	0.0973
(p-value)	(0.8317)	(0.9102)
No. of obs.	18	9

APPENDIX 5

Comparison of EDWCA for Sub-periods (2005-2007 vs. 2010-2014)	
Balance Sheet Approach	
Median (difference)	0.0113
(p-value)	(0.6679)
Cash Flow Approach	
Median (difference)	0.0672
(p-value)	(0.9799)

APPENDIX 6

Firm Size: EDWCA in Y0 from the Cross-Sectional Modified Jones Model

Firm Size	Small	Big
Balance Sheet Approach		
Median	0.0536	0.0451
(p-value)	(0.2166)	(0.5245)
No. of obs.	14	15
Cash Flow Approach		
Median	0.0875	0.0284
(p-value)	(0.5416)	(0.8904)
No. of obs.	14	15

APPENDIX 7

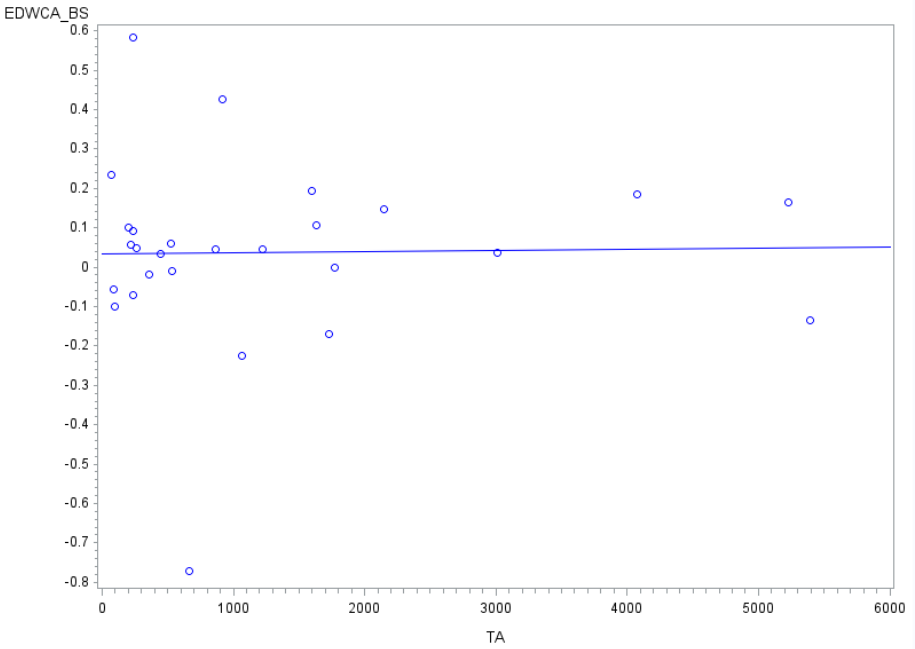
Comparison of EDWCA for Small and Big Firms

Balance Sheet Approach	
Median (difference)	0.0085
(p-value)	(0.4066)
Cash Flow Approach	
Median (difference)	0.0591
(p-value)	(0.2126)

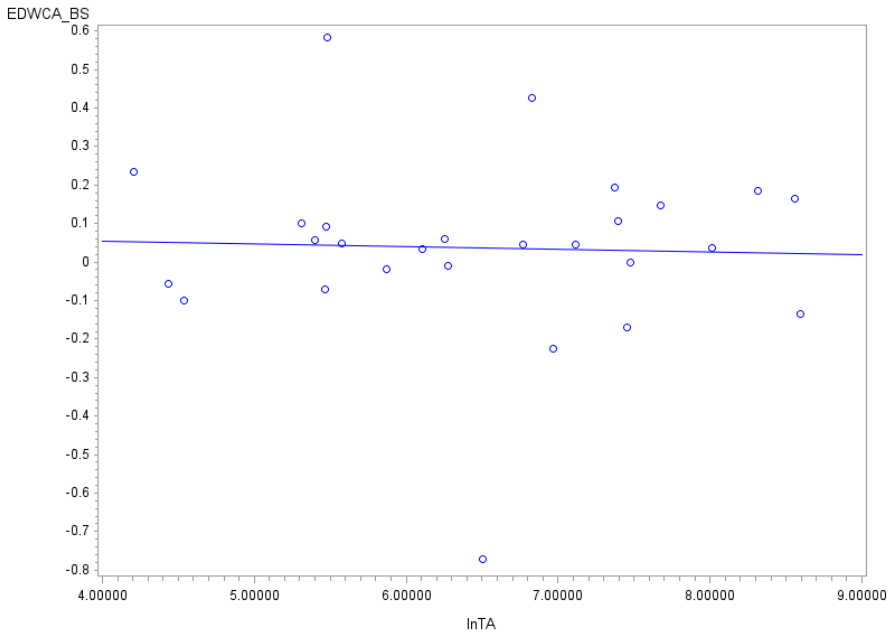
APPENDIX 8

Scatterplots of EDWCA against *total assets*, before and after natural logarithm conversion:

EDWCA against total assets

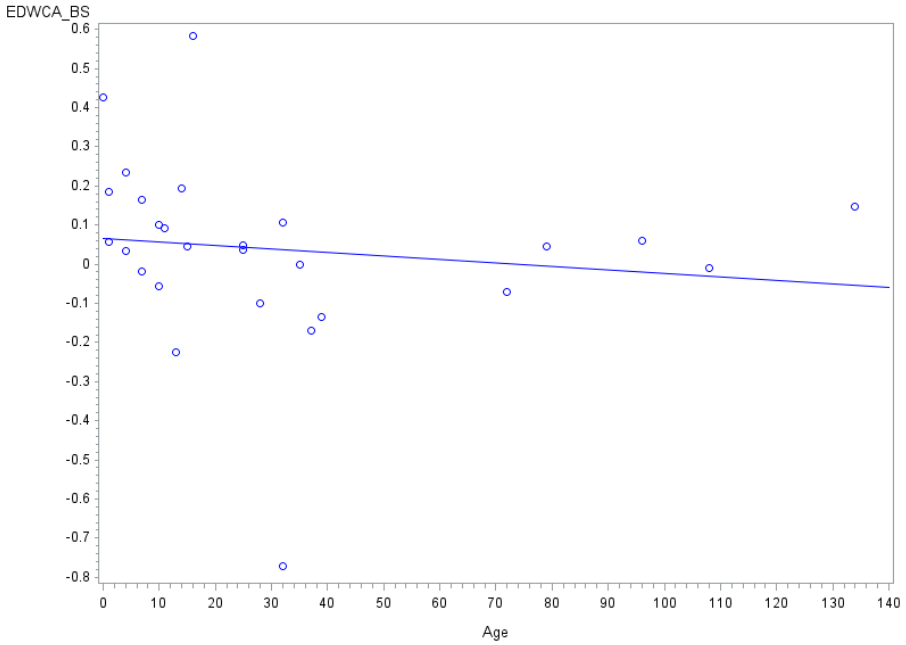


EDWCA against ln of total assets

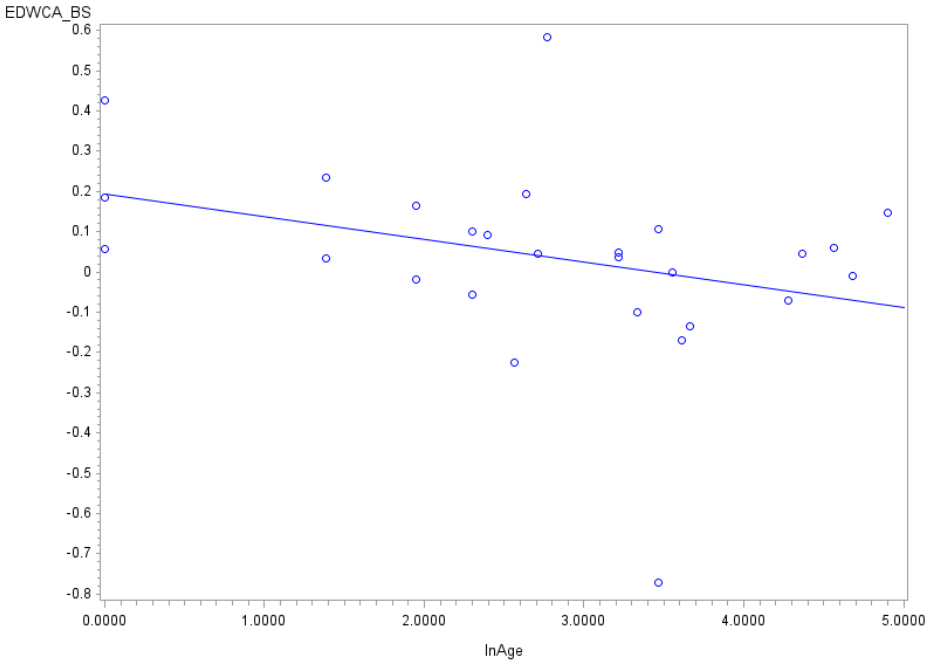


Scatterplots of EDWCA against *firm age*, before and after natural logarithm conversion:

EDWCA against age



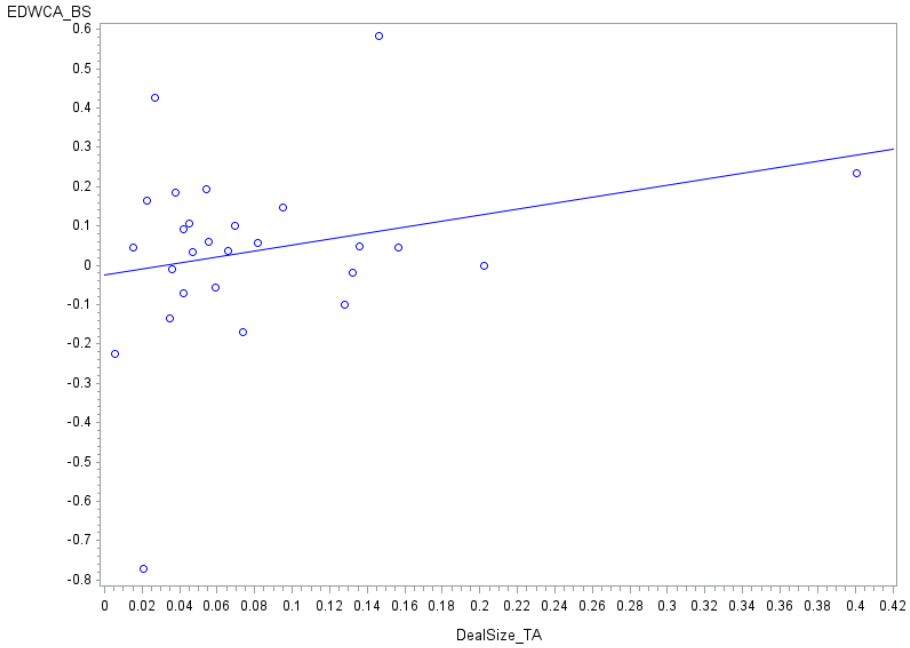
EDWCA against ln of age



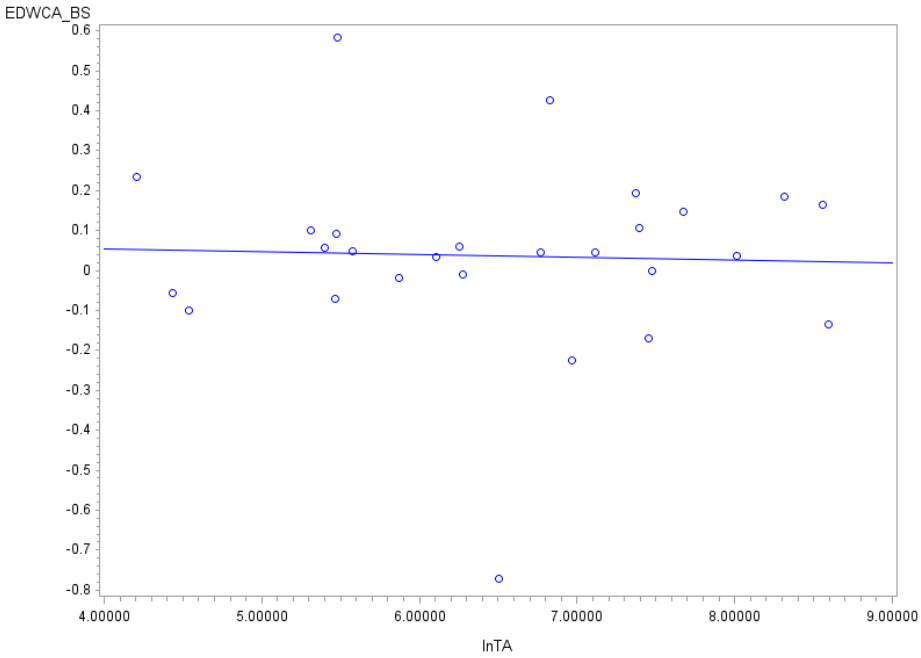
APPENDIX 9

Scatterplot showing EDWCA against *all independent variables* in a pairwise manner

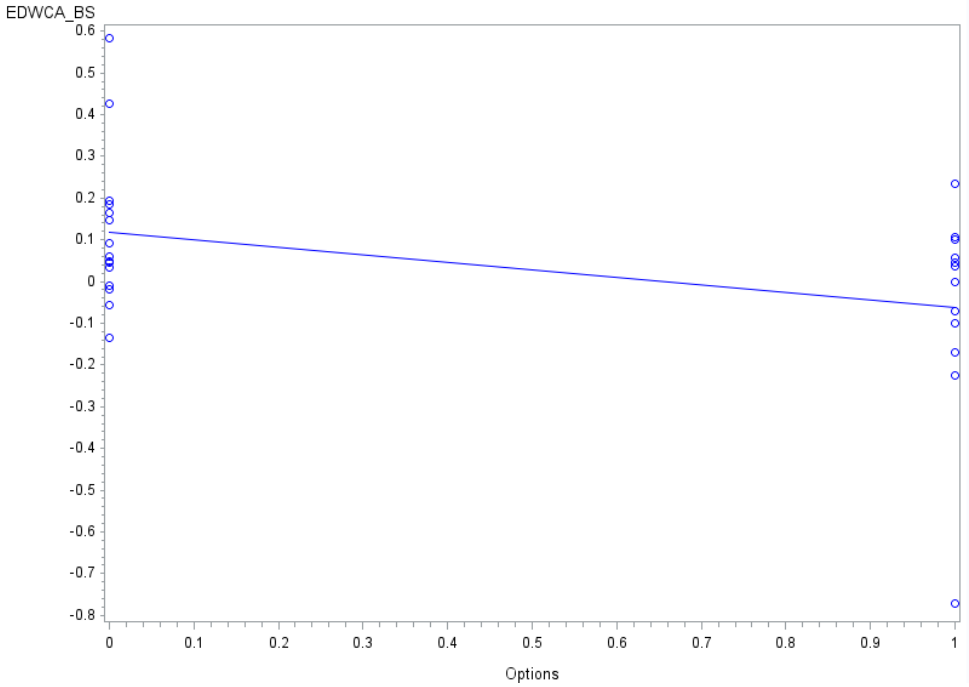
EDWCA against relative deal size



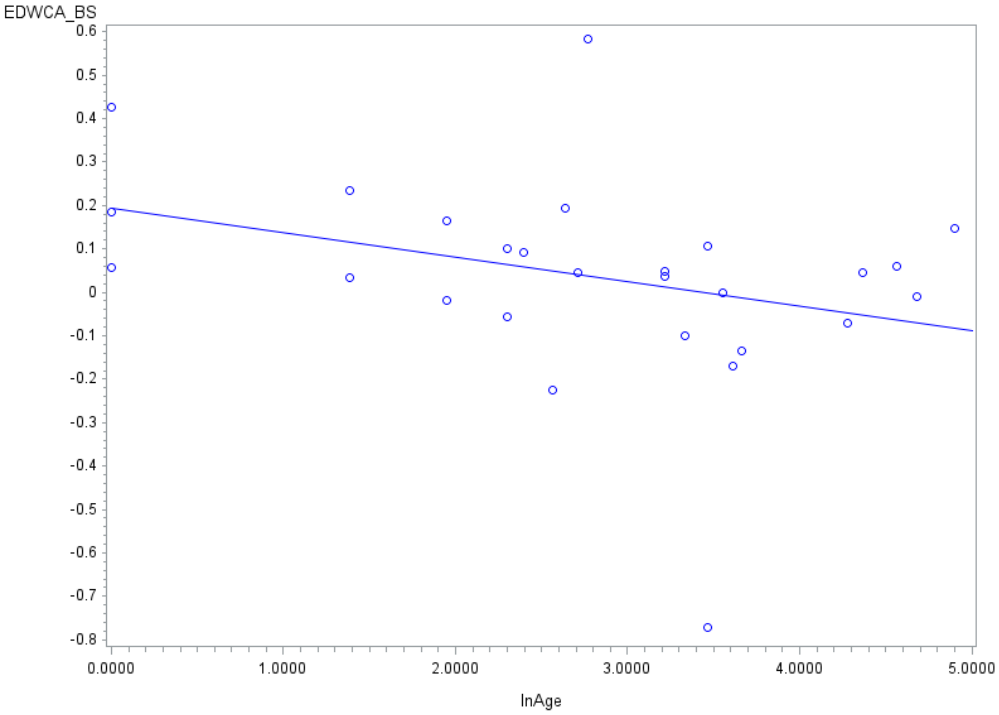
EDWCA against ln of total assets



EDWCA against options



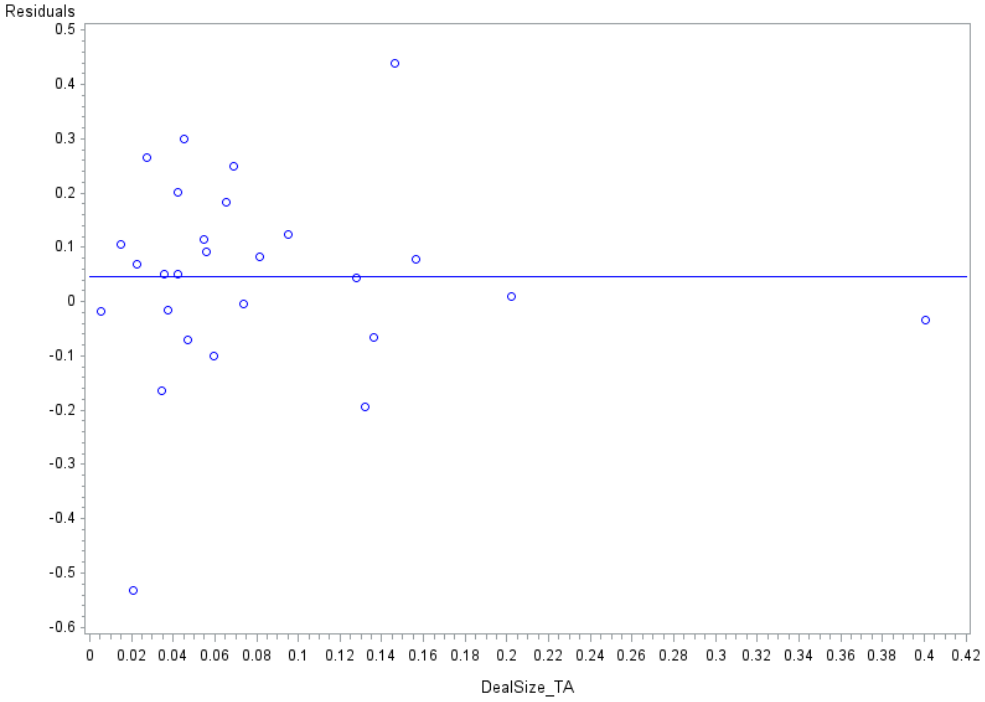
EDWCA against ln of age



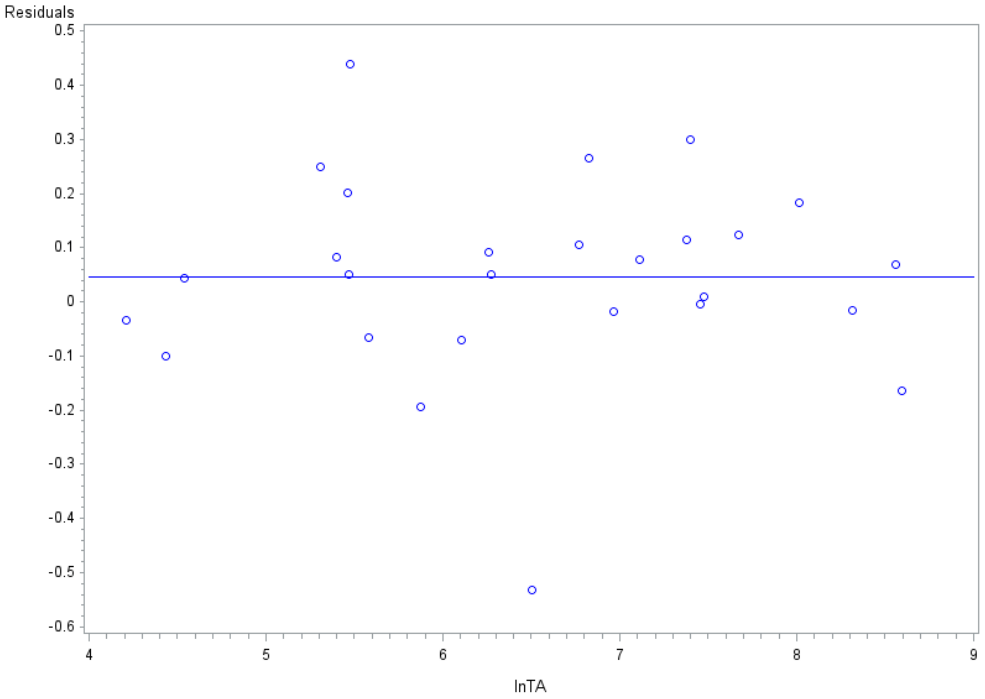
APPENDIX 10

Scatterplots of the residuals against all independent variables in a pairwise manner

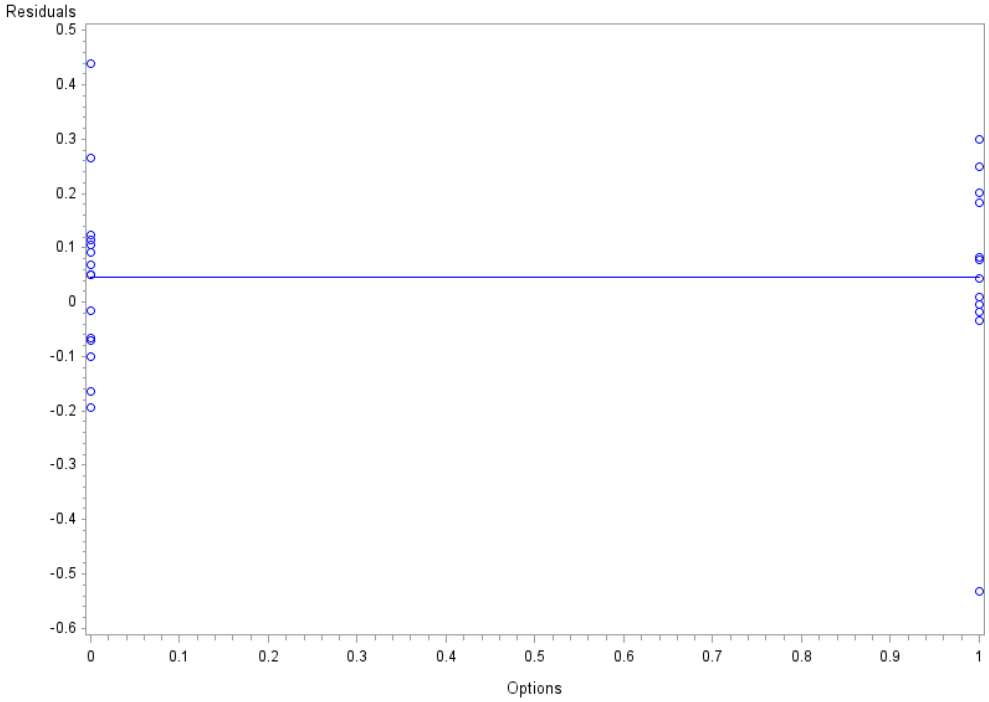
Residuals against relative deal size



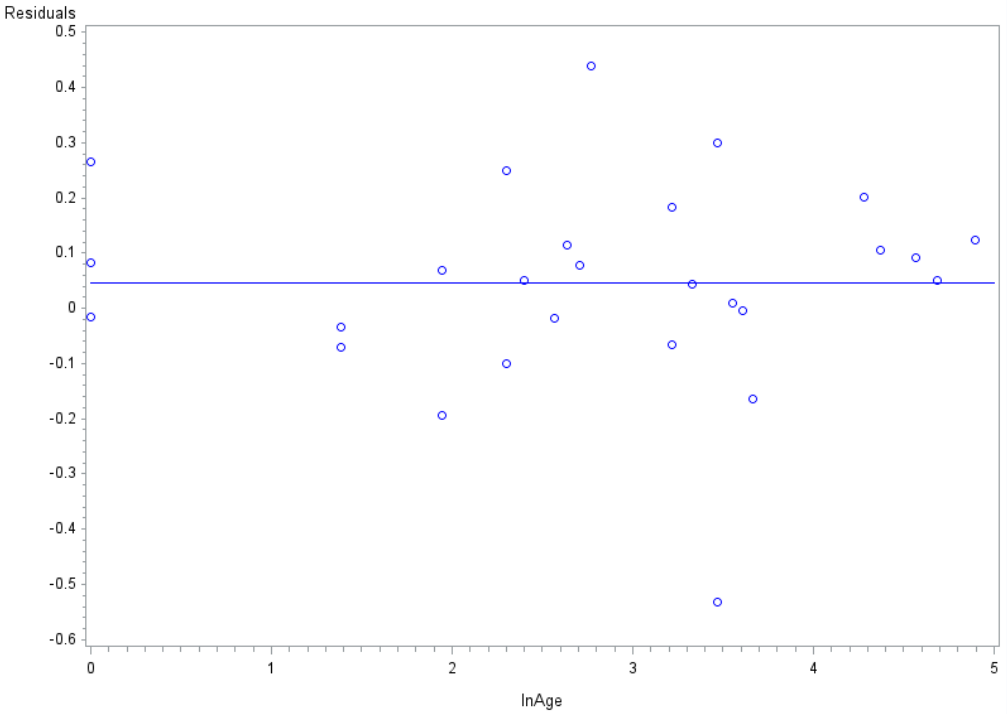
Residuals against ln of total assets



Residuals against options



Residuals against ln of age



APPENDIX 11

Final test sample sorted by levels of EDWCA (high to low) from the cross-sectional Modified Jones model in Year 0, under the cash flow approach:

Modified Jones Test Sample	EDWCA
SIMRAD OPTRONICS ASA	**0,340113**
HIDDN SOLUTIONS ASA	0,322564
DATA RESPONSE ASA	0,162885
SAGA TANKERS ASA	0,151375
TTS GROUP ASA	0,150011
TECHSTEP ASA	0,143307
BWG HOMES ASA	0,137734
DOF SUBSEA ASA	0,130285
GOODTECH ASA	0,125754
AF GRUPPEN ASA	0,115640
AKER BP ASA	0,101060
WEIFA ASA	0,100640
BORGESTAD ASA	0,097253
STRONGPOINT ASA	0,074407
ELTEK ASA	0,051299
DOLPHIN GROUP ASA	0,031782
INFRATEK ASA	0,028390
DNO ASA	0,008435
AWILCO OFFSHORE ASA	-0,008161
ATEA ASA	-0,053883
GRIEG SEAFOOD AS	-0,074651
NORWEGIAN CAR CARRIERS ASA	-0,075815
NRC GROUP ASA	-0,098684
TANDBERG DATA ASA	-0,130907
CODFARMERS ASA	-0,144845
PGS-PETROLEUM GEO-SERVICES	-0,174789
TARGOVAX ASA	-0,240084
NORWEGIAN AIR SHUTTLE ASA	-0,334924
ODIM ASA	-0,782067
NEL ASA	-1,109386

APPENDIX 12

Sample included in the multiple regression model, sorted by levels of relative deal size:

Multiple Regression Sample	Deal Vaue (MEUR)	Total Assets (MEUR)	Relative Deal Size
TARGOVAX ASA	27	67,4	0,40081945
ELTEK ASA	358	1768,7	0,20241152
PGS-PETROLEUM GEO-SERVICES	192	1225,8	0,15663841
NEL ASA	35	239,2	0,14633392
SIMRAD OPTRONICS ASA	**36**	**264,8**	**0,13594755**
STRONGPOINT ASA	47	355,6	0,13216503
TANDBERG DATA ASA	12	93,8	0,12788269
BWG HOMES ASA	204	2150,4	0,09486792
CODFARMERS ASA	18	220,6	0,08157938
ATEA ASA	127	1727,2	0,07352941
TECHSTEP ASA	14	202,4	0,06917885
AF GRUPPEN ASA	198	3013,0	0,06571523
DOLPHIN GROUP ASA	5	84,3	0,05929369
GOODTECH ASA	29	520,9	0,05567373
GRIEG SEAFOOD AS	87	1595,4	0,05453342
SAGA TANKERS ASA	21	447,3	0,04694815
TTS GROUP ASA	74	1633,1	0,04531176
WEIFA ASA	10	236,0	0,04236588
DATA RESPONS ASA	10	237,5	0,04209924
DOF SUBSEA ASA (GEO ASA)	153	4078,5	0,03751379
BORGESTAD ASA	19	529,6	0,03587579
DNO ASA	186	5392,7	0,03449107
INFRATEK ASA	25	921,0	0,02714441
AKER BP ASA	118	5225,3	0,02258237
ODIM ASA	14	666,0	0,02102102
NORWEGIAN CAR CARRIERS ASA	13	868,3	0,01497104
NORWEGIAN AIR SHUTTLE ASA	6	1061,9	0,00565002