# Handelshøyskolen BI

## GRA 19703 Master Thesis

Thesis Master of Science 100% - B

### Predefinert informasjon

| | | | |
|---|---|---|---|
| **Startdato:** | 09-01-2023 09:00 CET | **Termin:** | 202310 |
| **Sluttdato:** | 03-07-2023 12:00 CEST | **Vurderingsform:** | Norsk 6-trinns skala (A-F) |
| **Eksamensform:** | T | | |
| **Flowkode:** | 202310\|\|11378\|\|IN00\|\|B\|\|T | | |
| **Intern sensor:** | (Anonymisert) | | |

### Deltaker

| | |
|---|---|
| Navn: | Maria Hjelle Søvik og Ingrid Jaatog Aars Nicolaysen |

### Informasjon fra deltaker

| | |
|---|---|
| **Tittel *:** | The Impact of Abnormal Accruals on Earnings Surprise and the Performance of Firms Listed on the Oslo Stock Exchange |
| **Navn på veileder *:** | Nataliya Gerasimova |

| | | | |
|---|---|---|---|
| **Inneholder besvarelsen konfidensielt materiale?:** | Nei | **Kan besvarelsen offentliggjøres?:** | Ja |

### Gruppe

| | |
|---|---|
| **Gruppenavn:** | (Anonymisert) |
| **Gruppenummer:** | 7 |
| **Andre medlemmer i gruppen:** | |

# The Impact of Abnormal Accruals on Earnings Surprise and the Performance of Firms Listed on the Oslo Stock Exchange

*To what extent do abnormal accruals impact the market valuation of earnings surprises, and how does the reversal of abnormal accruals affect the long-term performance of firms listed on the Oslo Stock Exchange?*

Ingrid Jaatog Aars Nicolaysen & Maria Hjelle Søvik

Supervisor:

Nataliya Gerasimova

BI Norwegian Business School

Master of Science in Business

Major in Finance

# Acknowledgments

We express our profound gratitude to our supervisor, Nataliya Gerasimova, whose invaluable guidance and insight have been instrumental in completing this research.

Writing a thesis on a specific topic within a relatively unexplored market has been challenging. However, we view it as an honor to have the opportunity of contributing to the literature with research that has not been conducted on the Norwegian market before.

We also acknowledge the challenges of composing an empirical research paper of value to investors, analysts, and researchers. The process has been a lesson in patience, dedication, and partnership.

Finally, we want to express our heartfelt gratitude to BI Norwegian Business School. The past five years have been challenging, but they have also been incredibly rewarding. The knowledge and skills gained have prepared us for projects like this, and we are grateful for the unforgettable learning curve.

BI NORWEGIAN BUSINESS SCHOOL

Bergen, June 2023

Ingrid Jaatog Aars Nicolaysen

Maria Hjelle Søvik

# Abstract

This study examines the effect of abnormal accruals on market valuation of earnings surprises and the reversal implications of abnormal working capital accruals for firms listed on the Oslo Stock Exchange. We hypothesize that firms with "good news" (positive earnings surprise) and income-increasing abnormal working capital accruals will have a lower Earnings Response Coefficient (ERC) than "good news" firms with income-decreasing abnormal working capital accruals. Similarly, we expect "bad news" (negative earnings surprise) firms with income-increasing abnormal working capital accruals to have a higher ERC than "bad news" firms with income-decreasing abnormal working capital accruals. By analyzing financial reports, stock prices, and estimated earnings, we aim to understand the market's response to positive and negative earnings surprises. Our findings suggest that the market fails to foresee the reversal implications of abnormal accruals and struggles to incorporate both the positive impacts of income-decreasing abnormal accruals and the negative impacts of income-increasing abnormal accruals. Furthermore, we find that the market is sensitive to earnings surprises and reacts thereby, supporting our initial expectation suggesting that companies with positive (negative) earnings surprises are likely to experience a corresponding increase (decrease) in their stock prices in the days following the earnings announcement.



***Keywords:*** *Abnormal Accruals, Abnormal Working Capital Accruals, Earnings Management, Earnings Surprises, Earnings Response Coefficient, Stock Returns*

# Table of Contents

# List of Tables



# List of Figures

# 1 Introduction

## 1.1 Introduction

When analyzing a company's financial statements, investors and analysts should pay attention to abnormal accruals. Abnormal accruals refer to accounting adjustments that deviate from the typical patterns observed in a company´s usual business operations or financial performance (Beneish, 1999). If not adequately accounted for, such accruals could distort a company´s reported earnings and its actual financial performance. Furthermore, the reversal of abnormal accruals[1] in a subsequent period may lead to positive or negative earnings surprises, which may affect the company's market value. For instance, consider a company that increases production as they expect higher demands. This action initially increases their production costs, thus resulting in an income-decreasing[2] abnormal accrual that lowers reported income for the first quarter. Since the production costs were already accounted for in the first quarter, the revenues from these sales result in an income-increasing[3] abnormal accrual. This demonstrates the reversal of abnormal accruals; high costs in the first quarter normalized in the second quarter when revenues from sales were realized. Hence, it is vital to consider how abnormal accruals might distort a company´s reported earnings when conducting a financial analysis (Skinner & Sloan, 2002).

Previous research indicates that accounting accruals are significant in helping market participants assess the value of securities (Dechow, 1994; Bowen, Burgstahler, & Daley, 1987; Subramanyam, 1996). However, evidence suggests that some market participants may struggle to correctly interpret the information encapsulated within accounting accruals correctly (Sloan, 1996; Xie, 2001). This could result in market participants mispricing stocks and making suboptimal investment decisions. Furthermore, a deeper comprehension of the factors that shape market interpretations of accruals can assist policymakers and regulators in

[1] The reversal of abnormal accruals refers to the adjustments made to correct the deviation between reported earnings and the true economic earnings resulting from the use of accrual accounting (Allen, Larson, & Sloan, 2013).
[2] An income-decreasing accrual is when abnormal working capital accruals decrease income.
[3] An income-increasing accruals is when abnormal working capital accruals increase income.

enhancing transparency and disclosure, thus stimulating more efficient and precise securities pricing in the market.

Our research builds on previous literature from DeFond and Park's (2001): "The Reversal of Abnormal Accruals and the Market Valuation of Earnings Surprises." This study examines the relationship between abnormal accruals and the market's reaction to earnings surprises (positive or negative deviations from analysts' expectations). Their investigation centers around how the market anticipation of the reversal of abnormal working capital accruals[4] impacts the magnitude of reported earnings surprises, including abnormal accruals, and how this discrepancy affects the Earnings Response Coefficient (ERC[5]) associated with these surprises. Furthermore, DeFond and Park test their predictions by utilizing a measure of abnormal working capital accruals that captures the discrepancy between reported working capital and a proxy for the market's expected level of working capital required to support current sales.

DeFond and Park (2001) discover an inverse relationship between abnormal accruals and market valuation of earnings surprises. This trend is primarily attributed to investors' belief that a surge in abnormal accruals could compromise a company's earnings quality, thus signaling a potential issue in financial analysis. These accruals can occur under certain conditions, such as an understatement of the allowance for bad debt[6], leading to a temporary spike in current earnings, typically offset by subsequent reductions in future earnings. In an efficient capital market, such accruals would have a marginal effect on stock prices, creating a potential divergence between reported earnings and the intrinsic value derived from core business operations. To measure this disparity, we employ a proxy that captures the difference between reported working capital and the market's expectation of the working capital required to maintain current sales.

[4] Working capital accruals represent the change in non-cash working capital accounts such as investors, receivables and accrued expenses (DeFond & Park, 2001, p. 378)
[5] The ERC measures the market's reaction to a company's earnings announcement (Ghosh, Gu, & Jain, 2005).
[6] Bad debt refers to debt that is uncollectable (Tuovila, 2023).

This thesis investigates the influence of abnormal accruals on earnings surprises and the overall performance of firms listed on the Oslo Stock Exchange (OSE). Specifically, we examine how these accounting adjustments might distort a company's reported earnings and subsequently affect market perceptions, investor decisions, and company performance. We narrowed down the time period of our investigation to 2017-2019[7], and our sample contains 43 different companies. Our research collects data from diverse sources, such as financial reports, stock prices, Oslo Børs Benchmark Index (OSEBX) returns, actual earnings, and estimated earnings.

## 1.2 Motivation

Informed investment decision necessitates a profound understanding of market dynamics. As stated by Philip Fisher: *"The stock market is filled with individuals who know the price of everything, but the value of nothing."* This underscores the importance of comprehensive research in discerning actual value in stock markets. Our research draws inspiration from the work of DeFond and Park (2001), who examine the market's potential mispricing of earnings surprises. Other researchers offer significant insight into the informational value of accruals (Sloan, 1996; Xie, 2001), underscoring the potential for similar studies in different markets.

By studying the Norwegian market, investors can better understand the financial market and make better-informed investments. The aim of our research is to contribute with research within this field, focusing on an aspect of the Norwegian market that, to our understanding, remains unexplored.

Therefore, the primary motivation for this study is twofold: first, to apply and extend the methodology of DeFond and Park (2001) to a new market context, thus

[7] The selection of this particular time period, as opposed to a more recent one, is motivated by the desire to obtain a clearer understanding of the circumstances under normal conditions, free from any extraordinary impact of the Covid-19 pandemic. This decision is made in order to minimize the noise that could potentially stem from the pandemic and thereby achieve a more accurate and reliable analysis. Furthermore, we wanted to conduct our study in an earlier time period than previous studies.

furnishing enlightenment into the dynamics of earnings surprises; and second, to contribute with literature for the Norwegian market, providing information for investors seeking opportunities in Norway. The following section introduces our specific research question, laying the groundwork for the subsequent analysis.

## 1.3 Research Question

DeFond and Park's (2001) findings suggest that while the market is able to anticipate the reversing implications of abnormal accruals, it is not able to incorporate these implications in the days following the earnings announcement date. Motivated by the possibility of extending the generalizability of the study's result to Norwegian firms, we formulate the following research question:

*"To what extent do abnormal accruals impact the market valuation of earnings surprises, and how does the reversal of abnormal accruals affect the long-term performance of firms listed on the Oslo Stock Exchange?"*

This research question builds on the study's main findings, which suggest that abnormal accruals significantly impact the market valuation of earnings surprises and that the reversal of abnormal accruals is positively associated with long-term firm performance. We expect that abnormal accruals impact the reported magnitude of either good or bad news earnings surprises, as accruals can significantly influence the calculation of net income. Our research explores this relationship further and tries to understand the underlying mechanism that drives the relationship between abnormal accruals, earnings surprises, and firm performance on the OSE.

# 2 Theory and Literature Review

## 2.1 Theory

This section establishes a theoretical foundation for the research study by providing an overview of relevant concepts. Section 2.1.1 distinguishes between accruals and abnormal accruals while also explaining how abnormal accruals can be measured and interpreted. Section 2.1.2 investigates the association between abnormal accruals and fraudulent activities. Furthermore, section 2.1.3 explores the relationship between market valuation and earnings surprises. Lastly, section 2.1.4 introduces the Post-Earning-Announcement Drift and the Gradual Diffusion Hypothesis.

### 2.1.1 Accruals and Abnormal Accruals

Accruals are accounting adjustments, representing unrealized economic activities as cash inflows or outflows. These adjustments match expenses with revenues, an important accounting principle. More specifically, accruals are a component of a company's earnings:

$$Earnings = Accruals + Cash\ Earnings$$

In economics, accruals are associated with growth in operating activities. Ideally, the measurement of growth in operating activities and the accrual would have a direct correspondence. However, despite reconciling with operating activities, financial activities do not influence accrual measurement (Ohlson, 2014).

A company's accounting practices significantly affect how accruals are measured and interpreted, as they play a critical role in a company's earnings. Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS) are two primary accounting standards. One key difference between the two standards regarding accruals is revenue recognition treatment.

GAAP uses the "realization principle[8]," meaning revenue is recognized when realized. In comparison, IFRS refers to revenue being recognized when the control of the good or service is transferred to the buyer. This practice provides a more accurate and transparent representation of the economic substance of the transactions rather than just the legal form (Ross, 2022). However, as this thesis is limited to firms listed on the OSE, firms are compelled by law to follow IFRS (Finansdepartementet, 2016).

The general concept of accruals is well-understood. However, accounting faces a more complex problem with abnormal accruals. Abnormal accruals can be defined as the difference between actual accruals and the accruals that would be expected based on the underlying economic performance of the company (Huang, Louwers, Moffitt, & Zhang, 2008). For instance, consider a company with steady profit margins and sales throughout the years. Suppose the firm then reports significant accruals in a particular year due to a sudden rise in accounts receivables but without a corresponding increase in sales. Such a situation may indicate abnormal accruals, as the reported accruals deviate from what would be expected given the company's usual economic conditions.

Unpacking the complexities of abnormal accruals requires understanding the various methodologies used for their estimation. For example, the Jones Model (Jones, 1991) serves as a pioneering method for assessing discretionary accruals[9], significantly advancing the field of earnings management studies. Subsequently, Dechow and Dichev (2002) enhance this model by refining the estimation technique to handle potential performance-matched discretionary accruals better, thereby improving the detection of earnings management. Finally, Kothari et al. (2005) introduce an advancement in the estimation of abnormal accruals by presenting a model that accounts for the performance-matching issue while

[8] The principle of realization suggests that revenue should only be acknowledged when the associated goods have been delivered, or the related services have been provided (Accounting Tools, 2022).

[9] Discretionary accruals are a subset of abnormal accruals. It is important to note, however, that not all abnormal accruals are discretionary.

improving the statistical properties of the discretionary accrual estimations. This methodology has since become widely used in contemporary research.

While these models offer tools for detecting abnormal accruals, their application has sparked debates in the accounting and finance literature. One of the main controversies is the role of discretion when calculating accruals, which refers to the judgment and decision-making process involved in estimating and recognizing accruals, which can vary across companies, industries, and auditors (Gul, Chen, & Tsui, 2003). Some researchers argue that discretion can lead to biased and unreliable accruals estimates, especially if managers are incentivized to manipulate the reported earnings. For instance, managers may use discretion to smooth earnings, hide losses, or inflate profits, which can distort the actual economic performance of the company and mislead investors (Ball & Shivakumar, 2008).

The use of discretion in calculating accruals lies at the heart of this debate. Given the potential for discretion to lead to biased and unreliable accrual estimates, various theoretical models and frameworks have emerged to address this issue. Agency Theory is one such model that presents a comprehensive understanding of the interplay between abnormal accruals, market valuation, and long-term performance. This theory, in particular, posits that managers and shareholders often have divergent interests and objectives. This divergence could motivate managers to manipulate earnings to meet or exceed analyst expectations. In the context of Agency Theory, abnormal accruals are not merely accounting adjustments; they serve as potential indicators of earnings management. Such manipulations can, in turn, significantly impact a company's market valuation and long-term performance. This highlights the importance of monitoring and detecting abnormal accruals (Huang, Zhang, Deis, & Moffitt, 2009).

### 2.1.2 The Relationship between Fraud and Accruals

Abnormal accruals can occur by a variety of factors, including fraud. However, it is crucial to state that abnormal accruals alone do not always signify fraud and should be considered alongside other elements when determining the likelihood of fraud.

Financial statement fraud is when a company deliberately distorts its financial results to mislead shareholders (Rezaee, 2005). Intentional misrepresentation can manifest in various ways; for example, a company might overstate revenue by recognizing sales prematurely before meeting all the necessary revenue recognition criteria under the applicable accounting standards. Alternatively, a firm might understate expenses by capitalizing routine maintenance costs and inflating reported profits. Both scenarios would result in manipulated accruals, highlighting the potential link between fraudulent activity and accrual manipulation.

By having adequate internal controls and auditing procedures to detect and prevent fraud or other irregularities, companies can ensure that their financial statement accurately reflects their economic performance and prevent potential legal and reputational consequences.

### 2.1.3 Market Valuation of Earnings Surprises

Market valuation refers to determining a company's value based on its stock price and other financial indicators. It reflects the market's perception of the company's prospects, earnings potential, and risks. Earnings surprises, or unforeseen changes in a company's earnings compared to analysts' expectations, are a crucial factor affecting market valuation. For instance, suppose a company consistently projected and achieved earnings of $1.00 per share every quarter. However, in a specific quarter, the company announces earnings of $1.20 per share, exceeding analysts' forecasts. This unexpected increase, termed a positive earnings surprise, may lead to a positive reaction in the stock market, resulting in a potentially increased market valuation for the company. On the other hand, if the company reported earnings of $0.80 per share, which would be less than expected, this creates a negative earnings surprise. This could lead to a decline in the market valuation, indicating the market's response to unexpected news.

The ERC[10] is a specific method used to measure the market's response to earnings surprises. This coefficient is a prevalent measure of stock price sensitivity in response to earnings announcements. It exemplifies the extent to which investors revise their expectations of future earnings based on the disclosure of current earnings. Numerous studies have investigated the ERC, focusing on its implications for aspects like stock prices, the efficiency of the market, and the informational content of earnings announcements. For instance, Ball and Brown (1968) find that companies reporting consistently positive earnings surprises yielded higher long-term stock returns than what was predicted by Tobin's Q[11]. This suggests that the market tends to reward firms that consistently exceed earnings expectations. Similarly, Bernard and Thomas (1990) find a positive relationship between the ERC and the size of a firm and its growth opportunities. However, they also discovered a negative relationship between the ERC and the firm's associated risks.

Not only does the ERC provide insight into short-term market reactions, but it also has implications for long-term performance. Other studies examine the relationship between the ERC and long-term performance, such as stock returns or Tobin's Q. For instance, Kasznik and Lev (1995) find that firms with persistent positive earnings surprises have higher long-term stock returns than Tobin´s Q, indicating that the market rewards firms for their consistent good news. Similarly, Dechow et al. (1996) find that firms with positive earnings surprises have higher long-term stock returns, but only if the surprise is not accompanied by negative cash flow news.

While the ERC's impact on short- and long-term market performance is significant, several studies have sought to understand the determinants of the ERC. These determinants examine the firm's size, risk, growth opportunities, and financial reporting quality. For instance, Biddle et al. (2009) find that firms with higher financial reporting quality, as measured by lower abnormal accruals, have higher ERC, indicating that the market reacts more strongly to earnings news of high-quality firms. Similarly, Ball and Shivakumar (2005) find that the ERC is positively

[10] The ERC is calculated by regressing stock returns on earnings surprises, defined as the disparity between actual earnings and analysts' expectations (Collins & Kothari, 1989).
[11] Tobin's Q measures a firm's market value relative to its book value (Hayes, 2021).

related to the firm’s size and growth opportunities but negatively related to the firm’s risks.

### 2.1.4 Post Announcement

For investors and market analysts, the period following a company's earnings disclosure, or the post-earnings-announcement period, as it shows the market reaction to earnings surprises. During this phase, the implications of the disclosed earnings, whether they exceed, meet, or fall short of expectations, are fully digested by the market. Post-Earnings-Announcement Drift (PEAD) is a financial phenomenon that has been researched extensively since its identification. This drift represents the tendency for a company's stock price to gradually rise or fall for a prolonged period following the announcement of good or bad earnings news, respectively (Ball & Brown, 1968). This behavior challenges the Efficient Market Hypothesis (EMH), proposed by Fama E. F. (1970) , which asserts that stock prices promptly reflect all publicly available information, such as earnings announcements, thus nullifying the potential for consistent abnormal returns.

The Gradual Diffusion Hypothesis provides a potential explanation for the PEAD. This hypothesis posits that information about a company's stocks does not reach all investors simultaneously. Instead, it spreads gradually among market participants, leading to a “drift” in the stock price as the news is absorbed by the market over time (Hong & Stein, 1999). This suggests that in contrast to the EMH, a company's stock price does not instantaneously incorporate all available information. The gradual adjustment might be due to investors' cognitive biases or institutional factors that cause a delay in information assimilation (Hong, Lim, & Stein, 2000)

For instance, if a company reports earnings that significantly surpass expectations (a positive earnings surprise), some investors will receive this news and act on it immediately. However, other investors may receive and process this information at a slower pace. As this latter group of investors begins to buy the stock based on the positive earnings surprise, the increased demand can cause the stock's price to rise over time, resulting in a post-earnings-announcement drift. In contrast, the stock price may initially drop when a company reports earnings below expectations (a negative earnings surprise). Yet, as the negative news gradually permeates the

investor community, sustained selling pressure can further depress the stock's price over a longer period.

These occurrences underscore the intricate and multifaceted nature of the market's reactions to earnings announcements. Despite the premise of efficient markets, the reality is that investor behavior and information dissemination can lead to observable anomalies such as the post-earnings-announcement drift.

## 2.2 Literature Review

Financial accounting significantly impacts investors' decision-making processes and plays a crucial role in the stock market. As such, it has been the subject of numerous research studies, investigating various aspects such as the reliability of accruals, earnings persistence, stock prices, and the impact of financial reporting on investors' decision-making. This brings us to abnormal accruals and how they might influence financial performance. Research suggests that both abnormal accruals and their reversal can significantly impact a firm's performance, ERCs, and the market's valuation of earnings surprises. However, the relationship between these variables is complex and requires further research.

Given this, the following section presents a literature review that analyzes abnormal accruals, focusing on their potential impact on the long-term performance of firms and the market's valuation of earnings surprises. We examine various theories and empirical studies, exploring the factors that may influence abnormal accruals and their implications for financial reporting and investor decision-making. Additionally, this review addresses the existing literature's limitations and gaps, underscoring the need for additional research and exploring potential areas for future investigation.

### 2.2.1 Abnormal Accruals and Firm Performance

Numerous studies examine the relationship between abnormal accruals and firm performance. Dechow (1994) explores the role of accounting accruals in measuring firm performance and concludes that accruals are a better measure of economic performance than cash flows. Additionally, Dechow and Dichev (2002) examine the quality of accruals and earnings, including the role of accrual estimation error, and find that the quality of accruals positively correlates with future earnings.

Other studies investigate the relationship between abnormal accruals and the ERCs. Collins and Kothari (1989) analyze intertemporal and cross-sectional determinants of the ERCs and find that the variability of earnings and the magnitude of accruals are significant determinants of the ERCs. Additionally, Sloan (1996) investigate whether stock prices fully reflect information content of accruals is incremental to that of cash flows.

Furthermore, the impact of abnormal accruals on the market valuation of earnings surprises has also been a topic of study. DeFond and Park (2001) find a positive correlation between the reversal of abnormal accruals and the market valuation of earnings surprises, which implies that the market values companies that correct their accounting errors more positively. Xie (2001) finds that the market misprices abnormal accruals, which translates to the market not correctly valuing companies with high abnormal accruals. This mispricing leads to a positive association between abnormal accruals and future stock returns.

Moreover, studies have identified a connection between abnormal accrual levels and a firm's future prospects. Fairfield, Whisenant, and Yohn (2003) suggest that firms with sustained high levels of abnormal accruals experience lower future earnings and revenue growth than firms with low values of abnormal accruals. Ghosh, Gu, and Jain (2005) support this, as they discover that firms with sustained high levels of abnormal accruals have lower ERCs, indicating that investors are less responsive to earnings management, which could have severe implications for the firm’s overall financial health. As such, investors and stakeholders must pay close attention to the level of abnormal accruals in the financial statements of firms to make informed decisions about the future prospects of these companies.

Subramanyam (1996) investigates how the pricing of discretionary accruals works in the market. The results show that discretionary accruals are priced by the market, meaning that investors do not only look at the earnings but also the quality of earnings when making their investment decisions. This suggests that the market is aware of the potential risks that may arise from low-quality earnings and is willing to pay a premium for high-quality earnings. Based on this, companies should focus on increasing their earnings and improving their earnings to attract more investors and gain a competitive edge in the market.

While these studies suggest that abnormal accruals significantly influence firm performance, ERC, and market valuation, our investigation of the Norwegian stock market presents contrasting results. We observe no difference in the ERC among firms with good or bad news, regardless of the abnormal working capital accruals being income-increasing. Our overall ERC is lower than ERCs found in previous studies, indicating that our sample is less sensitive to earning news. This might be due to microeconomic factors, a more recent time period, and differences in investor behavior across countries. Through this study, we aim to fill a gap in the current research by providing insights from the Norwegian context and presenting these divergent findings.

### 2.2.2 Financial Accounting and the Stock Market

Besides the reliability of accruals, earnings persistence, and stock prices, other aspects of financial accounting are also the focus of various studies. While some studies examine the relationship between earnings management and stock prices, others explore the impact of financial reporting practices on investors' decision-making.

Financial accounting plays a critical role in the stock market and significantly impacts investors' decision-making processes. As such, this is the subject of numerous research studies investigating various aspects, such as the reliability of accruals, earnings persistence, stock prices, and the impact of financial reporting practices on investors' decision-making. One important topic in financial accounting research is the relationship between earnings management and stock prices. For example, Richardson et al. (2005) discovers a positive correlation

between earnings quality, as indicated by the reliability of accruals, and both earnings persistence and stock prices. Kothari and Sloan's (1992) research further extends this understanding by investigating the interplay between the information content in stock prices and the market's response to a company´s earnings announcement. Their findings highlight a positive correlation between the ERC and the level of information about future earnings embedded in stock prices. This relationship is more vital for firms with higher levels of analysts following and firms that are more difficult to value. Additionally, the study suggests that the ERC reflects the market's ability to process and use information, and the level of information in stock prices determines the strength of the market's reaction to earnings announcements.

The accuracy and reliability of financial statements hold significant importance for investors, given that they base their investment decisions on this information. Several studies examine the quality of accruals and earnings, including the role of accruals estimation error, and find that the quality of accruals is positively correlated with future earnings. Leuz, Nenda, and Wysocki (2003) explore earnings management and investor protection and find that investors are more likely to invest in firms with higher levels of investor protection. On the other hand, Bowen, Burgstahler, and Daley (1987) emphasize that accruals bear higher incremental information content under GAAP than under IFRS.

Our research aims to investigate how abnormal accruals affect the market valuation of earnings surprises in the Norwegian stock market, specifically for companies listed on the OSE. Our findings suggest that investors in the Norwegian market do not foresee the implications of the reversal of abnormal accruals. Furthermore, we found no differences in the ERC among firms, irrespective of whether they delivered good or bad news, even when the abnormal working capital accruals resulted in increased income. This uniformity in response across varying news types could indicate a potential gap in investors' understanding of such financial nuances.

### 2.2.3 Additional Studies

Apart from the studies already mentioned, our thesis explores the reliability of accruals, the persistence of earnings, and the behavior of stock prices. Skinner and

Sloan (2002) investigate the interplay among earnings surprises, growth expectations, and stock returns. Their findings indicate a significant impact of earnings surprises on growth expectations and future stock returns. This exploration is reflected in the work of other researchers, such as Biddle et al. (2009), who examine the correlation between accruals and earnings persistence. They find that compared to firms with lower accruals, those with higher accruals tend to demonstrate less persistence in their earnings. In contrast, Atwood et al. (2011) discover that accruals-based earnings management harms earnings persistence.

Furthermore, Bartov, Gul, and Tsui (2000) find that firms employing accrual-based earnings management show greater earnings persistence. This suggests these companies are more able to manage their earnings over extended periods. Investigating the market implications of these findings, Ball, Kothari, and Robin (2000) report that companies with higher earnings persistence tend to have higher stock prices. Barth, Beaver, and Landsman (2001) support this, revealing that stock prices are more sensitive to changes in earnings persistence than earnings levels.

Other studies examine the impact of accruals on firm performance. For example, Roychowdhury (2006) and Cohen, Dey, and Lys (2008) find that firms with high accruals tend to have lower future cash flows, indicating that accruals may not always reflect underlying economic performance. These findings suggest that while accruals provide helpful information about a company's financial performance, they may not always be reliable indicators of future cash flows or earnings. Therefore, investors and analysts must carefully consider the quality and reliability of a company's accruals when making investment decisions or evaluating financial performance.

Previous research finds that managers engage in earnings management to meet or surpass analysts' earnings forecasts, which can significantly affect stock prices. On the other hand, researchers argue that the relationship between earnings management and stock prices is complex, and that factors, such as firm size, can influence this relationship (Jones, 1991; Sloan, 1996). Further research should therefore investigate the interplay between financial accounting, stock prices, and investor decision-making.

# 3 Hypotheses and Methodology

In the following section, we construct our research hypotheses and introduce the corresponding methodologies. These hypotheses will serve as conjectural statements that propose a specific relationship between abnormal accruals, earnings surprises, and market valuation.

The forthcoming section of this study is dedicated to the methodological framework adopted by DeFond and Park (2001) that we use in this research. According to their study, efficient markets should price abnormal accruals differently based on their impact on lifetime earnings. We expect that the magnitude of earnings surprises that involve abnormal accruals will diverge from the market-priced underlying magnitude. For example, a reported good news earnings surprise with income-decreasing abnormal accruals would underestimate the true underlying good news.

## 3.1 Hypotheses

Abnormal accruals can significantly impact the interpretation of earnings surprises, and their effect may vary depending on whether they increase or decrease income (DeFond & Park, 2001). Markets that operate efficiently are expected to adjust the price for abnormal accruals that bear little or no impact on total earnings (Dechow, Kothari, & Watts, 1998). Therefore, the magnitude of earnings surprises that include abnormal accruals will likely deviate from the magnitude priced by the market. Regarding the market's interpretation concerning the earnings surprises' magnitude, the magnitude is expected to affect the returns or ERC.

While income-decreasing abnormal accruals undervalue the reported magnitude of good news surprises, income-increasing abnormal accruals overstate it (Dechow, Kothari, & Watts, 1998). Suppose market participants are aware of the reversible nature of these abnormal accruals. In that case, they will anticipate - with all other factors held constant - that earnings surprises carrying income-decreasing abnormal accruals would lead to a higher ERC. On the other hand, earnings surprises with income-decreasing abnormal accruals would be associated with a lower ERC. Therefore, our first hypothesis can be stated as follows:

***Hypothesis 1:*** *Good news firms with income-increasing abnormal working capital accruals have a lower ERC than good news firms with income-decreasing abnormal working capital accruals.*

The impact of abnormal accruals on negative earnings surprises is the opposite of their impact on positive earnings surprises. Abnormal accruals that decrease income overstate the magnitude of earnings surprises, while accruals that increase income understate the magnitude of earnings surprises. Therefore, our second hypothesis can be stated as follows:

***Hypothesis 2:*** *Bad news firms with income-increasing abnormal working capital accruals have a higher ERC than bad news firms with income-decreasing abnormal working capital accruals.*

The reversal of abnormal accruals is anticipated to influence the long-term performance of firms listed on the Oslo Stock Exchange. This expectation is grounded in the principle that abnormal accruals, discussed in section 2, are typically unsustainable. As these accruals reverse over time, they can impact future earnings and, consequently, these firms' perceived financial health and stability. This, in turn, can lead to shifts in investor sentiment and stock prices, thereby impacting the firms' long-term market performance.

## 3.2 Regression

To validate our hypotheses, we investigate the ERC obtained by regressing two days cumulative stock returns on earnings forecast errors by dividing them based on the signs of (1) the forecast error and (2) the abnormal working capital accruals. We apply market-adjusted returns, calculated as the discrepancy between raw stock returns and the return on the OSEBX. The following regression model computes the ERC:

$$\mathrm{CAR} = \alpha + \beta_1 \left(\mathrm{GOODNEWS} \times \frac{\mathrm{FE}}{\mathrm{P}_{-2}}\right) + \beta_2 \left(\mathrm{GOODNEWSINCR} \times \frac{\mathrm{FE}}{\mathrm{P}_{-2}}\right)$$

$$+ \beta_3 \left(\mathrm{BADNEWS} \times \frac{\mathrm{FE}}{\mathrm{P}_{-2}}\right) + \beta_4 \left(\mathrm{BADNEWSINCR} \times \frac{\mathrm{FE}}{\mathrm{P}_{-2}}\right) + \varepsilon$$

Where:

| | |
|---|---|
| $\mathrm{CAR}$[12] | Market-adjusted stock returns accumulated over the two trading days [-1,0] where 0 is the earnings announcement date |
| $\frac{\mathrm{FE}}{\mathrm{P}_{-2}}$ | Forecast error for the current period earnings announcement, computed as actual earnings for the current quarter minus the most recent analysts' forecast, scaled by the closing share price at trading day -2 |
| $\mathrm{GOODNEWS}$ | Good news dummy, that equals 1 if actual earnings exceed the forecast |
| $\mathrm{GOODNEWSINCR}$ | Good news income-increasing dummy that equals 1 if $GOODNEWS$ equals 1 and abnormal working capital accruals increase income |
| $\mathrm{BADNEWS}$ | Bad news dummy that equals 1 if actual earnings fall short of the forecast |
| $\mathrm{BADNEWSINCR}$ | Bad news income-increasing dummy that equals 1 if $BADNEWS$ equals 1 and abnormal working capital accruals increase income |
| $\varepsilon$ | Error term |

If the coefficient on the good news income-increasing dummy $(\beta_2)$ is negative, our first hypothesis is supported. If the coefficient on the bad news income-increasing dummy $(\beta_4)$ is positive, our second hypothesis is supported.

[12] To calculate CAR, we first compute the log return for both the companies under study and the OSEBX across a two-day period. Subsequently, we determine CAR by subtracting the OSEBX return from the individual stock return.

## 3.3 Abnormal Working Capital Accruals

In order to detect abnormal working capital accruals, we employ a proxy developed by DeFond and Park (2001). This proxy measures the discrepancy between the actual working capital and the market's anticipated working capital requirement for maintaining current sales. It is a relevant proxy as it is capable of identifying the portion of working capital accruals that are improbable to be sustained. The equation for calculating abnormal working capital accruals is as follows:

$$\mathrm{AWCA_t} = \mathrm{WC_t} - \left[\left(\frac{\mathrm{WC_{t-4}}}{\mathrm{S_{t-4}}}\right) \times \mathrm{S_t}\right]$$

Where:

| | |
|---|---|
| $\mathrm{AWCA_t}$ | Abnormal working capital accruals in the current quarter |
| $\mathrm{t}$ and $\mathrm{t-4}$ | Year quarter (the current quarter and the same quarter in the prior year) |
| $\mathrm{WC_t}$ | Non-cash working capital in the current quarter computed as: $(current\ assets - cash) - (current\ liabilities)$ |
| $\mathrm{WC_{t-4}}$ | Non-cash working capital in the same quarter last year |
| $\mathrm{S_t}$ | Sales in the current quarter |
| $\mathrm{S_{t-4}}$ | Sales in the same quarter last year |

The presented model proposes an alternative model for calculating abnormal accruals that deviate from the models proposed by Jones. Our model incorporates seasonality into the relationship between accruals and changes in sales, using a firm-specific, seasonally adjusted ratio of working capital to sales.

Our model for calculating abnormal accruals differs from DeFond and Park's (2001) model as we do not to subtract short-term investments from current assets and short-term debt from current liabilities when calculating non-cash working capital. Our rationale for this decision is based on a more established method for calculating non-cash working capital. By excluding these variables from our calculations, we can derive a more precise estimate of the company's non-cash working capital.

As the financial figures from some of the companies in our sample are listed in currencies other than NOK, we adopt an approach that facilitates comparison with

figures from the OSE, which are listed in NOK[13]. While we acknowledge that this approach may entail some degree of imprecision, we consider it an acceptable limitation, given that fluctuations in currency exchange rates over the course of a quarter are typically minimal.

# 4. Data

To conduct our research analysis, we gather data from various sources, including stock closing prices for both the companies under investigation and Oslo Børs Benchmark Index (OSEBX), financial reports, and earnings per share (EPS), for the time period spanning 2016 through 2020. The selection of this particular time period is motivated by the intent to obtain a more transparent view without noise that could potentially stem from Covid-19, thereby achieving a more accurate and reliable analysis.

## 4.1 Retrieval of OSEBX and Stock Prices

Our first step is to obtain data from the OBI (Oslo Børs Informasjon AS/BI's database) to retrieve information about which companies are listed on the OSE and their corresponding historical stock price and the returns for OSEBX. In the process of acquiring closing prices, we exclude companies that do not correspond with our criteria for this study, which will be further discussed in the following sections, from the time years 2017 to 2020[14], considering that the dataset encapsulates all companies listed on the OSE and their respective closing price between 2010 and 2020. To compute the forecasted error for the current period earnings announcement, we take the actual earnings for the current quarter minus the most

[13] This is done by computing the average exchange rate for each currency using Norges Bank's (Valuta Kurser) currency calculator, which lists the average rate for each currency each month. Subsequently, we calculate the average exchange rate for each quarter.
[14] Collecting closing prices up until 2020 is necessary as our last quarter of investigation (Q4 2019) is not announced before the beginning of 2020.

recent analysts' forecast (FE), scaled by the closing share price at trading day $-2$ ($P_{-2}$).

To measure the performance of a stock relative to the general market, the dependent variable used is the CAR. CAR is calculated for a specified period, which in this case is the two trading days $[-1, 0]$, where $0$ is the earnings announcement date. For each of these days, the daily return of the company and the daily return of the OSEBX are calculated. The daily return is typically calculated as the percentage change in closing price from the previous day. Then, for each day, the benchmark return is subtracted from the stock return. The sum of these differences over the two days is the CAR.

## 4.2 Quarterly Financial Statements and EPS

The extraction of financial reports from various companies constitutes a fundamental step in calculating the AWCA. This computation is essential to define the binary variables integrated into the regression analysis: GOODNEWS, GOODNEWSINCR, BADNEWS, and BADNEWSINCR. We collect each financial report from 2016[15] to 2019 and conducted the requisite calculations independently. Consequently, the requirement for accessible quarterly financial statements led to a more limited sample size than we had initially projected[16].

Most companies excluded from our analysis belong to the financial and utility sectors. One rationale for this exclusion lies in the distinct financial structure of financial institutions relative to non-financial firms. High leverage often indicates financial distress in the latter, thus establishing their distinct characteristics (Fama & French, 1992). Furthermore, financial companies, often subject to stringent state regulation, exhibit behavior divergent from the norm, providing another justification for their exclusion. Banks, too, fall into this category with their highly regulated nature (Ross, 2022).

[15] Collecting quarterly financial report from 2016 is necessary to calculate AWCA.
[16] As a result, the requirement for accessible quarterly financial statements led to a more limited sample size than we had initially projected.

In the final data collection stage, we sourced estimated and actual EPS values from the Bloomberg[17] terminal. These data points are instrumental in determining a measure for the forecast error associated with the current period earnings announcement (FE).

## 4.3 Descriptive Statistics

**Table 4.1:** Descriptive Statistics

Table 4.1 shows descriptive statistics of the variables. CAR is the market-adjusted stock returns, OSEBX is the returns on the Oslo Stock Exchange Index, FE is the forecast error calculated as actual earnings − forecasted earnings, $\mathrm{FE/P_{-2}}$ is the forecast error scaled by the closing share price at trading day $-2$, and AWCA is abnormal working capital accruals.

| | CAR | OSEBX | FE | $\mathrm{FE/P_{-2}}$ | AWCA |
|---|---|---|---|---|---|
| Mean | −0.002 | 0.000 | −0.147 | −0.003 | −494,212,044 |
| Median | −0.002 | 0.000 | −0.006 | −0.001 | −57,205,757 |
| Std. Dev | 0.054 | 0.008 | 1.214 | 0.019 | 5,012,237,634 |
| Minimum | −0.278 | −0.050 | −6.930 | −0.159 | −43,304,754,802 |
| Maximum | 0.297 | 0.026 | 6.095 | 0.113 | 32,858,424,834 |
| *n* | 516 | 516 | 516 | 516 | 516 |

*Note:* $^{*}p < 0.1;\ ^{**}p < 0.05;\ ^{***}p < 0.01$

Table 4.1 presents the descriptive statistics derived from our sample observations. The values from CAR suggest that the performance of the stocks within our sample, on average, falls below OSEBX. A plausible interpretation of this observed trend is our sample's inherent nature, which includes firm variability. Larger firms typically yield lower returns due to their perceived lower risk and enhanced liquidity, in contrast to smaller firms, which often attract higher risk premiums, which could explain why the stocks within our sample, on average, fall below OSEBX (Banz, 1981).

[17] Related to the limitation of the financial reports, the necessity of having both analysts' estimated earnings and reported earnings for each company culminated in a smaller-than-expected dataset. Nevertheless, we acknowledge these constraints, recognizing that the exclusion could potentially enhance the clarity of our findings, despite the limited sample size.

Our analysis further reveals a negative value for the forecast error, implying a tendency towards over-optimism in earnings forecasts, resulting in overestimating the actual earnings announced within the current period. When this forecast error is adjusted by the closing price two days before the earnings announcement, the value of this variable approaches zero, suggesting a correction toward accuracy.

Lastly, the AWCA variable exhibits a negative mean, a trend that seems to align with the negative forecast error. The negative AWCA suggests that firms, on average, are managing their earnings to a lesser degree than anticipated in the current quarter, culminating in accruals that are lower than what would be considered normal. This provides further evidence of the trends identified within our dataset and adds another layer of understanding to our analysis.

## 4.4 Descriptive Statistics of Earnings Surprises

**Table 4.2:** Descriptive Statistics of Earnings Surprises

Table 4.2 shows descriptive statistics of the earnings surprises. GOODNEWS equals 1 if actual earnings exceed the forecast, BADNEWS equals 1 if actual earnings fall short of the forecast, GOODNEWSINCR equals 1 if GOODNEWS equals 1 and abnormal working capital accruals increase income, and BADNEWSINCR equals 1 if BADNEWS equals 1 and abnormal working capital accruals increase income.

| | GOODNEWS | BADNEWS | GOODNEWSINCR | BADNEWSINCR |
|---|---|---|---|---|
| Mean | 0.422 | 0.578 | 0.184 | 0.234 |
| Median | 0.000 | 1.000 | 0.000 | 0.000 |
| Std. Dev | 0.494 | 0.494 | 0.388 | 0.424 |
| *n* | 516 | 516 | 516 | 516 |

*Note:* $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$

Table 4.2 presents descriptive statistics of the four binary variables: GOODNEWS, BADNEWS, and GOODNEWSINCR and BADNEWSINCR, which are the variables included in both our hypotheses and regression. These variables adopt the structure of "dummy variables," thereby assuming either the value 0 or 1.

The mean of GOODNEWS and BADNEWS is approximately 0.422 and 0.578, respectively, suggesting an occurrence of "good news" in 42.2% of the

observations and "bad news" in 57.8%, indicating that the appearance of "bad news" is slightly higher than "good news." The mean for GOODNEWSINCR is around 0.184, which denotes that about 18.4% of the observations classified as "good news" additionally feature abnormal working capital accruals that increase income. On the other hand, the mean for BADNEWSINCR is approximately 0.234, suggesting that 23.4% of the "bad news" observations also encompass abnormal working capital that increases income.

A median value of 0 for GOODNEWS implies that the actual earnings do not surpass the forecasted earnings for at least half of the observations. On the other hand, the median for BADNEWS, with a value of 1, indicates that actual earnings fall short of the forecast for a minimum of half of the observation, a consequence of the perfect correlation between "good news" and "bad news." Both GOODNEWSINCR and BADNEWSINCR present a median of 0, denoting that neither meets the dual requirements for classification as "increasing."

# 5 Results and Analysis

## 5.1 Regression analysis

Our regression analysis aims to answer the following two hypotheses: $H_1$: *Good news firms with income-increasing*[18] *abnormal working capital accruals have a lower ERC than good news firms with income-decreasing*[19] *abnormal working capital accruals,* and $H_2$: *Bad news firms with income-increasing abnormal working capital accruals have a higher ERC than bad news firms with income-decreasing abnormal working capital accruals*.

In addition to our main regression, we execute three additional regressions to investigate various aspects of our dataset. The second regression examines the relationship between Cumulative Abnormal Returns (CARs) and the Forecast Error

[18] An income-increasing accrual is when abnormal working capital accruals increase income.
[19] An income-decreasing accrual is when abnormal working capital accruals decrease income.

divided by the stock price two days before the announcement ($FE/P_{-2}$). The third regression introduces a control variable, firm size, to investigate its potential effect on the outcomes. Lastly, the fourth regression applies the Jones model for discretionary accruals to determine if its use significantly alters our findings.

## 5.2 Main Regression

**Table 5.1:** Regression Table of Main Regression

Regression of two-day market adjusted returns on earnings forecast error explained by Good/Bad earnings news and income-increasing abnormal working capital accruals:

$$\begin{aligned} CAR = \alpha + \beta_1(GOODNEWS \times FE/P_{-2}) + \beta_2(GOODNEWSINCR \times FE/P_{-2}) \\ +\beta_3(BADNEWS \times FE/P_{-2}) + \beta_4(BADNEWSINCR \times FE/P_{-2}) + \varepsilon \end{aligned}$$

| | CAR |
|---|---|
| GOODNEWS | $0.024^{***}$ |
| | (0.008) |
| BADNEWS | $-0.024^{***}$ |
| | (0.008) |
| GOODNEWSINCR | $-0.013$ |
| | (0.009) |
| BADNEWSINCR | $-0.006$ |
| | (0.008) |
| Observations | 516 |
| $R^2$ | 0.098 |
| Adjusted $R^2$ | 0.003 |
| $F-$ statistic (df $= 7;\ 466$) | $7.255^{***}$ |
| *Note:* | $^{*}p < 0.1;\ ^{**}p < 0.05;\ ^{***}p < 0.01$ |

Our hypotheses test is presented in Table 5.1 above. To support our two hypotheses, the coefficient for the good news income-increasing dummy ($\beta_2$) is negative, while the bad news income-increasing dummy ($\beta_4$) is positive.

As one can see from the table presented above, the GOODNEWSINCR coefficient is negative ($-0.013$). Despite aligning with the expected direction of our first hypothesis, it is not significant, indicating that we cannot confidently support our

first hypothesis. The BADNEWSINCR coefficient is also negative $(-0.006)$, failing to meet the expected direction of our second hypothesis. In addition, the two coefficients is not significant. Given this, we reject both our first and second hypotheses. This suggests that the market doesn't anticipate the potential reversal effects of abnormal accruals. It also implies that the ERC doesn't differ among firms delivering good or bad news, even if the abnormal accruals leads to increased or decreased income. These findings contrast with DeFond and Park (2001), who find that the ERC is influenced by the nature of earnings surprises – specifically, whether it constitutes positive or negative news, and whether the earnings surprise includes income-increasing or income-decreasing abnormal accruals. Possible reasons for this difference in results are speculative. Still, plausible reasons could be timeframe and sample characteristics, economic conditions, industry trends, or regulatory environments that change over time and could influence the behavior of firms and markets.

The GOODNEWS coefficient is positive at $0.024$ and is significant on the $1\%$ level. This implies that when a company exceeds forecasted earnings, the CAR increases by an estimated $2.4\%$. Conversely, the BADNEWS coefficient is negative at $-0.024$ and significant at the $1\%$ level. This suggests that when a company falls short of the forecasted earnings, the CAR is expected to decrease by $2.4\%$. These findings align with prior research, which asserts that stock prices rise when companies surpass earnings forecasts and vice versa (Bartov, Givoly, & Hayn, 2002; Bernard & Thomas, 1989). This observation further corroborates with the PEAD hypothesis, which suggests that stock prices tend to trend in the same direction as the earnings surprise.

Despite these findings, it is noteworthy that the $R^2$ value is $0.098$, indicating that our regression model only explains about $9.8\%$ of the variation in CAR. The Adjusted $R^2$ is even lower at $0.003$, implying that after considering the number of predictors, our model explains only $0.3\%$ of the variation in CAR. This indicates the presence of other significant factors not included in our model, which might influence CAR. As such, future studies might benefit from considering a broader set of variables, such as firm-specific factors, market conditions, or other financial metrics, that could better explain the variation in CAR. Nevertheless, our model's

F – statistics is significant at the 1% level, suggesting that the overall model holds some predictive power.

While our results do not support the initial hypotheses, they provide an intriguing basis for further exploration. However, reflecting on why the hypotheses are not supported is essential. Several factors could influence this, such as other unaccounted financial variables, specific industry characteristics, the chosen time period, or even external economic conditions that could affect firms' financial behavior and the market's reaction.

One potential limitation of our study involves the assumptions about firm behaviors and market reaction. More specifically, we assume that all firms manage their working capital similarly and the market response to earnings is consistent across all firms. In practice, we applied a uniform model to all firms in our sample without accounting for industry, size, or financial stability differences. We expect the market reaction to be the same for every earnings announcement. However, these assumptions may not hold in practice. For instance, one company in one industry might manage its working capital differently from another company in another industry. Altering our assumptions could influence our regression coefficient and overall fit, potentially offering a more nuanced understanding of the relationship between abnormal working capital accruals and ERC. Therefore, future research could benefit from considering these variations by examining a subset of firms based on industry or by incorporating additional variables into the model to capture the potential differential market reactions.

### 5.2.1 The Relationship between CAR and $FE/P_{-2}$

**Table 5.2:** Regression Table of Relationship between CAR and Forecast Error

Table 5.2 shows the regression model between CAR (market adjusted stock returns) and $FE/P_{-2}$ (forecast error), where CAR is the dependent variable and $FE/P_{-2}$ is the independent variable.

| | CAR |
|---|---|
| $FE/P_{-2}$ | $0.721^{***}$ |
| | $(0.131)$ |
| Observations | 516 |
| $R^2$ | 0.061 |
| Adjusted $R^2$ | $-0.025$ |
| $F-\text{Statistic}\ (df = 1; 472)$ | $30.416^{***}$ |
| *Note:* | $^{*}p < 0.1;\ ^{**}p < 0.05;\ ^{***}p < 0.01$ |

Despite our hypotheses not being supported, we wish to explore the relationship between the CAR and $FE/P_{-2}$ further. A positive forecast error would mean that the actual earnings exceeded expectations, while a negative forecast error means the actual earnings fell short of the expectation. The CAR, on the other hand, measures the excess return on stock over a specific period compared to the expected return. Our findings indicate a significant positive association between forecast error and CAR. Suggesting that the market reacts to earnings surprises, whether they are positive or negative.

As reported in Table 5.2, the ERC is 0.721, which is smaller than the ERC found by DeFond and Park (2001), indicating that our sample is less sensitive to earnings surprises in comparison to DeFond and Park's. An increase in $FE/P_{-2}$ by one unit leads to an approximative 0.721 unit increase in CAR, assuming all other factors remain constant. Therefore, when actual earnings exceed analyst expectations, the market responds positively by increasing abnormal returns. These observations align with the Efficient Market Hypothesis[20] (EMH) (Fama E. F., 1970). This is an important finding as it suggests that analyst forecasts and the degree to which actual

[20] The Efficient Market Hypothesis states that the share price reflects all information and consistent alpha generation is impossible (Downey, 2023)

earnings deviate from these forecasts can significantly influence stock returns, which is demonstrated by the market's rapid incorporation of new and unexpected information, in this case, a surprise in earnings (Malkiel, 2003).

The positive association between the forecast error and CAR underscores the significance of unexpected earnings news in shaping market reactions. Our results highlight that investors should monitor earnings forecasts and be aware of the potential for earnings surprises to make informed investment strategies. For analysts, it reinforces the importance of precisions in earnings forecasting and understanding the potential impact of deviations. Our results underscore the significance of accurate and prompt earnings reports as a factor that can influence the companies' stock price.

Our regression yields a $R^2$ of $0.061$, which accounts for approximately 6.1% of the variation in our dependent variable. This implies that the forecast error accounts for a small but significant portion of the changes observed in the CAR. While this relationship is statistically significant and aligns with the EMH, it also suggests that the majority of the variation in CAR is explained by other factors not included in our model. However, the model yields a negative Adjusted $R^2$ value of $-0.025$, potentially hinting at over-specification within the model. This issue does not undermine the validity of the model's explanatory power, as supported by the highly significant $F-\text{statistics}$ at the $1\%$ level, implying that the regression model still fits the data better than a model without the predictors.

### 5.2.2 Regression with Control Variables

Previous study establishes a correlation between ERCs and factors such as firm size and earnings persistence (Easton & Zmijewski, 1989). The influence of firm size is of particular interest because larger firms often have different operational and financial characteristics compared to smaller firms, which could potentially influence their stock returns and the market's response to their earnings. For instance, more prominent firms might exhibit more stability, which could reduce their risk and lead to a different earnings response. Thus, in an effort to capture this

potential nuance and improve the explanatory power of our model, we introduce firm size as an additional control variable in our analysis.

**Table 5.3:** Regression Table of Main Regression with Control Variable

Table 5.3 shows the regression of two-day market adjusted returns on earnings forecast error explained by Good/Bad earnings news and income-increasing abnormal working capital accruals with control variable Size (computed as closing price × outstanding shares).

| | CAR |
|---|---|
| GOODNEWS | $0.025^{***}$ |
| | (0.008) |
| BADNEWS | $-0.025^{***}$ |
| | (0.008) |
| GOODNEWSINCR | $-0.013$ |
| | (0.009) |
| BADNEWSINCR | $-0.006$ |
| | (0.008) |
| SIZE | $-0.002$ |
| | (0.012) |
| Observations | 516 |
| $R^2$ | 0.098 |
| Adjusted $R^2$ | $-0.001$ |
| $F-$ Statistic $(df = 9; 464)$ | $5.625^{***}$ |
| *Note:* | $^{*}p < 0.1;\ ^{**}p < 0.05;\ ^{***}p < 0.01$ |

According to the results from the third regression illustrated in Table 5.3, the results are similar to those when excluding the SIZE variable. Good news and bad news are still significant and affect these returns with a 2.5% increase or decrease, almost identical to the earlier regression. This represents the anticipated shift in stock returns for each unit change in the variable, with all other factors remaining constant, including that when actual earnings surpass forecast – defined as "good news" – the average stock return increases by 2.5%, suggesting that the market reacts positively when firms report positive earnings surprises. Conversely, for the "bad news" variable, where the actual earnings fall short of the forecast, the stock

returns decrease by an average of 2.5%, indicating an adverse market reaction to negative earnings surprises.

This model incorporates good and bad news variables that increase income (GOODNEWSINCR and BADNEWSINCR). These variables account for the origin of good or bad news and an increase in abnormal working capital accruals. However, neither of these variables significantly influences stock returns as the GOODNEWSINCR and BADNEWSINCR have the same insignificant values as in Table 5.1, suggesting that while the market responds to the tone of earnings announcements, the specific interaction with AWCA does not significantly modify this reaction. Furthermore, the firm´s size does not reveal any significant impact on the stock returns, with a coefficient of $-0.002$. The outcome of the regression analysis underscores that, within the context of the two-day trading window around earnings announcements, the firm size is not a significant determinant of stock returns.

The findings from the regression analysis, even after controlling for the SIZE variable, provide insufficient empirical support for our proposed hypotheses. This diverges from the outcomes reported in DeFond and Park's (2001) study. In their research, despite the SIZE variable's insignificance, the GOODNEWSINCR maintains a significant negative relationship, and BADNEWSINCR retains a significant positive relationship, allowing them to uphold their hypotheses. The outcomes obtained in the study align with our anticipations, given the congruent results derived from the initial regression analysis. As previously discussed, such outcomes may be attributable to the study's temporal parameters and the sample population's unique characteristics.

The $R^2$ value of $0.098$ suggests that only about 9.8% of the variation in the stock returns is explained by the model, indicating much of the variation remains unaccounted for. The Adjusted $R^2$ has a value of $-0.001$, implying that the model suffers from overfitting too many variables with insufficient predicting power.

The $F-$statistic is significant, denoting that the independent variables, as a collective, exert an impact on CAR. However, tested individually, the majority of the variables are not significant. The model suggests that during the two trading

days following earnings announcements, the nature of the earnings news significantly influences stock returns. The firm's size, the interaction with AWCA and the forecast error do not show a significant relationship with the returns. Despite these limitations, the findings highlight the market´s sensitivity to earnings news and emphasize the vital role of accurate earnings forecasts in stock price formation.

Future research should identify other potential control variables and refine the model to improve its predictive power. It may also be valuable to explore the role of market conditions and their interaction with firm-specific factors in driving stock returns. Despite its shortcomings, this model sets the stage for more nuanced explorations of the interplay between firm characteristics, market conditions, and stock returns.

## 5.3 Discretionary Accruals Model

As mentioned previously in the thesis, we choose to deviate from the traditional Jones model for determining abnormal working capital accruals. Our model distinguishes itself by considering seasonality[21], a factor not considered in the Jones Model. Given this divergence, we rerun the hypotheses test (as presented in Table 5.1) using the Jones Discretionary Accruals model. Our objective is to ascertain whether our approach could yield similar outcomes. This process involves replacing the measure of abnormal working capital accruals, as derived from the

Jones Model, with our calculated measures. The revised equation for working capital is as follows:

$$(WC_t - WC_{t-1}) = \alpha + \beta_1(S_t - S_{t-1}) + \beta_2 D1 + \beta_3 D2 + \beta_4 D3 + \sum DYEAR + \varepsilon$$

[21] In our model for calculating abnormal working capital accruals, we calculate the difference between the current quarter and the corresponding quarter of the previous year. This approach differs from the Jones model which calculates the difference between the current quarter and previous quarter. This discrepancy in methods is noteworthy as the Jones Model does not account for potential seasonality effects. Such effects could be relevant for firms where, for instance, sales are highly impacted by seasonality.

Where:

| | |
|---|---|
| $WC_t$ | Non-cash working capital in the current quarter |
| $WC_{t-1}$ | Non-cash working capital in the previous quarter |
| $S_t$ | Sales in the current quarter |
| $S_{t-1}$ | Sales in the previous quarter |
| $D1$ | Dummy if observation relates to the first quarter |
| $D2$ | Dummy if observation relates to the second quarter |
| $D3$ | Dummy if observation relates to the third quarter |
| $\sum DYEAR$ | Dummies for year 2017 through 2019 |
| $\varepsilon$ | Error term |

Furthermore, the variable $GOODNEWSINCR(DA)$ represents situations where a company's actual earnings exceed forecasts (i.e., "good news"), and there is a concurrent increase in income attributed to abnormal working capital accruals. Our hypotheses predict that this variable will have a positive effect on stock returns, reflecting an enhanced positive market reaction due to the combination of good news and income-increasing accruals. On the other hand, $BADNEWSINCR(DA)$ signifies instances where actual earnings fall short of the forecast (i.e., "bad news"). Yet, there is a rise in income due to abnormal working capital accruals. We expect that this variable might mitigate the negative effect of bad news on stock returns because, despite the disappointing earnings outcome, the firm has managed to increase income through its working capital activities.

**Table 5.4:** Regression Table of Main Regression with Discretionary Accruals

Table 5.4 shows the regression of two-day market adjusted returns on earnings forecast error explained by Good/Bad earnings news and income-increasing abnormal working capital accruals (calculated using Jones Discretionary Accruals Model). GOODNEWSINCR(DA) and BADNEWSINCR(DA) distinguish the variables from those in the original regression.

| | CAR |
|---|---|
| GOODNEWS | $0.023^{***}$ |
| | (0.008) |
| BADNEWS | $-0.023^{***}$ |
| | (0.008) |
| GOODNEWSINCR(DA) | $-0.002$ |
| | (0.009) |
| BADNEWSINCR(DA) | $-0.000$ |
| | (0.007) |
| Observations | 516 |
| $R^2$ | 0.091 |
| Adjusted $R^2$ | $-0.004$ |
| $F-\text{Statistic}\ (df = 7; 466)$ | $6.692^{***}$ |
| *Note:* | $^{*}p < 0.1;\ ^{**}p < 0.05;\ ^{***}p < 0.01$ |

In this section, we utilize a new approach and observe the following results related to our variables. Table 5.4 shows that the GOODNEWS and BADNEWS variables are significant at $0.023$ and $-0.023$, respectively. This outcome aligns with the EMH, asserting that stocks perpetually trade at their intrinsic value on exchanges, diminishing investors' potential to buy undervalued stocks or sell overpriced ones.

The model's lack of significance for both GOODNEWSINCR(DA) and BADNEWSINCR(DA) implies that the market might not be as reactive to income-increasing accruals as initially assumed in the context of earnings surprises. This could potentially be explained by market participants' skepticism toward accrual-based earnings manipulations. Abnormal accruals can sometimes be viewed as a

red flag for potential earnings management, which might deter investors even when these accruals increase income.

As displayed in Table 5.4, our findings report that the model has a $R^2$ of 0.091 and an Adjusted $R^2$ of $-0.004$. These results indicate that our model explains only 9.1% of the variability in the dependent variable, and considering the number of predictors, the model does not significantly improve the prediction over the baseline model. The F-statistic was found to be significant at the 1% level, indicating that the regression model as a whole is statistically significant and fits the data better than a model with no predictors. This significance level suggests that, despite individual predictors like GOODNEWSINCR(DA) and BADNEWSINCR(DA) not showing significance, our model's overall combination of factors still explains the variance in the dependent variable.

Contrasting the results of this regression with our main regression reveals minor differences, though neither confirms our hypotheses. The main regression exhibits a higher Adjusted $R^2$ compared to the regression with the control variable. This indicates that it accounts for a slightly greater portion of the variation in the outcome. Because of this, we conclude that our method for calculating abnormal working capital accruals is more accurate than using the Jones Discretionary Accruals model.

While our results show some interesting trends, they underscore the complexity of the market's reaction to earnings information and the need for more robust models and further investigation. It would be beneficial for future studies to delve deeper into how these factors interplay and influence stock returns and perhaps employ qualitative and quantitative methodologies to understand these dynamics better.

## 5.4 Post Announcement Analysis

Following our exploration of the Post-Earnings-Announcement Drift (PEAD) and the Gradual Diffusion Hypothesis, as outlined in section 2.1.4, we now transition to an analysis of the post-announcement period. This phase in the market represents the collective reaction of investors to the earnings disclosed by the companies. During this period, the implications of the reported earnings, whether they surpass,

align with, or fall short of expectations, become fully absorbed and reflected in stock prices. We explore the implications of abnormal accruals after the earnings announcement dates and the different paths companies take when they release positive or negative earnings news. The objective of this discussion is twofold: to unravel the intricacies of market reactions during the post-announcement period and to question the widely accepted EMH by highlighting noticeable irregularities in the market.

### 5.4.1 Post Announcement of Abnormal Accruals

The analyses in the sections above imply that the market fails to foresee the reversal implications of abnormal accruals. However, these analyses are inherently limited by its two-day event window, which restricts our ability to determine whether the market is able to incorporate these implications. Therefore, we extend our investigation to the period following the earnings announcement day. This will be accomplished by examining the CAR 40[22] days subsequent to the earnings announcement.

For the purpose of this extended investigation, we categorize the sample into four categories: GOODNEWSINCR, GOODNEWSDECR, BADNEWSINCR, and BADNEWSDECR. The allocation to these categories depends on their prior classification as good or bad news firms and whether their abnormal working capital accruals increase or decrease income.

As the previous analysis implies that the market fails to foresee the reversal implications of abnormal accruals, the market is unlikely to incorporate these implications fully. Suppose the market was to anticipate both the positive impact of income-decreasing abnormal accruals and the negative impact of income-increasing abnormal accruals. In that case, we expect a decrease in value for

[22] The selection of a 40-day event window was chosen by the flexibility allowed for Norwegian companies regarding their earnings announcement dates. Within a certain permissible span, these companies are free to disclose their earnings on a date of their choice. The period of 40 days exhibits the highest concentration of such announcement, thereby maximizing the quantity of observable data points for this analysis.

instances of good news with income-decreasing abnormal accruals. Conversely, an increase in value for instances of bad news with income-increasing abnormal accruals.

**Table 5.5:** Post Announcement of Abnormal Accruals

Table 5.6 shows Cumulative Abnormal Returns (CARs) for Good/Bad Earnings News and Income-Increasing/Decreasing Abnormal Working Capital Accruals for the Event Window $[0, +40]$ days following the Earnings Announcement Date. GN INCR = GOODNEWSINCR, GN DECR = GOODNEWSDECR, BN INCR = BADNEWSINCR, and BN DECR = BADNEWSDECR.

| | GN INCR | GN DECR | BN INCR | BN DECR |
|---|---|---|---|---|
| $[0, 0]$ | 0 | 0 | 0 | 0 |
| $[+1, +5]$ | 0.0011 | 0.0049 | $-0.0026$ | $-0.0027$ |
| $[+1, +10]$ | $-0.0004$ | 0.0027 | $-0.0010$ | $-0.0020$ |
| $[+1, +15]$ | $-0.0010$ | 0.0014 | $-0.0007$ | $-0.0011$ |
| $[+1, +20]$ | $-0.0012$ | 0.0005 | $-0.0006$ | $-0.0007$ |
| $[+1, +25]$ | $-0.0015$ | 0.0001 | $-0.0006$ | $-0.0004$ |
| $[+1, +30]$ | $-0.0012$ | 0.0005 | $-0.0001$ | $-0.0001$ |
| $[+1, +35]$ | $-0.0010$ | 0.0000 | $-0.0005$ | $-0.0000$ |
| $[+1, +40]$ | $-0.0004$ | 0.0007 | $-0.0004$ | $-0.0001$ |
| *n* | 88 | 112 | 112 | 161 |

*Note:* $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$

**Figure 1:** Post Announcement of Abnormal Accruals

Figure 1 shows Cumulative Abnormal Returns (CARs) by the sign of the Earnings Surprise and the Abnormal Working Capital Accruals for Event Window $[+, +40]$ following the Earnings Announcement Date, classified as GOODNEWSINCR, GOODNEWSDECR, BADNEWSINCR, and BADNEWSDECR.


Presented in Table 5.5 is the CARs within the event window after the earnings announcement date. The GOODNEWSDECR value is positive for the entire period, while the BADNEWSDECR is negative for the whole period. Based on this, our expectations are not met and suggest that the market cannot incorporate the positive or negative implications of abnormal accruals. DeFond and Park (2001) also observe these results in their study, consistent with our findings.

We observe that for GOODNEWSINCR, a marginal positive CAR is present initially (0.11% from Day 1 to 5) but declines to $-0.04\%$ by Day 40. Such a pattern indicates that the market reflects a positive response to the announcement of good news and income-increasing abnormal accruals, followed by a declining trend towards the end of our sample period. When considering GOODNEWSDECR, it is revealed to demonstrate an initial positive CAR (0.49% from Day 1 to 5) that, while decreasing over time, retains marginally positive at 0.07% by Day 40. This indicates a generally positive response to the good news, despite the decrease in income.

Furthermore, BADNEWSINCR reports a negative CAR from Day 1 to 5 (-0.26%), which persists in having a negative value for the remaining event window. This trend signifies an initial negative response to the announcement of bad news, regardless of the income increase, with a gradual mitigation of this negative reaction over time. A similar pattern is observed in BADNEWSDECR, with the CAR being negative from Day 1 to 5 ($-0.27\%$), persisting but diminishing by Day 40 ($-0.01\%$). This reaction indicates the market's negative response to bad news and a decrease in income, but the response shows a gradual reduction over time.

In particular, the market appears to react positively to good news and negatively to bad news, irrespective of the income's directional shift due to abnormal accruals. However, these reactions undergo revisions over time, suggesting a delay by the market in fully integrating the information from the earnings announcements into stock prices. While the GOODNEWSDECR category concludes the period with a marginally positive CAR, all other categories tend towards a position near neutrality by Day 40.

The observed data aligns with the theoretical concepts of PEAD and the Gradual Diffusion Hypothesis. PEAD explains the observed tendency of a stock's price to continue its trajectory in the direction of the earnings surprise for a certain period post-announcement. This phenomenon aligns with the data patterns noted: after the announcement, the CAR tends to persist in the direction indicated by the nature of the earnings news, regardless of whether the income showed an increase or decrease due to abnormal working capital accruals.

On the other hand, the Gradual Diffusion Hypothesis, which suggests a gradual spread of information among market participants, provides a plausible explanation for the trends observed in the data. For instance, in the GOODNEWSINCR category, the overall trend becomes negative over time despite an initial positive CAR. This pattern might be attributed to a section of investors immediately reacting to the good news, while others, possibly focusing more on the increment in income due to abnormal accruals, react later, triggering a downward revision in the CAR. A similar explanation could account for the observed pattern in the BADNEWSDECR category, where the initially negative CAR lessens over time. As the market gradually absorbs the negative earnings news, selling pressure might ease over

time, resulting in a less negative CAR. These theories challenge the EMH, proposing that markets may take time to fully integrate earnings announcement information into stock prices, thus leading to observable post-earnings-announcement drifts.

Understanding these patterns can help investors anticipate market reactions to earnings announcements and strategize accordingly. For instance, investors might consider the initially strong market reaction to good or bad news and the likely subsequent revisions while making short-term investment decisions. Similarly, understanding the tendency towards neutrality by day 40 could be used for long-term investment strategies. Investors could use this knowledge to their advantage by buying or selling stocks immediately after earnings announcements or by holding onto stocks and anticipating the likely revisions in market reactions. To further refine the strategy, we suggest that further studies should include investor psychology, the role of media, and analyst coverage or have longer time frames. Each of these directions could yield valuable insights and further refine the understanding of the market reactions to earnings announcements.

### 5.4.2 Post Announcement of Good/Bad News Companies

In addition to analyzing the market's ability to incorporate the reversal implications of abnormal accruals in the days following the earnings announcement date, we also want to examine the market's reactions towards "good news" companies and "bad news" companies. These companies either exceed the forecasted earnings (GOODNEWS), achieving a positive earnings surprise, or fail to meet the anticipated earnings (BADNEWS), thereby having a negative earnings surprise. By analyzing the market´s reaction to positive and negative earnings surprises, we can understand how investors react to these news.

We anticipate that companies with a positive earnings surprise will likely observe a corresponding upward trend in their stock prices. Conversely, companies that fall short of the forecasted earnings are expected to experience a decline in stock prices. We examine the CARs for 40 days after the earnings announcement to achieve this analysis. This approach enables us to analyze the market´s reaction and subsequent price adjustments following positive and negative earnings surprises, providing insight into the interplay between earnings surprises and the market´s reaction.

**Table 5.6:** Post Announcement of Good/Bad News Firms

Table 5.6 shows Cumulative Abnormal Returns (CARs) for Good/Bad Earnings News for the Event Window $[0, +40]$ days following the Earnings Announcement Date. A company can be categorized as GOODNEWS if they exceed forecasted earnings and BADNEWS if the earnings fall short of the forecast.

| | GOODNEWS | BADNEWS |
|---|---|---|
| $[0, 0]$ | 0 | 0 |
| $[+1, +5]$ | 0.0028 | $-0.0025$ |
| $[+1, +10]$ | 0.0012 | $-0.0014$ |
| $[+1, +15]$ | 0.0018 | $-0.0008$ |
| $[+1, +20]$ | $-0.0005$ | $-0.0005$ |
| $[+1, +25]$ | $-0.0008$ | $-0.0003$ |
| $[+1, +30]$ | $-0.0004$ | 0.0001 |
| $[+1, +35]$ | $-0.0005$ | 0.0003 |
| $[+1, +40]$ | 0.0025 | $-0.0014$ |
| *n* | 200 | 273 |
| *Note:* | $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$ | |

As presented in Table 5.6, the first row, $[+1, +5]$, represents the CARs of the period from the day immediately after the earnings announcement up to the fifth day. Within this interval, the CAR value of 0.0028 for the GOODNEWS category indicates an increase in stock prices, equivalent to 0.28%. Conversely, the BADNEWS category exhibits a CAR of $-0.0025$, representing a decrease in stock prices by $-0.25\%$. These results align with our initial expectations, whereby GOODNEWS are anticipated to experience a positive stock price movement, while BADNEWS are expected to observe negative stock price movements.

Continuing the analysis, we observe that the CAR values for the GOODNEWS category remain positive until the $15^{\text{th}}$ day, whereas the CAR values for the BADNEWS category remain negative until the $25^{\text{th}}$ day. This persistence in CAR values suggests that the market´s reaction to earnings surprises continues in the following days after the earnings announcement. This can be explained by the Gradual Diffusion Hypothesis and the PEAD effect, as according to these theories, investors gain information simultaneously, leading to a gradual adjustment of stock prices ad information diffuses.

Considering the overall CARs, we find that the GOODNEWS category exhibits a CAR of 0.25%, reinforcing our expectation that companies surpassing the forecasted earnings will likely experience an increase in stock prices. On the other hand, the BADNEWS category demonstrates an overall CAR of −0.14%, supporting the notion that companies failing to meet the forecasted earnings are prone to observe a decrease in stock prices.

**Figure 2:** Post Announcement of Good/Bad News Firms

Cumulative Abnormal Returns (CARs) by the sign of the Earnings Surprise for Event Window [0, +40] following the Earning Announcement Date, classified as GOODNEWS and BADNEWS.

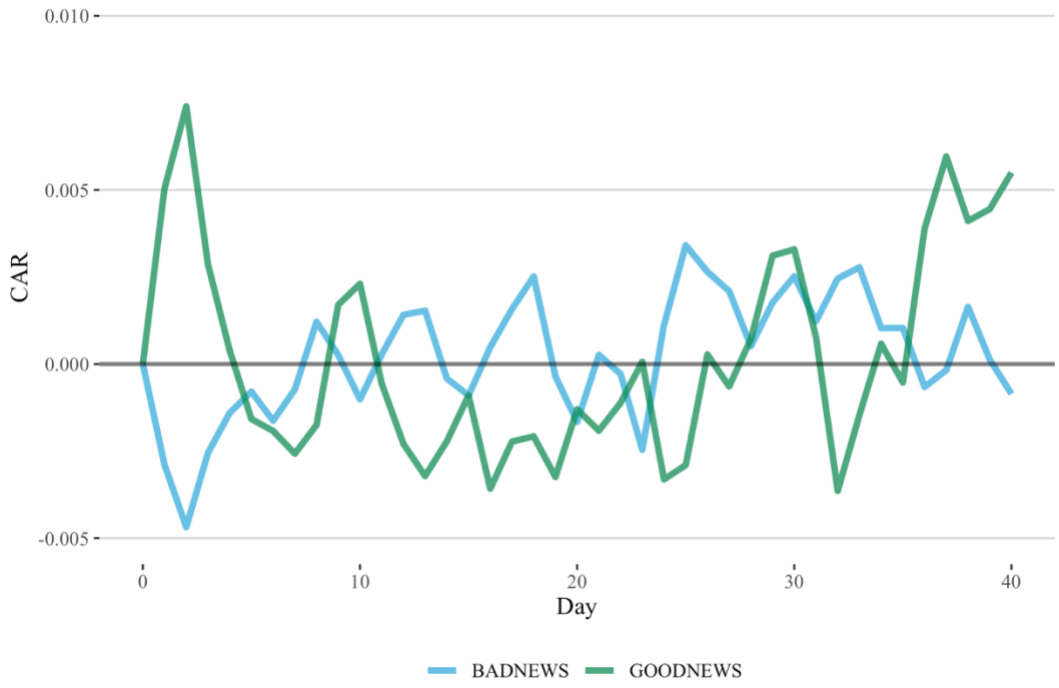


Figure 2 presents the daily CARs for both GOODNEWS and BADNEWS firms. The observations reveal distinct patterns in stock price movements for the two categories in the first days. Notably, the CARs for GOODNEWS exhibit an initial sharp increase in the first two days following the Earnings Announcement Date, followed by a subsequent decline. For the following dates, the CARs of GOODNEWS indicate a random walk[23] until the end of the observation period, where a sudden increase is observed. Conversely, the CARs for BADNEWS firms

[23] The random walk theory suggests that changes in asset prices are random, implying that stock prices move unpredictably (Smith, 2023).

exhibit a contrasting pattern, with a notable decrease in stock prices during the first two days following the earnings announcement date, followed by a return to a more random walk-like behavior.

These patterns suggest that investors react strongly to positive and negative earnings surprises. The substantial spike in the CARs for GOODNEWS firms in the initial two days signifies an immediate positive reaction to companies exceeding the forecasted earnings. This indicates that investors view such results favorably, resulting in a notable increase in stock prices. However, as time progresses, the CARs show a decline in value, suggesting a gradual adjustment and potential profit-taking behavior by investors.

On the other hand, the initial significant decrease in the CARs for BADNEWS firms during the first two days following the earnings announcement date signifies a strongly negative reaction to companies falling short of the forecasted earnings. This indicates that investors perceive such outcomes as unfavorable, resulting in a significant decline in stock prices. Subsequently, the CARs in the following days indicate a random walk, implying that investors may perceive the news as incorporated and adjust their expectations accordingly.

In summary, the observed patterns in the CARs highlight the distinct market reaction to both positive and negative earnings surprises and can be explained by the PEAD and the Gradual Diffusion Hypothesis. These findings underscore the market´s sensitivity to earnings surprises. The results align with our initial expectations, where companies exceeding the forecasted values are anticipated to experience a positive stock price movement. Companies that fail to meet the forecasted earnings are expected to observe negative stock price movements. This also aligns with prior research, which finds that a company with a positive earnings surprise will experience an increase in the stock price, while companies with a negative earnings surprise will experience a decline in the stock price (Ball & Brown, 1968; Bernard & Thomas, 1989).

# 6.0 Conclusion

The aim of our study is to analyze how abnormal accruals impact the market's reaction to earnings surprises and how the reversal of these accruals affects the long-term performance of firms on the Oslo Stock Exchange. We hypothesize that firms with good (bad) news and income-increasing abnormal working capital accruals would have a lower (higher) ERC than those with good news and income-decreasing abnormal accruals. We analyze data within a two-day event window leading up to the quarterly earnings announcement to do this. Contrary to our expectations, our hypotheses are not supported, suggesting that the market does not anticipate the reversing implications of abnormal accruals and that the ERC among firms remains unchanged for good or bad news firms, regardless of whether the abnormal working capital accruals are income-increasing or decreasing. Although our findings do not confirm our hypotheses, we observe a positive correlation between forecast error and CAR, highlighting the market's reaction to unexpected earnings news. This implies that the market might not be as reactive to income-increasing or decreasing accruals as initially assumed in the context of earnings surprises. This outcome might be attributed to market participants' possible skepticism toward earnings based on accrual accounting.

We can conclude from our hypotheses test that the market fails to foresee the reversal implications of abnormal accruals. Therefore, we extend our investigation to the period following the earnings announcement day. Despite our expectations, the market is unable to incorporate both the positive impact of income-decreasing abnormal accruals and the negative impact of income-increasing abnormal accruals. However, our findings indicate that the market is sensitive to earnings surprises. This aligns with our initial expectation that companies with a positive (negative) earnings surprise will likely observe a corresponding upward (downward) trend in their stock prices.

Further research should examine the relationship between earnings surprises and abnormal accruals. They could do so by incorporating specific sectors and including additional control variables, such as the market-to-book ratio, the growth in the book value of equity, earnings volatility, and the persistence of earnings.

# Abbreviations

| | |
|---|---|
| **AWCA** | Abnormal Working Capital Accruals |
| **CAR** | Cumulative Abnormal Return |
| **EPS** | Earnings Per Share |
| **EMH** | Efficient Market Hypothesis |
| **ERC** | Earnings Response Coefficient |
| **IFRS** | International Financial Reporting Standards |
| **GAAP** | Generally Accepted Accounting Principles |
| **OSEBX** | Oslo Børs Benchmark Index |
| **PEAD** | Post-Earnings-Announcement Drift |
| **OSE** | Oslo Stock Exchange |

# Bibliography


Accounting Tools. (2022, 09 02). *Realization principle definition*. Retrieved from AccountingTools: https://www.accountingtools.com/articles/what-is-the-realization-principle.html

Allen, E. J., Larson, C. R., & Sloan, R. G. (2013). Accrual reversals, earnings and stock returns. *Journal of accounting and economics, 56(1)*, 113-129.

Atwood, T. J., Drake, M. S., Myers, J. N., & Myers, L. A. (2011). Do earnings reported under IFRS tell us more about future earnings and cash flows? *Journal of accounting and public policy, 30(2)*, 103-121.

Ball, R., & Brown, P. (1968). An empirical evaluation of accounting income numbers. *Journal of accounting research, 6(2)*, 159-178.

Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics, 39(1)*, 83-128.

Ball, R., & Shivakumar, L. (2008). Earnings quality at initial public offerings. *Journal of accounting and economics, 45(2)*, 324-349.

Ball, R., Kothari, S. P., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of accounting and economics, 29(1)*, 1-51.

Banz, R. (1981). The relationship between return and market value of common stocks. *Journal of financial economics, 9(1)*, 3-18.

Barth, M. E., Beaver, W. H., & Landsman, W. R. (2001). The relevance of the value relevance literature for financial accounting standard setting: another view. *Journal of accounting and economics, 31(1-3)*, 77-104.

Bartov, E., Givoly, D., & Hayn, C. (2002). The rewards to meeting or beating earnings expectations. *Journal of accounting and economics, 33(2)*, 173-204.

Bartov, E., Gul, F., & Tsui, J. (2000). Discretionary-accruals models and audit qualifications. *Journal of accounting and economics, 30(3)*, 421-452.

Beneish, M. D. (1999). The detection of earnings manipulation. *Financial Analyst Journal, 55(5)*, 24-36.

Bernard, V. L., & Thomas, J. K. (1989). Post-earnings-announcement drift: delayed price response or risk premium? *Jorunal of Accounting research, 27*, 1-36.

Bernard, V., & Thomas, J. (1990). Evidence that stock prices do not fully reflect the implications of current earnings for future earnings. *Journal of Accounting and Economics, 13(4)*, 305-340.

Biddle, G., Hilary, G., & Verdi, R. (2009). How does financial reporting quality relate to investment efficiency? *Journal of accounting and economics, 48(2-3)*, 112-131.

Bowen, R., Burgstahler, D., & Daley, L. (1987). The incremental information content of accrual versus cash flows. *Accounting Review*, 723-747.

Cohen, D., Dey, A., & Lys, T. (2008). Real and accrual-based earnings management in the pre-and post-Sarbanes-Oxley periods. *The accounting review, 83(3)*, 757-787.

Collins, D., & Kothari, S. (1989). An analysis of intertemporal and cross-sectional determinants of earnings response coefficients. *Journal of accounting and economics, 11(2-3)*, 143-181.

Dechow , P. M., Sloan, R., & Sweeney, A. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary accounting research, 13(1)*, 1-36.

Dechow, P. M. (1994). Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of accounting and economics, 18(1)*, 3-42.

Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The accounting review, 77(s-1)*, 35-59.

Dechow, P. M., Kothari, S. P., & Watts, R. L. (1998). The relation between earnings and cash flows. *Journal o accounting and economics, 25(2)*, 133-168.

DeFond, M., & Park, C. (2001). The reversal of abnormal accruals and the market valuation of earnings surprises. *The accounting review, 76(3)*, 375-404.

Downey, L. (2023, 04 24). *Efficient Market Hypothesis (EMH): Definition and Critique*. Retrieved from Investopedia: https://www.investopedia.com/terms/e/efficientmarkethypothesis.asp

Easton, P. D., & Zmijewski, M. E. (1989). Cross-sectional variation in the stock market response to accounting earnings announcements. *Journal of Accounting and economics, 11(2-3)*, 117-141.

Fairfield, P., Whisenant, J., & Yohn, T. (2003). Accrued earnings and growth: Implications for future profitability and market mispricing. *The accounting review, 78(1)*, 353-371.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance, 25(2)*, 383-417.

Fama, E., & French, K. R. (1992). The cross-section of expected stock returns. *the journal of Finance, 47(2)*, 427-465.

Finansdepartementet. (2016, June 24). *NOU 2016: 11 Regnskapslovens bestemmelser om årsberetning mv.* Retrieved from Regjeringen: https://www.regjeringen.no/no/dokumenter/nou-2016-11/id2505926/?ch=9

Ghosh, A., Gu, Z., & Jain, P. (2005). Sustained earnings and revenue growth, earnings quality, and earnings response coefficients. *Review of accounting studies, 10*, 33-57.

Gul, F. A., Chen, C. P., & Tsui, J. S. (2003). Discretionary accounting accruals, managers' incentives, and audit fees. *Contemporary accounting research, 20(3)*, 441-464.

Hayes, A. (2021, April 30). *Q Ratio or Tobin's Q: Definition, Formula, Uses, and Examples*. Retrieved from Investopedia: https://www.investopedia.com/terms/q/qratio.asp

Hong , H., & Stein, J. C. (1999). A unified theory of underreaction, momentum trading, and overreaction in asset markets. *The Journal of finance, 54(6)*, 2143-2184.

Hong, H., Lim, T., & Stein, J. C. (2000). Bad news travels slowly: Size, analyst coverage, and the profitability of momentum strategies. *The Journal of finance, 55(1)*, 265-295.

Huang, P., Louwers, T. J., Moffitt, J. S., & Zhang, Y. (2008). Ethical management, corporate governance, and abnormal accruals. *Journal of Business Ethics, 83*, 469–487.

Huang, P., Zhang, Y., Deis, D. R., & Moffitt, J. S. (2009). Do artificial income smoothing and real income smoothing contribute to firm value equivalently? *Journal of banking & finance, 33(2)*, 224-233.

Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of accounting research, 29(2)*, 193-228.

Kasznik, R., & Lev, B. (1995). To warn or not to warn: Management disclosures in the face of an earnings surprise. *Accounting review*, 113-134.

Kormendi, R., & Lipe, R. (1987). Earnings innovations, earnings persistence, and stock returns. *Journal of business*, 323-345.

Kothari, S. P., & Sloan, R. G. (1992). Information in prices about future earnings: Implications for earnings response coefficients. *Journal of Accounting and Economics, 15(2-3)*, 143-171.

Kothari, S., Loene, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of accounting and economics, 39(1)*, 163-197.

Leuz, C., Nanda, D., & Wysocki, P. (2003). Earnings management and investor protection: an international comparison. *Journal of financial economics, 69(3)*, 505-527.

Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of economic perspectives, 17(1)*, 59-82.

Norges Bank. (n.d.). *Valuta Kurser*. Retrieved from Norges Bank: https://www.norges-bank.no/tema/Statistikk/Valutakurser/

Ohlson, J. A. (2014). Accruals: An overview. *China Journal of Accounting Research Volume 7, Issue 2, ,* 65-80.

Oslo Børs Informasjon AS/BI's database. (n.d.).

Rezaee, Z. (2005). Causes, consequences, and deterence of financial statement fraud. *Critical perspectives on Accounting, 16(3)*, 277-298.

Richardson, S. A., Sloan, R. G., Soliman, M. T., & Tuna, I. (2005). Accrual reliability, earnings persistence and stock prices. *Journal of accounting and economics, 39(3)*, 437-485.

Ross, S. (2022, June 27). *GAAP vs. IFRS: What's the Difference?* Retrieved from Investopedia: https://www.investopedia.com/ask/answers/011315/what-difference-between-gaap-and-ifrs.asp

Ross, S. (2022, September 26). *Investopedia*. Retrieved from How Strongly Do Regulations Impact the Utilities Sector?: https://www.investopedia.com/ask/answers/070915/how-strongly-does-government-regulation-impact-utilities-sector.asp

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of accounting and economics, 42(3)*, 335-370.

Skinner, D., & Sloan, R. (2002). Earnings surprises, growth expectations, and stock returns, or don't let an earnings torpedo sink your portfolio. *Review of accounting studies, 7(2-3)*, 289-312.

Sloan, R. (1996). Do stock prices fully reflect information in accruals and cash flows about future earnings? *Accounting review, 71(3)*, 289-315.

Smith, T. (2023, 02 23). *Random Walk Theory: Definition, How It´s Used, and Example*. Retrieved from Investopedia: https://www.investopedia.com/terms/r/randomwalktheory.asp

Subramanyam, K. (1996). The pricing of discretionary accruals. *Journal of accounting and economics, 22(1-3)*, 249-281.

Tuovila, A. (2023, 06 04). *What Is Bad Debt? Write Offs and Methods for Estimating*. Retrieved from Investopedia: https://www.investopedia.com/terms/b/baddebt.asp

Xie, H. (2001). The mispricing of abnormal accruals. *The accounting review, 76(3)*, 357-373.