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Share Repurchase Announcements and Abnormal Returns on the Oslo Stock Exchange

An Empirical Study Measuring Abnormal Returns Following Share Repurchase Announcements in Norway

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Preface

This thesis represents the finish line for our Master of Science at the Norwegian School of Economics (NHH). We have both finished our bachelor's degree at BI Norwegian Business School before starting at NHH to complete our Master of Science. During our bachelor's degree, we developed a growing interest towards the capital markets. This led us both to major in financial economics. After exploring different alternatives within corporate finance, we discovered the topic *Share Repurchase in Norway*. We pursued this topic after some guidance from our supervisor, Associate Professor Tommy Stamland.

Writing the master's thesis has both been exciting and challenging during the Covid-19 pandemic. Therefore, we have developed our own cohort and have spent countless hours together. In addition, researching a topic of interest made the process highly educational and left us with nothing but good memories.

We would like to express our gratitude towards our supervisor, Associate Professor Tommy Stamland, for the excellent cooperation, valuable feedback, and expertise in corporate finance and the event study methodology.

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Abstract

This thesis examines share repurchase announcements from 2000 to 2020 on the Oslo Stock Exchange (OSE). This dissertation provides new research on share repurchases in Norway by investigating an unexamined period. The majority of studies are conducted in larger economies, while this thesis adds literature on the phenomena on the OSE. Previous research by Settem (2008) examines share repurchase transactions from 2002 to 2004, uncovering significant abnormal returns from share repurchases. This is equivalent to Skjeltorp's (2004) previous findings. However, our study measures the signaling effect of repurchase announcements. This thesis finds a positive short-term abnormal return following a share repurchase announcement. Contrary to previous findings, the size of the repurchase seems to have a significant impact on the abnormal return. In addition to the quantitative analysis, seven interviews were conducted to enlighten the subject further and highlight how various companies perceive this method of returning excess cash to shareholders.

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1. Introduction

Share repurchases has been a controversial topic since the introduction on the Oslo Stock Exchange (OSE) in 1999. Some claim that executives could use repurchase programs to obtain higher salary compensation by increasing the Earnings Per Share (EPS). Another view is that repurchase programs damage the balance sheet and the willingness of companies to invest in new projects by consuming too much capital. This can result in lost investment opportunities because the financial resources are already tied to buyback programs (Vu, 2017). In addition, the repurchases could increase the risk of default by raising the debt-to-equity ratios.

In theory, a share repurchase is no different from an ordinary cash dividend since the compensation method is irrelevant as long the shareholders receive a portion of the profits over time. This is naturally not the case if the method of compensation leads to a higher net payment to a shareholder due to tax conditions or other frictions, which could make one of the methods superior. Several studies from different markets show that companies that announce a share repurchase program experience a risk-adjusted excess return of 2-3 percent in the days surrounding the share repurchase announcement (Skjeltorp, 2004). Despite various criticism, buybacks are more popular than ever and have been a common way of returning excess cash to shareholders, especially in the US. However, share repurchases in Norway are not as popular.

Literature on share repurchases provides a long list of hypotheses for why a company decides to repurchase their shares; substitution for dividends, corporate signaling hypothesis, takeover deterrence hypothesis, capital structure, and excess cash distribution. All the different hypotheses are plausible, but several previous articles have found corporate signaling as the most recurring reason (Vermaelen 1981., Dann 1981). Announcing that a firm will repurchase shares could be perceived as a signal to the market that the management believes the share is undervalued. If the market is efficient, the price should be adjusted immediately. Ikenberry, Lakonishok & Vermalen (1995) found that the two most common reasons for repurchasing shares are undervaluation and investment purposes. On the Oslo Stock Exchange (OSE), there is a significant overweight of employee programs being the reason for announcing a share repurchase program. This assertion was further substantiated by the collected data and the conducted interviews for companies listed of OSE.

This thesis attempts to measure the connection between share repurchase announcements and abnormal returns. The first chapters will guide the reader through different share repurchase methods and the different hypotheses of why companies conduct a share repurchase. Secondly, the event study methodology presented by MacKinlay (1997) was utilized to measure the abnormal return following a repurchase announcement. Further, several regression models were employed on the abnormal return to measure how different variables affect the Cumulative Abnormal Returns (CAR). Lastly, qualitative interviews were conducted to further substantiate the quantitative findings and elaborate on the topic.

2. Share Repurchase

A share repurchase is when a company decides to purchase back its shares from the market, reducing the total amount of shares on the marketplace. Corporations usually repurchase shares if they consider their stock to be undervalued or return excess cash to investors (Dittmar, 2000). Furthermore, share repurchases decrease the number of shares outstanding, thus increases the Earnings Per Share. Increasing the EPS would elevate the market value of the remaining shares. Other common reasons for repurchasing shares would be to offer shares to employees through employee programs or to adjust the capital structure.

2.1 Share Repurchase Announcement

The process of repurchasing shares is authorized at the annual general meetings. When announcing a share repurchase program, the announcement commonly contains information on the number of shares being purchased and the preferred price range. However, the management is not obligated to announce when the repurchase program starts. In addition, organizations are not obligated to publish a public announcement regarding the repurchase. Thus, after being granted authorization, the firm is at liberty to repurchase shares whenever they prefer.

2.2 Share Repurchase as Pay-out Policy

Share repurchase is an activity where companies acquire their own shares, and shareholders who want to sell their shares back to the firm will be compensated. As a result, share repurchase can be perceived as a way for a corporation to allocate cash to smaller groups of shareholders, while dividends are distributed to all shareholders. This makes repurchases a more flexible approach of returning excess cash to shareholders. Share repurchases are a modern form of pay-out policy compared to dividends, which have been around for centuries. For Norwegian citizens, the taxation of dividends and share repurchases are similar. Therefore, dividends are usually preferred. Nonetheless, some countries have strict taxation on dividends which could make share repurchases the preferred way of distributing the profits for certain foreign shareholders.

2.3 Stock Buyback Methods

There are four different ways of conducting a share repurchase; share repurchase by direct negotiation, share repurchase using a Dutch auction, share repurchase at a fixed price, and lastly, share repurchase in an open market. Each method has different characteristics and is suitable for different purposes and companies. However, open market repurchases are the most common method and the most frequently applied (Grullon & Ikenberry, 2000).

2.3.1 Direct Negotiation

This method allows a corporation to repurchase shares from certain large shareholders at a pre-determined price between the company and the shareholder(s). This method is usually preferred when the company wants to protect itself from a hostile takeover, and therefore the price usually includes a premium. The main advantage of this buyback method is that the company can negotiate the buyback directly with the shareholders. In addition, direct negotiation allows shareholders to sell larger amounts of shares, even when the stock suffers from a low trading volume. This method could also be applied when firms buy back shares from employees, with the price usually equal to the current market price.

2.3.2 Dutch Auction Tender Offer

Under a Dutch auction, companies would offer their shares within a price range instead of at a fixed price. Shareholders submit bids by stating the total number of shares and the lowest price they are willing to accept. Following the auction, the corporation receives the offers from shareholders and determines a reasonable price within the previously announced price range until the share buyback is finished. Compared to a fixed price tender offer, closing a Dutch auction typically results in a lower price per share. Nonetheless, the price in an open market repurchase usually is even lower.

2.3.3 Fixed-Price Tender Offer

Fixed-price tender offers invite shareholders to sell their shares at a pre-specified price within a chosen time period. The offer is usually higher than the prevailing selling price, and the shares are usually offered at a premium. If a company wants to repurchase a significant number of shares within a brief period, fixed price tender offers are commonly used. If the offered

number of shares is lower than the company's preferred amount, all the shares in the tender offer will be repurchased.

2.3.4 Open Market Buybacks

In an open market repurchase, the company buys its shares directly in the stock market. Open market repurchases are the preferred and most frequent method of conducting a share repurchase (Grullon & Ikenberry, 2000). When announcing a repurchase program, the company does not impose any legal obligation to complete the program. An open market repurchase usually has a longer duration and involves repurchasing a higher number of shares compared to other methods. Furthermore, it is the most cost-effective way to execute a share repurchase while also providing the most flexibility.

2.4 Share Repurchase on the Oslo Stock Exchange

Repurchase of own shares is a well-documented concept, but most studies are conducted in the US and other larger economies. In Norway, share repurchase was forbidden until 1999. Therefore, it can be considered a relatively new method to distribute cash to shareholders, compared to dividends. Share repurchases are regulated by the Securities Act of June 13, 1997 (Aksjeloven) and the Securities Trading Act of June 29, 2007 (Verdipapirhandelloven). The Securities Trading Act prohibits a firm from buying more than ten percent of outstanding share capital. Nonetheless, the trade size cannot exceed 25 percent of the average traded volume of shares in the last calendar month. Furthermore, all repurchase transactions executed by a company are obligated to be made public immediately and at the latest before the opening of the next trading day. In addition, the information published must contain the volume and price of the shares that have been repurchased.

Oslo Stock Exchange implemented new regulations regarding share repurchases March 1th, 2021. Market Abuse Regulation (MAR) was implemented to stabilize the stock prices and further regulate buybacks in Norway. The regulations are a so-called "Safe Harbour" regulation which means that repurchases and price stabilizations carried out outside the framework of the regulation must be assessed against the rules of insider trading and market manipulation (Euronext, 2021). MAR has been implemented in the European Union since 2016. However, it has recently been introduced on the OSE.

3. Theory and Litterature Review

This chapter briefly introduces relevant theories within corporate finance suitable for our research on share repurchases. In addition, we will present relevant research on the subject. Lastly, alternative hypothesizes on why companies repurchase their shares will be presented.

3.1 Literature Review on Share Repurchases

Miller and Modigliani (M&M) presented a theorem that the investors should perceive dividends and share repurchases as perfect substitutes when considering perfect capital markets (Miller & Modigliani, 1961). Furthermore, M&M defined a perfect capital market under the following assumptions:

- Equal and costless access to all information
- No taxes, fees, or other transaction costs
- Rational investor behavior
- No difference between distributed and undistributed profits, dividends, and capital gains
- Perfect certainty, complete assurance of future investments and profits

Research within economics has presented evidence that these assumptions do not always hold. Within the subject of share repurchases, previous research has mostly tried to explain the positive return that follows the share repurchase announcements. Therefore, like previous research, this dissertation aims to measure if share repurchase announcements will generate a positive abnormal return, but for shares listed on the OSE.

3.2 Capital Structure

The optimal capital structure is the combination of equity and debt financing, which maximizes a company's market value and minimizes its cost of capital. The stock valuation is independent of its capital structure in perfect capital markets (Jensen & Meckling, 1976). The M&M theorem is the foundation of modern capital structure theory. The company's value is calculated purely by future cash flows unaffected by debt (Modigliani & Miller, 1958). Hence, there are no advantages of borrowing compared to issuing equity in the absence of market imperfections. Since potential cash flows and the cost of capital are unaffected by debt, the

firm valuation is constant for all capital structures. This theoretical contribution is referred to as the capital structure irrelevance result (Jensen & Meckling, 1976). If the theorem holds, various imperfections such as bankruptcy costs and corporate tax rates should not influence real-world capital markets. Taxation of corporate profits and the existence of bankruptcy penalties are market imperfections that are central to a positive theory of the effect of leverage on the firm's market value (Kraus & Litzenberger, 1973).

Feldstein and Green (1983) found out that a share repurchase is preferred over dividends to increase the leverage ratio, mainly because the market imposes a penalty on firms that later decide to reduce their dividend yield. In addition, Feldstein and Green (1983) also state that companies with a leverage ratio below the optimal level are more likely to repurchase shares. Another theory related to the optimal capital structure is the pecking order theory developed by Donaldson (1961), later extended by Majluf and Myers (1984). According to the theory, capital structure is a result of cash flow generation, investment opportunities, and cash distribution to shareholders. Corporations prefer internal financing. However, this could be difficult to achieve since dividends tend to be “sticky” (Guttman, Kadan & Kandel, 2010). Resulting in internal funds used for investments being subject to unpredictable fluctuations. In addition, firms with leverage below the optimal level of capital do not have to engage in share repurchases to increase their leverage, but mostly because they are profitable and thereby need to distribute cash to their shareholders.

3.3 Market Efficiency

The efficient market hypothesis (EHM) is one of economics most well-studied theorems. Fama (1970) proposed the efficient market hypothesis, which states that a market is efficient if security prices represent all available information. Fama (1970) later claimed that fundamental research and security analysis is a loser´s game. The *Grossman-Stiglitz paradox* states that markets are efficient due to the contrary belief of individuals that markets are not efficient (Grossman & Stiglitz, 1980). Therefore, investors spend a significant amount of time researching to extract any mispricing that occurs in the market. According to Grossman and Stiglitz (1980), new knowledge is automatically incorporated into the stock prices when there is an equilibrium number of these investors. It has been common since Roberts (1959) to distinguish between three types of market efficiency; The weak form of market efficiency

claims that all past information is reflected in today's stock price. The semi-strong form includes all past and all public information to be reflected in the stock price. Lastly, the strong form states that both public and private information is reflected in the stock price.

3.4 Why do Companies Repurchase Their Shares?

Previous research in share repurchases has focused on explaining why there is an observable abnormal return on firms repurchasing shares. Different hypothesizes have been tested as the research in this field has progressed. This section will elaborate on the most central hypotheses regarding the subject of share repurchase programs.

3.4.1 Signaling Hypothesis

Signaling theory assumes information is not equally available for all parties simultaneously. The signaling theory is considered a dominant motivation behind a company's decision to repurchase shares. The theory implies that investors will have a more optimistic perception of future earnings (and other profitability measures) following a share repurchase announcement (Grullon & Michaely, 2004). Managers who want to minimize information asymmetry between insiders and outsiders could use the signal effect of a share repurchase to convince investors that the company's valuation is too low. Vermaelen (2005) gave a broad definition of signaling as "An attempt to communicate to investors that their current forecasts about future performance are too pessimistic."

The signaling hypothesis is the most documented and accepted. Dann (1981) and Vermaelen (1981) have found evidence of abnormal returns following share repurchase announcements in the US. According to the efficient market theorem, investors should discount the new information presented by the announcement, which would lead to the stock price adjusting immediately. Ikenberry et al. (1995) support the hypothesis that companies repurchasing shares experienced positive abnormal returns in the following years.

3.4.2 Free Cash Flow Hypothesis

The free cash flow hypothesis states that free cash flows should be distributed to all shareholders through share repurchase if there are no other profitable investment opportunities

(Jensen, 1986). In addition, share repurchases are considered a solution to minimize high spending from managers due to rich cash positions. Agency cost appears when managers work for their own benefits instead of maximizing shareholder's return (Eisenhardt, 1989). Examples of this could be when a company has excess cash and poor investment opportunities, with the manager potentially investing out of self-interest, destroying firm value. However, when announcing a share repurchase program, the market interprets that management is less likely to waste cash with poor investment opportunities.

3.4.3 Dividend Substitution Hypothesis

The dividend substitution hypothesis considers share repurchases as a substitute for a dividend pay-out policy. Managers can choose to return excess cash to shareholders through a share repurchase instead of a dividend. Share repurchases are a flexible way of distributing the profits to selected shareholders compared to dividends, where all shareholders are compensated based on their amount of shares. In addition, dividends are “sticky”, and the market punishes a reduction in the dividend yield because of pessimistic prospects (Guttman et al., 2010). However, repurchases are not “sticky”, and companies can decide to spend vast amounts of cash on share repurchases one year without being obligated to repurchase the following year (Guttman et al., 2010).

3.4.4 Takeover Deterrence Hypothesis

Another motive for share repurchases could be to reduce the chance of hostile takeovers. According to Bagwell (1991), a repurchase could raise the takeover cost because the shareholders willing to tender commonly are those with the lowest valuations. The repurchase thereby skews the distribution of remaining shareholders toward a more expensive pool, lowering the takeover's attractiveness (Bagwell, 1991). In addition, a repurchase could also increase the ownership concentration for current shareholders, which again reduces the chances of a potential takeover (Skjeltorp, 2004). Dann and DeAngelo (1988) have found support for the takeover deterrence hypothesis as a partly motivation for share repurchase. In addition, their research discovered that repurchase had a negative effect prior to a takeover. This could indicate that the public perceives the repurchase as an attempt to prevent a value-creating takeover. Lastly, research by Billett and Hui (2007) discovered a close link between the risk of hostile takeovers and subsequent repurchase activity.

4. Methodology

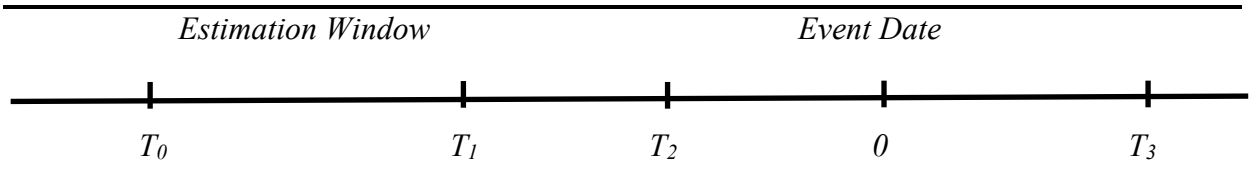
This chapter presents the methodology and methods used in this thesis. First, the event study methodology presented by MacKinlay (1997) is described. Then, related articles are recited in order to highlight the methodology's potential advantages and drawbacks. Furthermore, a brief introduction to the cross-sectional regression approach is presented. The last section presents the method used to obtain primary data. In order to collect primary data for this analysis, interviews were chosen. Which further supplements the event study methodology and add additional insight regarding the researched topic.

4.1 Event Study

Event studies can be used to measure the effect from a corporate event or action. The initial task of conducting an event study is to define the event of interest, in this case, share repurchase announcements, and identify the period over which the security prices of the firms involved in the event will be examined (MacKinlay, 1997). The event study methodology traces back to the 1930s and has been discussed in numerous publications. However, for the purpose of brevity, this thesis will focus on the prosperous framework presented by MacKinlay (1997).

Figure (4.1)

Event Study Timeline



Note.- This figure illustrates the event study timeline. The period between T_0 and T_1 represents the chosen estimation window. T_2 and T_3 illustrate the starting and ending point of the event window. Lastly, 0 denotes the event day. This figure is for illustration purposes only.

4.1.2 Estimation Window

The estimation period is a selected time frame before and after the event occurs, consisting of a selected number of days where the stock is traded. MacKinlay (1997) states that the period prior to the event window will be the best choice as the estimation window when feasible. Generally, there is no correct answer for the duration of the estimation window, therefore dependent on the event of interest. In this study, daily stock returns are employed, and therefore an estimation window of 250 days (approximately one trading year) was selected prior to the share repurchase announcement. To avoid interference with the event of interest, the estimation window is set to end 20 days before the repurchase announcement (MacKinlay, 1997). The estimation window can further be explained as: ($T_0 = -271 \; and \; T_1 = -21$).

4.1.3 Event Window

The event window should reflect the amount of time the market requires to absorb and react to new information (Kriving et al., 2003). The well-studied theorem of the efficient market hypothesis implies that financial markets are efficient. However, various studies have found contradicting evidence. This raised the concern that there is no theoretically correct event window and thereby no finite answer for the length of the event window. To account for possible information leakages and delayed reactions, abnormal returns over several event windows: (-2,2), (-1,2), (-1,1), (0,1) and (0,2) was examined.

4.2 Cross-Sectional Model

Cross-sectional models can provide insight on which factors are associated with the variation in the abnormal return (MacKinlay, 1997). Given a sample of N abnormal return observations and M characteristics, the regression model can be written as followed according to Mackinlay (1997):

$$AR_j = \delta_0 + \delta_1 X_{IJ} + \cdots + +\delta_m X_{MJ} + \eta_j$$

$$E(\eta_j) = 0$$

When utilized, a cross-sectional analysis could add valuable insights into which factors explain the generated abnormal return when conducting a share repurchase.

4.3 Expected Return

The foundation of the event study methodology is to estimate the expected returns. MacKinlay (1997) presents several models for calculating expecting returns. However, this thesis will utilize the Market Model. The reasoning behind this decision is based on the possibility that various models could produce different results. Thus, justifying which of the models created the most accurate expected return is hard to determine and is not the purpose of this thesis.

4.3.1 Market Model

The Market Model is a statistical model that connects the return of any given security to the market portfolio's return (MacKinlay, 1997). The model's linear specification follows an assumption of normal distributed multivariate stock return. For every event in our sample, alphas (α) and betas (β) are calculated for each individual stock, based on the linear relation between the share and the market portfolio. The following equation calculates the expected return:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$
$$E(\varepsilon_{it} = 0)$$
$$Var(\varepsilon_{it}) = \sigma_{ei}^2$$

R_{MT} represents the return from the market portfolio, while ε_{it} captures the unsystematic risk related to each security. β_i reflects how the individual stock fluctuates when the market portfolio increases or decreases. The intercept α_i and the coefficient β_i is estimated by regressing each securities return on the market portfolio. By removing the portion of the return related to variation in the market return, the variance of the abnormal return is reduced (MacKinlay, 1997). The market model is an example of a single-factor model, where the volatility from a selected stock is compared to the market return volatility. This is then used to predict how the stock moves with the chosen benchmark (usually the market). More advanced models exist. However, as MacKinlay (1997) states, the benefit of using such models in an event study is limited.

4.4 Abnormal Return

Abnormal Return (AR) describes an unusual profit or loss generated by a given investment or portfolio over a specific time window. The abnormal return surrounding the event is estimated as the difference between the stock's actual return and the predicted normal return (Bodie, Kane, Marcus, 2018). The two methods commonly used to measure abnormal returns over the chosen event window are the Cumulative Abnormal Returns (CAR) and the Buy-and-Hold Abnormal Returns (BHAR). This thesis will utilize the CAR. The mathematical equations used to compute abnormal returns:

$$AR_{it} = R_{it} - E(R_{it})$$

4.4.1 Cumulative Abnormal Return

Cumulative Abnormal Returns are simply the sum of all abnormal returns over the period of interest (Bodie et al., 2018). The CAR captures the total firm-specific stock movement for an entire period when the market responds to new information. Information leakage and the possible slow reactions from the market make the abnormal return on announcement day a poor indicator for measuring the total impact of a repurchase announcement. To calculate the Cumulative Average Abnormal Return (CAAR) for a sample, the CAR's are aggregated and then divided by the number of events denoted by N. Both the mathematical expression for CAR and CAAR is presented in the equations below:

$$CAR_{i(\tau,T_3)} = \sum_{t=\tau}^{T_3} \mathrm{AR_{it}}$$

$$CAAR(T_2, T_3) = \frac{1}{N} \sum_{i=1}^{N} \mathrm{CAR_i}(T_2, T_3)$$

4.5 Significance Testing

In order to assess the statistical significance of the abnormal returns, literature distinguished between parametric and non-parametric tests. Non-parametric tests do not assume regular distribution, while parametric tests do (MacKinlay, 1997). Therefore, for simplicity, this analysis will assume a normal distribution of the selected samples. Further, the traditional t-test and the two-sample test (p-value) are employed in the analysis section to test if the results are statically different from zero.

4.6 Limitations of Event Studies

The event study methodology also has its drawbacks, despite the extensive research. As a result of this, it is essential to discuss the potential drawbacks of this analysis and how we have attempted to overcome these obstacles.

The outcomes are predicated on the assumption that the event date has been accurately determined and not anticipated (MacKinlay, 1997). Following this statement, this thesis assumes that the share repurchase announcements are not anticipated, and none of the investors have obtained the information before the announcements. Another limitation to the event study methodology is the estimation of the expected returns used to compute the CAR. MacKinlay (1997) states that the market model is a simple single-factor model with many drawbacks. However, more advanced models will not guarantee more precise results.
Finally, the analysis aggregating abnormal returns has assumed that the event windows of the included securities do not overlap in calendar time. This assumption gives the ability to compute the variance of the aggregated sample without concern about the covariance across different securities because they are zero (MacKinlay, 1997). One way to handle clustering is to remove all events that occur simultaneously. However, this could be problematic due to the risk of removing potentially interesting observations. In addition, different companies are affected by many of the same economic factors (Kothari et al., 2006). These effects will naturally be more significant if any of the companies in the sample have the same characteristics, which may occur on an oil-exposed stock exchange such as the OSE (see Appendix C).

4.7 Interviews

Seven interviews are conducted to gather primary data for this analysis and to further supplement the applied event study in this thesis. The interviews were conducted as structured interviews using an interview guide, where all participants were asked the same questions (see Appendix B). The qualitative findings from interviews will be presented in the analysis.

The interview guide followed a logical structure, which first presented the authors and the purpose of this thesis before presenting the interview objects with the six pre-made questions. All questions were open-ended, allowing the respondents to answer freely and describe the topic based on their perception (Saunders et al., 2009).

This study was reported to the Norwegian Centre of Research Data (NSD, 2021) to ensure that personal data is treated with discretion. Therefore, the study does not name any participants nor contain enough information to identify them. All information collected will be deleted upon completion of this thesis.

5. Data

The purpose of this chapter is to explain our data selection process. Following that, offer a descriptive overview of sample features and additional insight into these results, which might be of interest to the analysis. Finally, provide a quick overview of the announced share repurchases on the Oslo Stock Exchange, which is grouped into one sample and to different subsamples in the analysis.

5.1 Data Sample

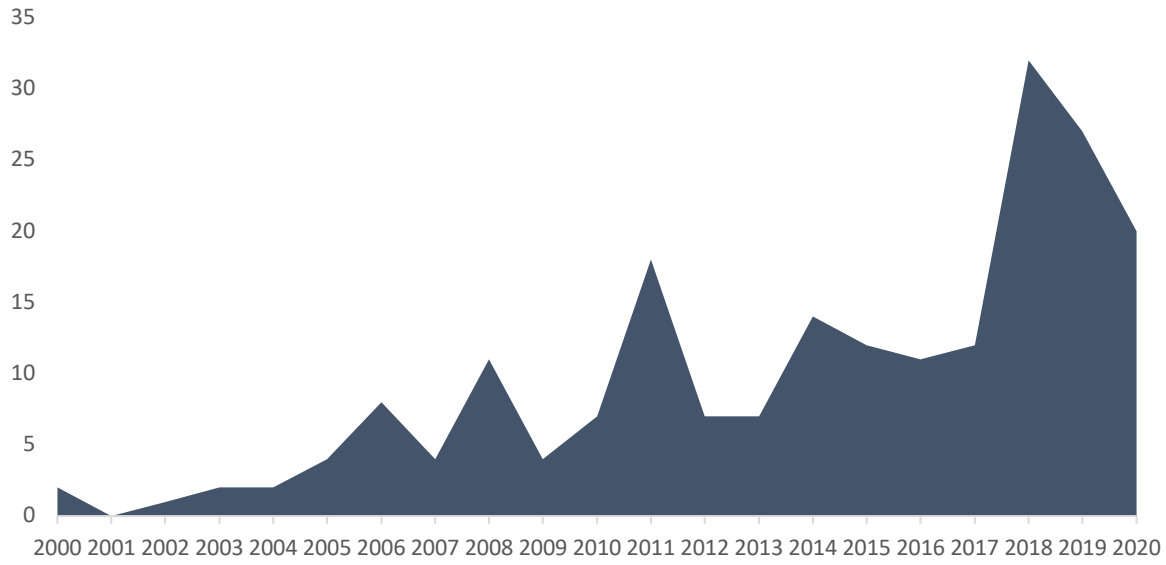
The data for daily stock returns from the year 2000 to 2020 was provided by Børsprosjektet (NHH, 2021). Børsprosjektet is a database available for all students and employees at NHH and a provider of financial data. The data sample retrieved contained daily returns for all companies listed on the Oslo Stock Exchange in the relevant period. In addition, the repurchase announcements were manually collected from NewsWeb (2021), which is further addressed in the following section.

5.1.1 Data Characteristics

Companies listed on the Oslo Stock Exchange are obligated to provide information on share repurchase activity. The information is published on NewsWeb. This is a service delivered by the OSE and provides financial information for all companies listed on the exchange. All share repurchase announcements were manually gathered from NewsWeb by applying a combination of search words like “Repurchase,” “Program,” “Buyback,” “Own”, “Own Shares,” and “Shares” for each company. This resulted in 205 separate share repurchase announcements. In addition, 417 share repurchase authorizations from annual general meetings were gathered. However, the authorizations granted at the annual general meetings are not included in this analysis due to the additional information these meetings provide. This creates a large amount of interference and makes it impossible to only measure the effect from the repurchases. Furthermore, these authorizations do not necessarily state that the companies will conduct the repurchases but rather grants them the option. Lastly, this analysis utilizes three separate samples. Each sample characteristic is further addressed in section 6.1.

Figure (5.1)

Yearly Repurchase Announcements From 2000 to 2020



NOTE.- This figure displays the yearly number of repurchase announcements over the selected period from 2000 to 2020. Most of the observations are from the most recent years, which is further discussed in section 7.1.
The total amount of repurchase announcements is 205.

5.2 Independent Variables

This section will describe the independent variables employed in the cross-sectional analysis, with some elaborations for the inclusion of these variables.

5.2.1 Market Capitalization

The company's size can be a relevant factor related to the market reaction of share repurchase announcements for several reasons. The first is connected to information asymmetry. Larger companies experience a lower form of information asymmetry because of wider media and analyst coverage (Vermaelen, 1981). Secondly, larger and more mature companies usually have limited growth potential. Instead of investing in new projects, the excess cash is usually distributed to the shareholders through dividends and repurchases (Bulan and Narayanan,

2008). As a result, the individual market capitalizations in NOK are included as an explanatory variable to examine if the company size affects the return following a buyback announcement. The market capitalization is computed using the current amount of outstanding shares and the share price on the announcement day. The natural logarithm was used to get a more consistent result because of the vast range in the market capitalization between the companies.

5.2.2 Size of Repurchase Program

All companies in the dataset either contained the planned number of shares or the total amount of cash spent during the program. Moreover, the size of the repurchase program was scaled with the market capitalization for each observation. This was computed by dividing the size of the buyback program in NOK by the respective market capitalization. Previous research found that returns positively correlate with the repurchase size (Comment & Jarrell, 1991).

5.2.3 Liquidity

The stock's liquidity is a measure of how rapidly the stock is being traded and how easily it can be bought or sold without substantially impacting the price of the stock. The liquidity has been computed by dividing the average number of daily traded stocks, with the total number of outstanding shares, over 21 days (approximately one trading month), 20 days prior to the repurchase announcement. Cook et al. (2004) find that a share repurchase increases liquidity. However, this thesis attempt to measure if the liquidity of the stocks impacts the abnormal returns.

5.2.4 Trend

Share trend is a measurement of the firm's performance before the share repurchase announcement. In order to capture the recent performance of the stock, a 21-day estimation window (approximately one trading month) is included. This is computed using the Cumulative Abnormal Return. To avoid the trend overlapping with the event window and potentially affecting the trend variable, an estimation window that ends 20-days prior to the event was chosen ($CAR_{T=-42\ to\ T=-21}$). Applying this factor in the cross-sectional regressions measures how a company's previous performance affects the cumulative abnormal return.

5.2.5 Proceeds of Use

Most of the companies in the data sample have included the proceeds of use in the share repurchase announcement (see Appendix D). Dummy variables were included to represent each category to see if the proceeds of use impact the abnormal return. *Employee Program* is repurchased shares for employee purposes and bonus schemes. *Book Building* contains announcements where the goal is to build up the firm's base of treasury shares. This is to meet future obligations surrounding the demand in their stocks for different reasons, such as stock transactions. Repurchases in the category *Increase Return* have the sole purpose of compensating shareholders and increase their returns. *Capital Structure* is adjusting the capital structure by increasing the debt-to-equity ratio from repurchasing shares. The last category is *Not Specified* and consists of buybacks where the proceeds of use are not specified at the time of the announcement. The total number of observations for each category is presented in the table below.

Table (5.1)

Proceeds of Use, Number of Observation per Category

	Number of observations
Employee Program	*80*
Book Building	*19*
Increase Return	*37*
Capital Structure	*29*
Not Specified	*40*
Total	*205*

Note.- This table illustrates the number of observations for each category from the proceeds of use.

5.2.6 Return on Equity

Return on Equity (ROE), along with Return on Assets (ROA), are some of the all-time favorites and perhaps most widely used measures of corporate financial performance (Rappaport, 1986). The ROE was calculated by taking the profit after tax and dividing it by the average book value of equity from the previous and the current year.

5.2.7 Program Length

The program length is commonly reported in the share repurchase announcement. However, for some companies, this information was not included in the announcement. Therefore, the last repurchase connected to the announcement was identified, and the length of the program was manually calculated. For example, some repurchase programs only last a day, while some have a duration of approximately one year. This variable is included to measure if the duration of the program has any significant effect on the abnormal returns.

5.2.8 Miscellaneous Binary Variables

In the cross-sectional analysis, several miscellaneous dummy variables are included; The first variable is *Dividend*. This is a variable with the value of one if the firm has paid a dividend in the year prior to the event and zero otherwise. Secondly, *Previous Buyback* is a variable present if the firm has conducted buybacks in the last calendar year. Thirdly, *Issuing* is active if the firm has issued new equity within the previous year. *Broker* is a dummy variable active if the repurchasing company has hired a third party to assist in the share repurchase. The variable *Premium* is active if the company has announced that they are willing to pay a premium when they acquire the shares. Lastly, the variable *Financial Crisis* is present if the repurchase is done during the Great Recession.

5.3 Primary Data

Primary data is collected from structural interviews to supplement the event study by adding additional information and more profound insight regarding share repurchases on the Oslo Stock Exchange. These findings will be presented in the analysis. Several CFOs, CEOs, Head of Analysis, and other executives were strategically selected to provide valuable knowledge and experience from share repurchases for companies listed on the OSE. The interview guide

utilized (presented in Appendix B) followed six questions regarding share repurchases: the usage of own shares, price perspective, previous experiences, announcements, and their view on the phenomena.

5.4 Data Problems

One of the most recurring issues with the collected data was that several observations for the daily stock returns were missing for some companies. The most significant problem was the absence of stock return observations in the selected event windows. Consequently, some observations had to be excluded because the belonging returns used to calculate the abnormal return were missing. Furthermore, a similar problem was encountered, where some companies missed entire months of stock returns. This made it impossible to employ the market model regression in the estimations period and, therefore, difficult to calculate the expected return. These two problems with the daily stock return appeared more frequently with the earlier observations. In addition, there was a limited amount of announcements regarding share repurchase programs. We assume this is because the majority of companies on the OSE do not signal the initiation of a share repurchase program, rather start the process after being granted the authorization at the annual general meeting.

6. Analysis

This chapter introduces the results from the conducted analysis. First, three individual samples from the same dataset will be presented. The market model will then be employed to calculate the abnormal return from each individual sample. Further on, we will utilize four separate regression models to determine how independent variables influence the Cumulative Abnormal Return. Lastly, the conducted interviews will be presented, with relevant discussion regarding findings from both the market model and the regression models.

6.1 Sample Characteristics

As described in section 5.1.1, a total of 205 individual announcements was gathered from the Oslo Stock Exchange. This section presents the original sample and two subsamples; *The Full Sample*, *The Norwegian Sample*, and *The Trimmed Sample,* which are the foundation of our quantitative analysis. Further, the Cumulative Abnormal Return has been computed for all three samples. However, only the *Norwegian Sample* and the *Trimmed Sample* are utilized in the cross-sectional analysis.

6.1.1 The Full Sample

In theory, the *Full Sample* should have contained 205 observations. However, two separate problems occurred, which resulted in the utilization of only 177 observations. The first complication occurred when some observations missing the related stock returns, made us unable to compute the daily abnormal returns and the following CARs. This was resolved by removing all observations where the dataset was missing a large proportion of the daily returns. Confounding events were the second complication. Confounding events implies that some companies conduct several repurchases over a short period. Hence, some of the event windows overlap in calendar time, which generated interference. The confounding events, with both individual events affecting each other's CAR´s, made it difficult to separate the effect from the individual announcement. Resolving these two problems left us with 177 usable observations for the *Full Sample.*

6.1.2 The Norwegian Sample

The *Full Sample* contained 26 announcements from foreign companies with their share capital dual-listed, with a small percentage of their share capital listed on the Oslo Stock Exchange. The share repurchases regarding these companies were mainly linked to boosting the low liquidity or removing them entirely from the OSE. Information regarding the buybacks was also limited, with several other events happening abroad surrounding the announcements, further biasing the results. Since this dissertation aims to analyze the repurchase announcements on the OSE, we created a subsample without these 26 observations. This sample was named the *Norwegian Sample* and contained 151 observations for companies listed on the OSE.

6.1.3 The Trimmed Sample

The *Norwegian Sample,* based on the *Full Sample,* contained some observations that were affected by other events and information, rather than just the share repurchases announcements (illustrated in Appendix E). All observations that produced an abnormal return of +/- five percent surrounding the days of the share repurchase announcements were manually investigated throughout NewsWeb. This was done to identify other unrelated events surrounding the announcements with a forceful impact on the results. These observations are extreme values, and this resulted in a new subsample named the *Trimmed Sample.* The extreme values were removed to reduce the interference from other unrelated events because they were affecting the abnormal returns on the days surrounding the share repurchase announcements. Thus, preventing the sole effect of the announcements from being captured. The *Trimmed Sample* consist of 124 observations.

6.2 Market Model Results

Table 6.1 illustrates the Cumulative Average Abnormal Return following share repurchase announcements on the OSE from 2000 to 2020. Employing the market model allowed the CAAR to be computed for all three samples presented above. This presented positive results for almost all the event windows. Furthermore, the highest CAAR´s following the announcements are observed on the shortest event window (0,1) across all three samples.

Table (6.1)

Cumulative Average Abnormal Return (%) for Repurchase Announcements from the Period 2000-2020 on the Oslo Stock Exchange.

	Event Window				
	(-2,2)	*(-1,2)*	*(-1,1)*	*(0,1)*	*(0,2)*
Full Sample	*0,32*	*0,53*	*0,57*	*0,84***	*0,80*
T-Stat	*(0,35)*	*(0,72)*	*(1,03)*	*(2,27)*	*(1,46)*
P-Value	*(0,73)*	*(0,47)*	*(0,31)*	*(0,02)*	*(0,15)*
Norwegian Sample	*-0,08*	*0,24*	*0,33*	*0,63*	*0,54*
T-Stat	*(-0,08)*	*(0,30)*	*(0,55)*	*(1,57)*	*(0,90)*
P-Value	*(0,94)*	*(0,76)*	*(0,59)*	*(0,12)*	*(0,37)*
Trimmed Sample	*0,77*	*1,14*	*1,22**	*1,53****	*1,46***
T-Stat	*(0,73)*	*(1,33)*	*(1,90)*	*(3,60)*	*(2,28)*
P-Value	*(0,47)*	*(0,19)*	*(0,06)*	*(0,005)*	*(0,024)*

Note. – This table presents the Cumulative Average Abnormal Return for the pre-determined event windows specified in section 4.1.2. The following formula was used to calculate the CAAR:

$$CAAR(T_2, T_3) = \frac{1}{N}\sum_{i=1}^{N} \mathrm{CAR_i}(T_2, T_3)$$

This formula is previously presented in section 4.4.1.
Full sample: (N=177), Norwegian Sample: (N=151), Trimmed Sample: (N=124)
All CAAR´s are given in percentage, example: Trimmed Sample (-2,2) = 0,77%
**p<0,1; **p<0,05; ***p<0,01*

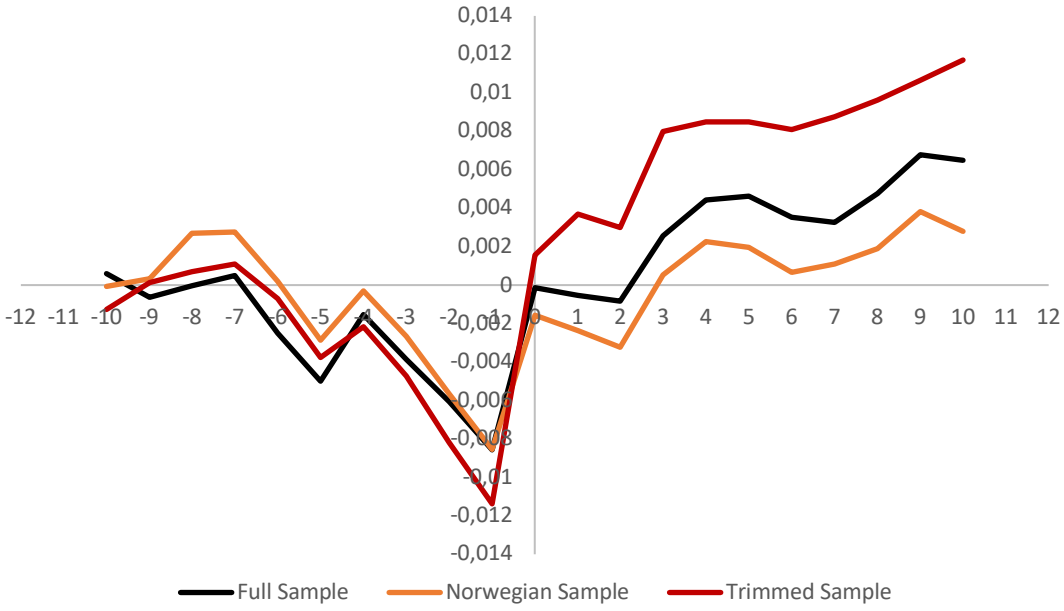
From Table 6.1, almost all the Cumulative Average Abnormal Returns for all the event windows yield a positive return. The CAAR from the announcement day and the day after (0,1) produced a significant result for both the *Full Sample* and the *Trimmed Sample* when examining the t-statistics and the p-values for all event windows. The CAAR for this event window is the highest across all three samples. This implies a short-term effect from the announcements regarding buyback of stocks, where the announcement day produced the highest abnormal return.

First, the *Full Sample* produced a positive CAAR across all presented event windows. However, only the abnormal return from the day of the announcement and the day after (0,1) are statistically significant. This event window also produced the highest CAAR. Secondly, removing the foreign companies in the *Norwegian Sample* has shifted all the CAAR's downwards. The CAAR's for the *Norwegian Sample* is still positive. However, the longest

event window (-2,2) has shifted the value from positive to negative. The day of the announcement and the day after (0,1) still produce the highest abnormal return, consistent with the *Full Sample* coefficients. However, none of the CAARs from *Norwegian Sample* are statistically significant. Lastly, the *Trimmed Sample* produces the highest coefficients across all the event windows. In addition, the event windows; (-1,1), (0,1), and (0,2) are significant, with the day of the announcement and the day after (0,1) producing the highest abnormal return. This is also consistent with the results from the two other samples. Which further substantiates that the effect from the repurchase announcements is short-term, with the highest abnormal return the day of the announcement.

The CAAR's ten days prior and ten days after the event (-10,10) is graphicly illustrated in figure 6.1. The graph is created using all three samples presented in this thesis.

Figure (6.1)
Cumulative Average Abnormal Return Ten Days Prior and Ten Days After The Repurchase Announcements (-10, 10)



NOTE.- This table illustrates the Cumulative Average Abnormal Return (CAAR's) ten days prior to and ten days after the announcement(-10,10) for all three samples presented. The abnormal returns are calculated using the Market Model, and CAAR is calculated using the following formula:

$$CAAR(T_2, T_3) = \frac{1}{N}\sum_{i=1}^{N} \mathrm{CAR_i}(T_2, T_3)$$

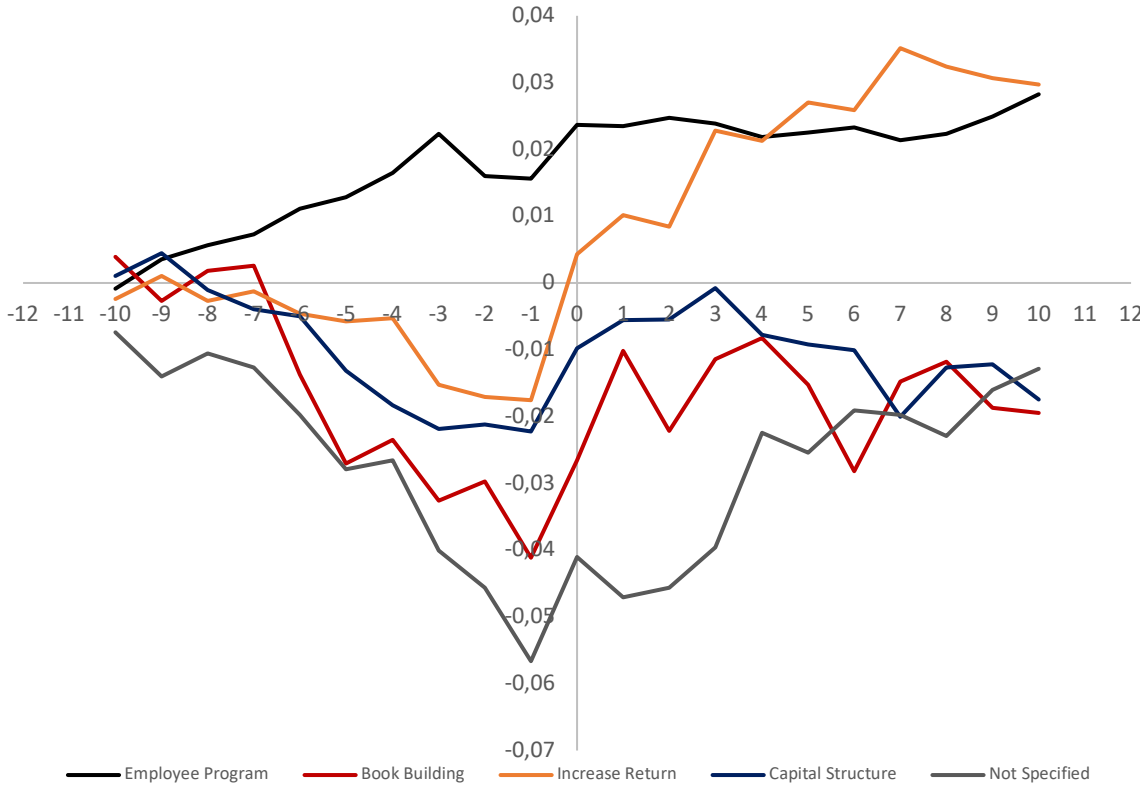
This formula is previously presented in section 4.4.1.

Figure (6.1) illustrates that all CAAR's fluctuate around zero percent the first six days before the announcement and slowly decline, with the lowest CAAR the day before the event. The repurchases can be timed; the company may repurchase after the stock price dips down. Potentially the firms avoid repurchasing shares right after a recent increase in the price. Hence, only if the repurchase was arbitrarily selected would one expect a flat trend beforehand. The graph for the *Trimmed Sample* has the most remarkable fluctuations following the announcement and is also the sample with the least interference with the removal of the extreme values. The event experienced an increase of around 1,3 percent before it experiences a slight decrease two days after the announcement, confirming that the effect is short-term. The findings from this analysis are comparable to Settem´s (2008) findings on actual share repurchases conducted in Norway. Settem (2008) found that the CAAR for the same event window (-10,10) behaves similarly to the findings in this dissertation. However, Settem (2008) reports a higher CAAR than our findings for the same event window (-10, 10) with the same dip in the share price before the repurchase.

6.3 Abnormal Return for Proceeds of Use

The Cumulative Average Abnormal Returns ten days prior and ten days after the announcements (-10, 10), categorized after the proceeds of use, are graphically illustrated in Figure (6.2). The graph is created from the *Trimmed Sample*.

Figure (6.2)
Cumulative Average Abnormal Return Ten Days Prior and Ten Days After the Share Repurchase Announcement (-10, 10) Categorized by the Proceeds of Use



NOTE.- This table illustrates the Cumulative Average Abnormal Return (CAAR's) categorized by the proceeds of use. The abnormal returns are calculated using the Market Model, and CAAR is calculated using the following formula:

$$CAAR(T_2, T_3) = \frac{1}{N}\sum_{i=1}^{N} \mathrm{CAR_i}(T_2, T_3)$$

This formula is previously presented in section 4.4.1.

The proceeds of use appear to have a different effect on the CAAR. *Employee Program* is the category in our sample with the lowest effect on the CAAR, with an almost flat but positive curve. The moderate fluctuations in the share price are anticipated. The logical reason could be that share repurchases mainly is used for programs concerning share incentive programs. These repurchases have the most negligible amounts of shares repurchased in the *Trimmed Sample*. This is further illustrated in Table (6.2). These types of buybacks are also the most common on the Oslo Stock Exchange. The announcements concerning *Increased Return* have the highest effect on the CAAR, not only on the announcement day but also on the following days. This category of buybacks is related to increasing value for the shareholders. Further on, this could be viewed as both a supplement to and a substitute for an extraordinary dividend. Share repurchases with increasing returns as the primary purpose usually contain a more considerable amount of shares being repurchased, illustrated in Table (6.2), and it is anticipated that larger repurchases generate greater abnormal returns. Similar to *Employee Program*, *Capital Structure* has a modest effect on the CAAR, with a short-term gain on the share price. The categories *Book Building* and *Not Specified* produce similar graphical results. However, the category *Book Building* has a greater return on the announcement day. *Book building* contains announcements where the target is building up the firm's base of treasury shares. This is to meet future obligations surrounding the demand in their stocks for various reasons, such as stock transactions. The category *Not Specified* consists of buybacks where the reason is not specified at the time of the announcement. Even though the reason is not specified, the effect on CAAR is positive, presenting an upward trend after the announcement.

Table (6.2)
Size of Repurchase Programs (%) and the Proceeds of Use.

	Statistical Properties			
Proceeds of Use	*Mean*	*Median*	*Min*	*Max*
Employee Program	*0,44*	*0,27*	*0,002*	*0,34*
Book Building	*1,71*	*0,92*	*0,34*	*9,19*
Increase Return	*2,4*	*2,25*	*0,07*	*8,42*
Capital Structure	*1,52*	*1,15*	*0,05*	*3,77*
Not Specified	*1,32*	*0,98*	*0,14*	*5,00*

Note.- This table illustrates the connection between proceeds of use and the size of the repurchase program, scaled by market capitalization. The coefficients are present in (%) of the respective market capitalization. Values are computed using the Trimmed Sample.

Table 6.2 illustrates the connection between the proceeds of use and the size of the repurchase programs, scaled by the respective market capitalization. *Increased Return* is the category with the largest repurchase programs measured by the mean and the median.

6.4 Cross-Sectional Regression

The primary purpose of the cross-sectional regression models is to analyze which factors affect the Cumulative Abnormal Returns for share repurchase announcements. Therefore, several regression models are employed. This section investigates the determinants of share repurchase announcement by performing OLS regressions (see Appendix A for the five OLS assumptions) for the CAR's from both the *Norwegian Sample* and the *Trimmed Sample*. The event window chosen for our regressions is the CAR for the announcement day and the day after (0,1). In addition, the regressions were repeated for the CAR's the day prior to the announcement to the day after (-1,1). These results are presented in Appendix F.

6.4.1 Cross-Sectional Norwegian Sample

Table 6.3 illustrates the result from regressing the CAR's from the announcement and the day after for the *Norwegian Sample*. The regressions are based on different factors related to both the company characteristics and the announcements. In addition, variables related to the individual stock's performance and the information surrounding the event date have been

included. The variable *Employee Program* has been excluded from the regressions to avoid the dummy variable trap and therefore used as the reference group. *Buyback Size* is scaled with the proceeds in percent of the market capitalization. The variable *Liquidity* is the average traded shares over the prior trading month in percent of the total shares issued.

In Model (1), the Cumulative Abnormal Return is regressed on the proceeds of use. The model produces a low R-squared. This could be interpreted as the included variables poorly explains the variation in the CAR. However, the model only contains four variables. Both coefficients *Book Building* and *Increase Return* produce a higher return than the *Employee Program (*reference group). However, the coefficients are not significant. This is also graphically illustrated in Figure (6.2).

Model (2) includes variables related to the characteristics of different companies, like the size and the performance of the stocks prior to the event. We have incorporated different traits for the companies, which could affect how the market perceives and reacts to the buybacks. Model (2) is the model with the lowest R-squared of all the regression models, with approximately two percent of the variation being explained by the included regressors. None of the coefficients from the regression are significant. Consequently, company characteristics seem to a negligible effect on the return following the share repurchase announcement.

The next model (3) consists of factors related to the actual buyback information the announcements provide, like the repurchase size and proceeds of use. This model has higher explanatory power than Model (2) but does not provide any significant coefficients. The most surprising finding from this model is the coefficient *Buyback Size*, which shows that larger buyback programs yield a lower CAR. Both the use of a third-party broker and the offering to buy the shares at a premium seem to positively affect the CAR, even though the coefficients are not significant. The impact from *Book Building* seems to have been mitigated with the introductions of more explanatory variables.

The fourth model (4) includes variables from all the data collected. The model includes variables that aim to capture how company characteristics, the information provided from the announcements, and news leading up to the event, affect the CAR. The liquidity and the trend of the shares are also included. Model (4) produces the highest R-squared of all the models, but it also includes the most explanatory variables. *Dividend* is the only significant coefficient.

This can be interpreted that paying dividends the previous year has a negative effect on returns following the buyback announcement. The coefficient *Market Capitalization* is positive as opposed to the finding by Skjelltorp (2004). However, the coefficient is not significant. Looking at the coefficient for the *Buyback Size*, the result is quite surprising, with larger buybacks yielding lower abnormal returns, but this is also not significant. Settem (2008) and Skjelltorp (2004) find that negative share performance prior to the buyback creates a higher abnormal return. This does not coincide with our model. *Liquidity* seems to have the highest impact on the stock return of all the variables, with a positive correlation with the abnormal return. However, the standard error is more than three times as high as the coefficient.

Table (6.3)

Regression Results from the Norwegian Sample with the Cumulative Abnormal Return for the Event Window (0,1) as the Dependent Variable

	Model 1	Model 2	Model 3	Model 4
Buyback Size			*-0,0323*	*-0,0393*
			(0,1823)	*(0,1943)*
Market Capitalization		*0,0030*		*0,0040*
		(0,0027)		*(0,0030)*
Liquidity		*-0,7233*		*0,4521*
		(1,3541)		*(1,5784)*
Trend		*0,0291*		*0,0210*
		(0,0569)		*(0,0589)*
Book Building	*0,0092*		*0,0036*	*0,0100*
	(0,0156)		*(0,0161)*	*(0,0166)*
Increase Return	*0,0135*		*0,0136*	*0,0116*
	(0,0132)		*(0,0153)*	*(0,0164)*
Capital Structure	*-0,0124*		*-0,0037*	*-0,0090*
	(0,0140)		*(0,0149)*	*(0,0159)*
Not Specified	*-0,0178*		*-0,0161*	*-0,0154*
	(0,0136)		*(0,0154)*	*(0,0168)*
Dividend		*-0,0122*		*-0,0212**
		(0,0111)		*(0,0119)*
Previous Buyback		*-0,0018*		*-0,0013*
		(0,0098)		*(0,0100)*
Issuing		*-0,0099*		*-0,0084*
		(0,0136)		*(0,0138)*
Broker			*0,0151*	*0,0179*
			(0,0105)	*(0,0111)*
Premium			*0,0133*	*0,0122*
			(0,0189)	*(0,0196)*
ROE		*0,0008*		*0,0009*
		(0,0316)		*(0,0334)*
Program Length			*-0,00003*	*-0,00003*
			(0,00004)	*(0,00005)*
Financial Crisis			*-0,0169*	*-0,0173*
			(0,0221)	*(0,0229)*
Constant	*0,0074*	*-0,0504*	*0,0040*	*-0,0712*
	(0,0069)	*(0,0584)*	*(0,0090)*	*(0,0657)*
Observations	*151*	*151*	*149*	*149*
R^2	*0,0341*	*0,0212*	*0,0687*	*0,0990*
Adj R^2	*0,0076*	*-0,0267*	*0,0084*	*-0,0102*
F Statistic	*(4, 146)=1,29*	*(7, 143)=0,44*	*(9, 139)=1,14*	*(16, 132)=0,91*

NOTE.- This is the output generated in our cross-sectional regression when regressing CAR (0,1) as the dependent variable. All independent variables are presented in section 5.3. This output is generated using the ordinary least squared (OLS) regression method.
All coefficients have standard errors presented (parenthesis) below the coefficients. These regression models have utilized the Norwegian Sample.
**p<0,1; **p<0,05; ***p<0,01*

6.4.2 Cross-Sectional Trimmed Sample

To further investigate the variation in the Cumulative Abnormal Return, the same regression models from Table (6.3) were repeated, using the *Trimmed Sample.* This resulted in several coefficients now producing significant values, with higher explanatory power for all the models. The results are presented in Table (6.4).

Model (1) now explains a lot more of the variation in the CAR, with the R-squared doubling compared to the same model from the *Norwegian Sample*. The model now also produces significant coefficients at the five percent level for *Book Building* and *Increased Return* after the removal of the extreme values. Both variables have a positive effect on the CAR compared to the reference group. This is consistent with the findings in the *Norwegian Sample* and with Figure (6.2), even though the coefficients in the *Norwegian Sample* are insignificant. Turning to the variables *Capital Structure* and *Not Specified,* both these have shifted from negative to positive with the utilization of the *Trimmed Sample*. However, these two variables do not present any statistically significant coefficients.

Comparing Model (2) for both samples, the *Trimmed Sample* explains more of the variation in the CAR with a higher R-squared. However, the R-squared in this model is still low and does not produce any significant values for any of the two samples. The results from both these regressions could interpret that company characteristics and previous actions have little explanatory power for how the stock market reacts to the buyback announcements. Another explanation could be that the samples contain few observations. The coefficient *Market Capitalization* is now negative and coherent with Settem's (2008) and Skjelltorp's (2004) finding. However, our study did not manage to produce a significant value.

The third Model (3) also has higher explanatory power for the *Trimmed Sample* and produces a different result. Running the regression for the *Trimmed Sample*, the coefficient *Buyback*

Size changes from negative to a positive and is now statistically significant. Furthermore, this could indicate that larger buybacks positively affect the abnormal returns, contrary to the results from Settem (2008). In addition, the variable *Increased Return* has decreased compared to Model (1) after the inclusion of the variable *Buyback Size.* These two explanatory variables are correlated, as illustrated in Table (6.2). Repurchasing shares during the financial crisis also seems to be perceived positively, although it should be interpreted with caution due to the low number of buybacks in our samples during this period.

In Model (4), the explanatory power more than doubles when changing the sample from the *Norwegian Sample* to the *Trimmed Sample*. As presented in Model (3), the *Buyback Size* is still significant, with a slight reduction in the coefficient. *Dividend* is in addition no longer significant opposed to Model (4) for the *Norwegian Sample*. Introducing the Model (2) variables into Model (4) seem not to validate our preliminary belief that company characteristics and their previous actions have a forceful impact on the CAR following a repurchase announcement. However, both Settem (2008) and Skjelltorp (2004) find that the share-trend leading up to the event has a negative covariance with the CAR. This does not coincide with the findings from these models. However, the variable is not significant. Furthermore, *Liquidity* also seems to contradict the findings from Skjelltorp (2004). However, discrepancies exist between the results for this variable when comparing the different models, with all values being insignificant. Previously mentioned, Skjelltorp (2004) find that market capitalization has a significant negative correlation with the returns. This does not coincide with our finding, even with the introduction of more explanatory variables.

Table (6.4)

Regression Results from the Trimmed Sample with The Cumulative Abnormal Return for the Event Window (0,1) as the Dependent Variable

	Model 1	Model 2	Model 3	Model 4
Buyback Size			*0,3231****	*0,3099***
			(0,1213)	*(0,1368)*
Market Capitalization		*-0,0012*		*-0,0013*
		(0,0017)		*(0,0020)*
Liquidity		*-0,1809*		*0,2712*
		(0,8809)		*(1,0342)*
Trend		*0,0523*		*0,0620*
		(0,0411)		*(0,0404)*
Book Building	*0,0231***		*0,0185**	*0,0189**
	(0,0100)		*(0,0100)*	*(0,0103)*
Increase Return	*0,0198***		*0,0107*	*0,0137*
	(0,0081)		*(0,0096)*	*(0,0101)*
Capital Structure	*0,0088*		*0,0059*	*0,0081*
	(0,0090)		*(0,0093)*	*(0,0102)*
Not Specified	*0,0017*		*-0,0070*	*-0,0047*
	(0,0090)		*(0,0094)*	*(0,0105)*
Dividend		*-0,0069*		*-0,0019*
		(0,0074)		*(0,0083)*
Previous Buyback		*0,0021*		*0,0043*
		(0,0064)		*(0,0062)*
Issuing		*0,0087*		*0,0110*
		(0,0099)		*(0,0095)*
Broker			*0,0065*	*0,0074*
			(0,0063)	*(0,0067)*
Premium			*0,0080*	*0,0051*
			(0,0109)	*(0,0113)*
ROE		*0,0201*		*-0,0003*
		(0,0263)		*(0,0294)*
Program Length			*0,00003*	*0,00003*
			(0,00003)	*(0,00003)*
Financial Crisis			*0,0267***	*0,0217*
			(0,0131)	*(0,0140)*
Constant	*0,0079**	*0,0444*	*-0,0013*	*0,0259*
	(0,0044)	*(0,0376)*	*(0,0056)*	*(0,0423)*
Observations	*124*	*124*	*122*	*122*
R^2	*0,0759*	*0,0460*	*0,1755*	*0,2147*
Adj R^2	*0,0449*	*-0,0115*	*0,1093*	*0,0950*
F Statistic	*(4, 119)=2,44*	*(7, 116)=0,80*	*(9, 112)=2,65*	*(16, 105)=1,79*

NOTE.- This is the output generated in the cross-sectional regression when regressing CAR (0,1) as the dependent variable. All independent variables are extracted in section 5.3. This output is generated using the ordinary least squared (OLS) regression method.
All coefficients have belonging standard errors presented in (parenthesis) below the coefficient. These regression models have utilized the Trimmed Sample.
**p<0,1; **p<0,05; ***p<0,01*

6.5 Interviews Findings

This section presents findings from the seven conducted interviews and the qualitative analysis. The analysis explores the impact share repurchases have on the Oslo Stock Exchange, the usage of own shares, and different aspects regarding share repurchases. The results are presented in different sections, where the qualitative findings will be connected with the quantitative results.

6.5.1 Proceeds of Use

One recurring factor is the use of own shares connected to employee programs, 85 percent of our respondent states that employee programs are the main reasons they repurchase their shares. The majority of our respondents also perceive this as a recurring reason for other companies listed on the OSE. Furthermore, this is in line with findings from the data collection for the thesis, where 39 percent is connected to employee programs. Secondly, companies repurchase shares to be used for future acquisitions. This creates a commitment when acquiring another company. Thus, the acquired firm will have a stake in the acquiring company, compared to when the acquisition is made with cash. A third reason was to keep the number of shares on the same level after several years with employee programs and mentions that a company policy was to keep the number of shares approximately equal on a year-to-year basis. A CFO answered for two separate companies and answered that the main reason they repurchased shares was a form of share treatment. Both shares were what he called semi-liquid, and by repurchasing these shares, they offered long-term investors an opportunity to sell larger portions of shares. Moreover, the difference between Norwegian and foreign shareholders was mentioned. Foreign shareholders experience the withholding tax, where dividends are taxed at a higher percentage compared to share repurchases. By doing both, they satisfy all shareholders and conduct share repurchases if this is more profitable compared to

investing in other projects. This individual was also the only participant utilizing the repurchase of shares as a substitute for dividends, thus increasing shareholder return. From the data collected, only 19 percent of the share repurchases are linked to increasing shareholder returns. This coincides with the number of companies interviewed that have conducted share repurchases for this specific reason. None of our participants have repurchase shares to adjust the capital structure or to be used in the process of book building.

6.5.2 Repurchases as a Substitute for Dividends

All respondents answered that if their company had excess cash for one period, they would all prefer to pay this out as a dividend compared to repurchasing shares. However, some individuals viewed share repurchases as a more flexible way of returning excess cash. Another interesting perspective was connected to smaller amounts of excess cash. If the amount was too small to be paid out as an extraordinary dividend, share repurchases could be a more suitable way of returning the profits to shareholders. Other participants viewed share repurchases as an excellent substitution to a dividend if the stock is underpriced compared to the underlying assets. Thus, making share repurchases a suitable method for returning excess cash under certain circumstances. This fits with the graphical illustrations of the Cumulative Average Abnormal Returns in Figure (6.1), where there is found evidence that repurchase announcements may be timed with repurchases conducted after a price decrease. Combining traditional dividends and share repurchases were also mentioned as a preferred method to keep shareholders satisfied. In addition, one individual mentioned the importance of consistency in the dividend pay-out policy. A reduction in the dividend yield could be interpreted as a negative signal, thus having a negative effect on the share price. Another respondent mentioned that large Norwegian shareholders prefer dividends over share repurchases. However, from a foreign investor´s point of view, share repurchases could be the preferable pay-out policy due to investor taxation. The dilemma would be which investors to prioritize, and the CFO explains this as a balance point on managing their shareholder base. The same CFO presents a theory where share repurchases could be perceived as a more aggressive method of showing shareholders that they are optimistic about the company's future. Thus, they choose to use excess cash to repurchase shares instead of paying out a dividend. This signals the lack of investment opportunities and future growth potential. Further on, he presented a historical example where they received a large amount of excess cash; the management then decided to do a 50/50 split of extraordinary dividends and share repurchases.

Subsequently, the individual received some complaints from larger Norwegian shareholders who expected a larger portion of dividends. This emphasizes how Norwegian shareholders view dividends compared to repurchase programs. Moreover, in our regression models, we found that the combination of dividend and repurchasing stocks may not be the best approach, with the dividend from the previous year having a negative correlation with the abnormal return following a repurchase announcement. However, these repurchases could be associated with smaller programs because most of the excess cash is already spent on the dividends. In addition, this was only statically significant for one of the models.

6.5.3 Share Price

None of the interview objects reported that share price is an important factor when conducting share repurchases. Therefore, while conducting the actual repurchase, the share price is not something they contemplate. This contradicts the findings from the quantitative analysis, where we find evidence that the announcements are being timed and repurchases are conducted following a decrease in share price. However, most participants have used share repurchases to cover commitments for employee programs, which may have affected their opportunity to time the buybacks. This can be seen in Figure (6.2), with the graph for *Employee Programs* experiencing negligible movement leading up to, and after the event. One individual presented an interesting example for the timing of the repurchases with the statement, “If we think the share price is high at a given time and thereby would prefer to repurchase shares at another time, this will send a negative signal to our shareholders that we, from an inside position, find the share price unusual high. Hence, not a great signal to send to the market.” He also stated that being “Price-setters” is not preferred by anyone and mentions how the tendency is lower to conduct a share repurchase program if the share price is at an all-time high. Furthermore, if the share price is substantially low, it is usually for a reason, and this creates precautions on how companies utilize excess cash. Other respondents informed us about the strict regulations regarding share repurchases in Norway and explained that they want to finish the repurchase program within a short time frame. There are several reasons for this justification, and the most important one is that the companies would want to avoid trading from an inside position. Our interviewees represent a variety of large corporations in Norway, which continuously receive new information. Repurchasing shares before announcing important information would be classified as insider trading. This constant stream of information prior to the repurchase announcements also makes it hard to measure the impact

solely from the repurchase announcements. In the quantitative analysis, the *Trimmed Sample* was created to mitigate this problem.

6.5.4 Abnormal Return

The majority of the respondents have not experienced any abnormal returns while conducting a share repurchase or publishing the announcement of a share repurchase program. In addition, the respondents did not perceive this as a justification for conducting share repurchases nor mentioned share repurchases as a solution for a low share price. This is not consistent with our findings in the quantitative analysis, where we found significant and positive abnormal returns following share repurchase announcements. One individual understood the undervaluation perspective. However, mentioned that this was not a preferred method. A second respondent explained how their stock is characterized by low liquidity and believes this could result in some abnormal return. Nevertheless, he comments on how the repurchase program was introduced during an upward trending share price connected to a good quarter and several good news. This contradicts previous findings from Skjelltorp (2004) and Settem (2008), with a negative trend prior to the event having a significant positive effect on the abnormal return. However, the result from our cross-sectional analysis finds an upward sloping trend having a positive correlation with the returns even though none of these coefficients are significant. In addition, the results from our analysis did not find any consistent relationship between the stock returns following the announcements and the liquidity of the stock. One participant regularly experienced an increase in share price after announcing a share repurchase, and he also states how quickly this was adjusted and returned to the original share price. Moreover, this coincides with our findings, with the repurchase generating a positive short-term abnormal return. This was also the only participant utilizing the repurchase as an alternative to dividends, presenting that the proceeds of use matter, which is similar to the findings in this thesis. Although, this could also be linked to buyback size, with larger programs having a greater impact as presented in our regression models. He also mentioned how previously share repurchases generated a larger abnormal return as the regulations were less strict and came as larger shocks. The company mitigates this problem by informing all shareholders about the share repurchases in order to be consistent. Their goal is to have a long-term, sustainable, and reasonable pay-out policy, to be perceived as a rational issuer of securities.

6.5.5 Announcing

Announcing the actual repurchase is practiced differently by the participants. Certain respondents publish a separate announcement stating they are about to start a repurchase program, the length of the program, and estimated volume. Others initiate the process after getting approval at the annual general meeting. Most of the repurchases conducted on the OSE are initiated after getting approval at the annual general meeting without publishing a separate announcement in advance. This was discovered during the data collection. Several interview objects mention the new Safe Harbour regulation introduced in Norway March 1th, 2021, and how they have not repurchased shares after the implementation. The new MAR regulation applies stricter guidelines for information publishing to avoid insider trading and market manipulation. Issuer's reporting obligations lapse with trades in their own shares, however, under the new regulation, the issuer must publish trades made under the repurchase program no later than seven days after the transaction is completed (Euronext, 2021). Nevertheless, none of our observations from the quantitative analysis are affected by the implementation of the new MAR regulation since this analysis only focuses on the period from 2000 to 2020. The implementation of the new regulation has been mentioned on several occasions throughout the interviews. All the participants commented on how they would communicate all necessary information and publish a separate announcement for future repurchases.

7. Conclusion

The purpose of this thesis is to examine the signaling effect of share repurchase announcements on the Oslo Stock Exchange. This dissertation found that most share repurchases in Norway are conducted without publishing a separate announcement after receiving approval at the annual general meeting.

All announcements in our selected period (2000-2020) have been gathered from NewsWeb. This resulted in 205 separate share repurchase announcements. However, only 177 observations were utilized in the analysis due to missing stock returns and confounding events. Further, three different samples were created as the foundation of the analysis. The first sample contained all the 177 observations, hence named the *Full Sample.* Utilizing the event study methodology presented by MacKinlay (1997)*,* this sample produced a significant positive Cumulative Average Abnormal Return for the day of the announcement and the day after (0,1). For the second sample, the announcements from dual-listed companies, with only a small percentage of their share capital listed on the OSE, were excluded. This sample was named the *Norwegian Sample* and contained 151 observations, producing a positive but not significant coefficient for the day of the announcement and the following day (0,1). Lastly, the *Trimmed Sample* was created to mitigate how other unrelated events and information affects the abnormal return surrounding the event of interest (further discussed in section 7.1). This sample produced a positive and significant coefficient for the day of the announcement and the following day (0,1). In addition, the event windows (-1,1) and (0,2) also produced positive and statistically significant values.

Chapter 6 utilizes the OLS regression method, where the CAR from the day of the announcement and the following day (0,1) is used as the dependent variable. Thus, trying to analyze which factors affect the variation in the CAR's computed using the market model. Several independent variables chosen were retrieved from other empirical studies like Settem (2008) and Skjelltorp (2004). This allowed us to compare some of the results with earlier studies. First, four different regression models were utilized for the *Norwegian Sample,* where the CAR from the day of the announcement and the following day (0,1) was applied as the dependent variable. Furthermore, the same regressions were also conducted for the *Trimmed Sample* with the same event window (0,1) as the dependent variable. The results from both

samples were significantly different, with the *Trimmed Sample* doubling the explanatory power of the models and producing an increased amount of statistically significant coefficients. *Dividend* was the only significant variable retrieved from the regressions utilizing the *Norwegian Sample*, implying that paying dividends in the previous year has a negative effect on the CAR following a share repurchase announcement. These models yielded a different result for the *Trimmed Sample*, with significant variables such as *Buyback Size* and *Book Building*. Hence, the size of the buyback program seems to have a positive correlation with the cumulative abnormal return.

To further investigate buyback announcements and their impact on share prices, a total of seven interviews were conducted with executives from companies with repurchase history on the OSE. One interesting finding from the interviews was the different opinions regarding the topic. Seven interviews are not sufficient to represent the whole of OSE. Nevertheless, it substantiates our findings from the quantitative analysis, even though most of the respondents repurchased shares for employee programs. The objects mentioned repurchases as a substitute for traditional dividends. In addition, an alternative method of returning excess cash to shareholders. However, most participants stated that dividends are the preferred method for returning excess cash to their shareholders.

All respondents believed that employee programs were the primary reason for share repurchases in Norway, which coincide with our findings from the data analysis. None of the respondents emphasized the share price as a key variable when repurchasing shares. However, evidence from the quantitative analysis illustrates how the announcements could have been timed as the findings highlight that repurchases are conducted following a decrease in the share price. Most of the respondents have not experienced an increase in the share price following the repurchase announcements. This contradicts the findings from the event study, which found a positive abnormal return. However, one individual experienced a minor short-term gain. This coincides with the results for the quantitative analysis, implying a short-term CAAR following the announcement. In addition, one of the participants mentions how the low stock liquidity and the trend prior to the repurchase announcement may have contributed to a further increase in the share price following the buyback announcement. None of the regression models found a statistically significant correlation between the abnormal return and these two variables. The interviews gave insight into different practices when conducting share

repurchases; some participants announced the program before repurchasing shares, while others initiate without publishing a separate announcement.

This quantitative and qualitative analysis elaborates on the share repurchase phenomena in Norway and adds valuable research to previous literature. The conducted interviews show a disagreement on the topic and the benefit of conducting share repurchases. Our analysis found a short-term and positive abnormal return following a buyback announcement, with the size of the buyback being the most important explanatory variable.

7.1 Potential Improvements

One of the most significant drawbacks when conducting an event study is the assumption that the information provided by the event is not anticipated and already incorporated in the stock price. The models used to find the normal return also have limitations; this is discussed in section 4.8. Conducting the event study, we experienced two problems regarding the data. The first was related to the low number of repurchases announcements, especially before the year 2008. Several of the earlier announcements were also missing information for the planned repurchase amount and the proceeds of use. The second problem encountered in this thesis was the absence of daily stock returns for specific firms, especially for the earlier years in our researched period. Combined with confounding events, these two problems left us with 177 usable observations for the *Full Sample.*

Regulations surrounding the repurchase of treasury shares on the Oslo Stock Exchange also caused some problems regarding interference. When repurchasing shares, companies must disclose information that could impact the share price, preventing them from trading from an inside position. Consequently, other information and unrelated events affected the share price surrounding the day of the announcement. This led to several observations being disrupted by quarterly reports and other information affecting the stock price (illustrated in Appendix E). To some extent, this was overcome by manually checking all the information surrounding the announcements and remove the observation with disruptive information. Therefore, the *Trimmed Sample* was created, which also had problems with interference, however to a lower extent.

Lastly, seven interviews are not enough to represent the Oslo Stock Exchange as a whole. Thus, this thesis could have included more interviews to further substantiate the quantitative findings. However, it managed to enlighten the different perspectives regarding share repurchases in Norway.

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Appendix A

Ordinary Least Squares Assumptions

I. Linear in Parameters

The first assumption is that a regression model is linear in parameters (Wooldridge, 2012). In statistics, a regression model is linear when all terms in the model are a constant or multiplied with an independent variable.

II. Random Sampling

The sample drawn from the population must be a result of a random sampling (Wooldridge, 2012). Random sampling is done to avoid correlating variables (hopefully).

III. Zero Conditional Mean

According to the zero conditional mean assumption, the expected value of the error terms has a zero-mean value (Wooldridge, 2012). The error term accounts for variation in the dependent variable, which is not explained by the independent variables.

IV. No Multicollinearity

Multicollinearity appears when two or more explanatory variables in a multiple regression model are highly correlated (Wooldridge, 2012). Multicollinearity imposes a problem to a regression model as the coefficients will be wrongly estimated.

V. Homoscedasticity

The fifth assumption is homoscedasticity and applies that the variance of the error terms should be homoscedastic (Wooldridge, 2012). This implies that the error terms variance should be independent of the explanatory variables, and therefore constant for all observations.

Appendix B

Interview guide

Master of Science in Economics and Business Administration

Subject: Share repurchases on Oslo Stock Exchange

Purpose: Enlighten the subject of share repurchases in Norway and how the proceeds are used in practice

- Introducing ourself and thanking the participant for participating
- Inform about taking notes during interview and receive approval of this
- Inform about the expected length of the interview and information about our thesis

We first give a brief introduction of our thesis and what we want to shed light on before we move on to the following six questions:

Question 1: What is the main reason why your company repurchases shares?

Question 2: Do you look at the share price before you buy back your own shares? How much do you emphasize the course?

Question 3: Do you feel that a repurchase can seem like an extraordinary dividend, and is it a "better" way to give back to shareholders?

Question 4: What do you think is the most common reason to buy back own shares on the Oslo Stock Exchange?

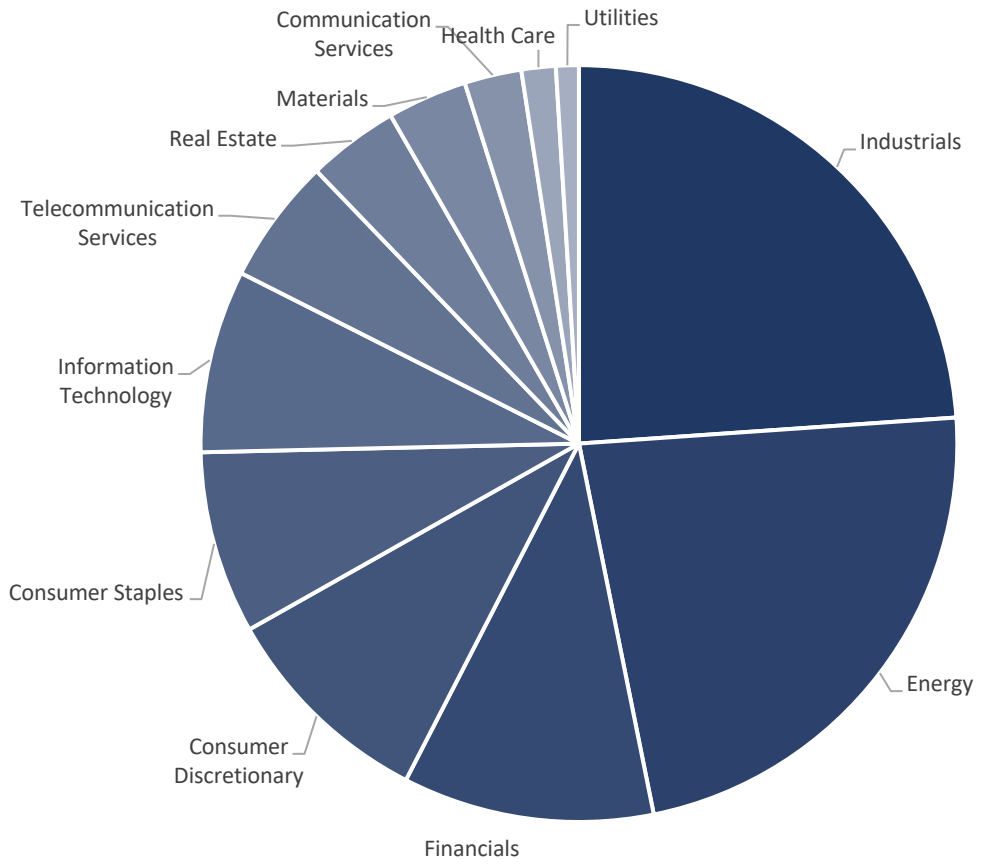
Question 5: Have you been included in a buy-back program, and do you feel/have you experienced that this boosts the share price of the company?

Question 6: If you choose to make a repurchase, do you issue a separate announcement that you are going to make a repurchase, or are you just starting the process?

Thanking the interview participant for participating and informing that any participant can withdraw their interview at any time if desired. Furthermore, we will anonymize names and companies.

Appendix C

Sector Composition for All Companies in Our Data Sample



NOTE.-This graph illustrates the sector characteristics of our data sample as of 31.12.2020. We have used all firms in our Full Sample and their respective industry create this pie chart.

Appendix D

Examples of Text Retrieved from NewsWeb (2021) and the Corresponding Use of Proceeds Category

Issuer	Date	Proceeds of Use	Typical Wording
American Shipping Company	30/03/2017	Employee Program	Reference is made to American Shipping Company ASA's ("ASMC" or the "Company") stock exchange notice dated 29 March, 2017 where AMSC announced its intent to purchase 25,000 treasury shares in connection with its incentive scheme for employees.
DNB ASA	24/10/2019	Capital Structure	In order to enable an optimal level of capital in the company, DNB ASA has decided to initiate a new share buy-back programme. The buy-back programme comprises up to 0.5 per cent of DNB ASA's shares, which represents a total of 7 901 506 shares.
Norwegian Energy Company	20/01/2020	Book Building	Norwegian Energy Company ASA ("Noreco" or the "Company") has decided to initiate a share buyback of up to 360,000 shares of the Company for corporate purposes. The buyback will be conducted as a reverse book building process at a price to be decided by the Company up to a maximum of NOK 248 per share, which represents an 8.5% premium to the closing price of the Company´s shares on 17 January 2020.
Telenor ASA	14/05/2019	Increase Return	Following the Telenor's Annual General Meeting ("AGM") on 7 May 2019, Telenor Group has decided to execute a 2019-20 share buyback programme of up to 43 million shares. The buyback programme represents a

			return of NOK 7.3 billion to shareholders. This comes in addition to the FY 2018 ordinary dividend of NOK 8.40 per share, of which NOK 4.40 will be paid in May 2019 and remaining NOK 4.00 will be paid out in October 2019.
DNO International	27/03/2017	Not Specified	Oslo, 27 March 2017 - DNO ASA, the Norwegian oil and gas operator, has initiated a new share buyback program and on 24 March 2017 purchased 150,000 own shares at a price of NOK 6.9438 per share. The timing and volume of further share purchases will depend on market conditions.

NOTE.- The purpose of this table is to provide readers with the rationale behind our justification of proceeds of use based on the information published on NewsWeb. The typical wording is directly copied from the individual announcement.

Appendix E

Table (5.3)

Interference (-3,3) Days from Announcement Day

Days	*-3*	*-2*	*-1*	*0*	*1*	*2*	*3*	*Total*
Quarterly reports	*2*	*4*	*1*	*27*	*0*	*0*	*0*	*34*
Other interference	*3*	*6*	*5*	*12*	*4*	*0*	*3*	*33*
Total	*5*	*10*	*6*	*39*	*4*	*0*	*3*	*67*

Note.- This table present the amount of interference created by both quarterly reports and other events.

Appendix F

Table F.1

Regression Results from the Norwegian Sample with The Cumulative Abnormal Return for the Event Window (-1,1) as the Dependent Variable

	Model 1	Model 2	Model 3	Model 4
Buyback Size			*0,0660*	*0,0540*
			(0,1988)	*(0,2121)*
Market Capitalization		*0,0036*		*0,0037*
		(0,0029)		*(0,0033)*
Liquidity		*-0,5960*		*1,1399*
		(1,4706)		*(1,7224)*
Trend		*0,0268*		*0,0181*
		(0,0618)		*(0,0643)*
Book Building	*-0,0081*		*-0,0135*	*-0,0067*
	(0,0170)		*(0,0176)*	*(0,0181)*
Increase Return	*0,0142*		*0,0138*	*0,0109*
	(0,0143)		*(0,0167)*	*(0,0179)*
Capital Structure	*-0,0110*		*-0,0048*	*-0,0103*
	(0,0153)		*(0,0168)*	*(0,0174)*
Not Specified	*-0,0266**		*-0,0265*	*-0,0272*
	(0,0147)		*(0,0168)*	*(0,0183)*
Dividend		*-0,0156*		*-0,0190*
		(0,0121)		*(0,0130)*
Previous Buyback		*-0,0031*		*-0,0028*
		(0,0106)		*(0,0110)*
Issuing		*-0,0183*		*-0,0164*
		(0,0148)		*(0,0151)*
Broker			*0,0130*	*0,0161*
			(0,0115)	*(0,0121)*
Premium			*0,0101*	*0,0105*
			(0,0206)	*(0,0213)*
ROE		*0,0099*		*0,0063*
		(0,0342)		*(0,0364)*
Program Length			*-0,00003*	*-0,00003*
			(0,00005)	*(0,00005)*
Financial Crisis			*-0,0056*	*-0,0048*
			(0,0241)	*(0,0250)*
Constant	*0,0074*	*-0,0632*	*0,0032*	*-0,0677*
	(0,0075)	*(0,0634)*	*(0,0098)*	*(0,0716)*
Observations	*151*	*151*	*149*	*149*
R^2	*0,0395*	*0,0295*	*0,0578*	*0,0877*

Adj R^2	*0,0131*	*-0,0180*	*-0,0032*	*-0,0229*
F Statistic	*(4, 146)=1,50*	*(7, 143)=0,62*	*(9, 139)=0,95*	*(16, 132)=0,79*

NOTE.- This is the output generated in the cross-sectional regression when regressing CAR (-1,1) as the dependent variable. The independent variables are extracted in section 5.3. This output is generated using the ordinary least squared (OLS) regression method.
All coefficients have belonging standard errors presented in (parenthesis) below the coefficient.
These regression models have utilized the Norwegian Sample.
**p<0,1; **p<0,05; ***p<0,01*

Table F.2

Regression Results from the Trimmed Sample with The Cumulative Abnormal Return for the Event Window (-1,1) as the Dependent Variable

	Model 1	Model 2	Model 3	Model 4
Buyback Size			*0,4178***	*0,4162***
			(0,1663)	*(0,1904)*
Market Capitalization		*-0,0002*		*-0,0011*
		(0,0023)		*(0,0027)*
Liquidity		*-0,2377*		*1,1422*
		(1,1858)		*(1,4360)*
Trend		*0,0400*		*0,0723*
		(0,0553)		*(0,0561)*
Book Building	*0,0121*		*0,0066*	*0,0061*
	(0,0135)		*(0,0138)*	*(0,0143)*
Increase Return	*0,0197**		*0,0088*	*0,0109*
	(0,0110)		*(0,0132)*	*(0,0141)*
Capital Structure	*0,0080*		*0,0022*	*0,0027*
	(0,0121)		*(0,0127)*	*(0,0142)*
Not Specified	*-0,0089*		*-0,0178*	*-0,0187*
	(0,0121)		*(0,0129)*	*(0,0146)*
Dividend		*-0,0107*		*0,0008*
		(0,0100)		*(0,0115)*
Previous Buyback		*-0,0015*		*-0,0015*
		(0,0087)		*(0,0085)*
Issuing		*0,0006*		*0,0045*
		(0,0133)		*(0,0132)*
Broker			*0,0022*	*0,0033*
			(0,0086)	*(0,0093)*
Premium			*0,0045*	*0,0018*
			(0,0149)	*(0,0157)*
ROE		*0,0290*		*0,0021*
		(0,0354)		*(0,0409)*
Program Length			*0,00003*	*0,00002*
			(0,00004)	*(0,00004)*
Financial Crisis			*0,0200*	*0,0153*
			(0,0179)	*(0,0195)*
Constant	*0,0075*	*0,0236*	*0,0004*	*0,0241*
	(0,0059)	*(0,0506)*	*(0,0077)*	*(0,0589)*
Observations	*124*	*124*	*122*	*122*
R^2	*0,0432*	*0,0211*	*0,1061*	*0,1237*
Adj R^2	*0,0110*	*-0,0379*	*0,0343*	*-0,0099*
F Statistic	*(4, 119)=1,34*	*(7, 116)=0,36*	*(9, 112)=1,48*	*(16, 105)=0,93*

NOTE.- This is the output generated in the cross-sectional regression when regressing CAR (-1,1) as the dependent variable. The independent variables are extracted in section 5.3. This output is generated using the ordinary least squared (OLS) regression method.
All coefficients have belonging standard errors presented in (parenthesis) below the coefficient.
These regression models have utilized the Trimmed Sample.
**p<0,1; **p<0,05; ***p<0,01*