Private Placements on the Oslo Stock Exchange

An Empirical Study of the Short- and Long-Term Stock Performance Following Private Placements During the Time Period 2000 to 2019

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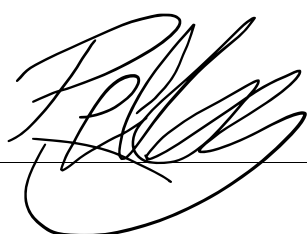
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Preface

This thesis marks the finish line for our Master of Science at the Norwegian School of Economics. We have both majored in financial economics and share the same interest towards the capital markets. After talking with a fellow student and good friend of ours, we were introduced to the idea of studying private placements on the Oslo Stock Exchange and how they affected existing shareholders' wealth. This topic appeared to be interesting for both of us and after encouraging feedback from our supervisor Associate Professor Tommy Stamland we chose to pursue with this topic.
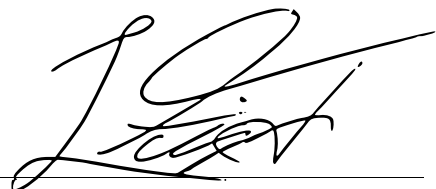
Writing the master's thesis during the ongoing pandemic of COVID-19 has been both challenging and strange. Luckily, we had available working space, superb computing power and a good team spirit making the writing process more comfortable than excepted. Working with a relevant topic that is of high interest for shareholders on the Oslo Stock Exchange made the process both exiting and highly educational.

We would like to express our greatest gratitude towards our supervisor Associate Professor Tommy Stamland for valuable feedback throughout the writing process. His expertise in event studies and corporate finance has been both inspirational and helpful. Finally, we would like to thank PhD Research Scholar Loreta Rapushi for taking the time to read and provide comments to our thesis.

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Norwegian School of Economics

Bergen, June 2020

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ABSTRACT

This thesis examines the short- and long-term performance of firms issuing equity privately on the Oslo Stock Exchange (OSE). By investigating an unexamined time period, this thesis adds new evidence to the existing literature of private placements. Contrary to former research, our results show a statistically significant negative stock price reaction to a private placement announcement. Previous literature explains the stock price reaction to a private placement announcement with the monitoring-, certification- or the management entrenchment hypothesis. These theories seem to be less relevant for justifying the stock price behavior of firms utilizing private placements on the OSE. It appears that our results can be better explained by how the issuer intends to use the raised proceeds. Furthermore, the long-term analysis reinforces the findings of Eckbo and Norli (2004) that (most) private placement firms on the OSE achieve normal returns over a 3-year holding period. The exception to this is firms in breach of covenants or in the need of financial restructuring where abnormally negative returns are observed in the long-run. The totality of our empirical findings indicates that the equal treatment principle on the OSE is satisfied and that the pervasive use of board authorizations cannot necessarily be considered a "bad deal" for existing shareholders.

Table of Contents

VII

List of Figures

List of Tables

1   Introduction

Private placements are the preferred method to raise additional equity for firms listed on the Oslo Stock Exchange (OSE). The equity offering is recognized as a low-cost, quick and convenient way to increase the share capital. Unlike other types of seasoned equity offerings (SEOs), private placements are only targeted towards a limited group of investors. This may impose a serious threat to existing nonparticipating shareholders' wealth as these shares are often granted at substantial discounts. While the general principle on the OSE holds that all shareholders shall be treated equally, the core mechanisms of private placements remain controversial. The contentious use of the offering method is further intensified with the rapid development of board authorizations and lighter requirements for prospectus avoidance, making Norwegian-style private placements even easier to conduct. However, whether private placements actually come at a cost for nonparticipating shareholders remains empirically unanswered.

The subject of how firms should raise capital is widely discussed within the field of corporate finance. The first analytical approach to the managers equity issue decision was derived by Myers and Majluf (1984). Relying on the basic assumption that managers act in the best interest of existing shareholders, they suggest that the issuance of equity provokes a belief that the firm is overvalued which causes the share price to drop once the firm announces an equity offering. This finding contributed to the pecking order of financial instruments which holds that firms prefer internal over external funding. Most studies of private placements contradict the pecking order hierarchy as researchers have found positive stock price reactions surrounding the announcement of a private placement (Wruck, 1989; Hertzel & Smith, 1993; Eckbo & Norli, 2004; Barclay et al., 2007). These results cannot be explained by the basic framework of Myers and Majluf and challenge the widely documented negative announcement returns found with other SEO methods. Wruck (1989) explain the conflicting results as a consequence of enhanced monitoring of management following private placements. She argues that the shares in private placements are purchased by active investors who are both willing and able to ensure efficient allocation of corporate resources and that market participants rationally anticipate decreased agency costs. Another prevalent explanation to the positive announcement return is the certification hypothesis proposed by Hertzel and Smith (1993). They argue that private placements might resolve the adverse selection problem faced by investors. In private placements, managers can sell equity to well informed investors, essentially eliminating problems associated with asymmetric information. Hypothetically, a well-informed investor who is willing to commit to the company should send a positive signal concerning the firm's value. Barclay et al. (2007) reexamine the monitoring- and certification hypothesis and find little support for these theories when accounting for the stock performance over a longer horizon. The authors suggest that managers are exploiting passive investors to maintain control of the firm while pursuing their own interests rather than the shareholders'. Their contribution is known as the management entrenchment hypothesis, yet the positive announcement reaction to a private placement remained inexplicable.

Long-term underperformance of public firms issuing equity is widely documented and raise concerns regarding the presumption of rational pricing in security markets (Loughran & Ritter,

1995; Spiess & Affleck-Graves, 1995; Eckbo et al., 2007; Hertzel et al., 2002; Krishnamurthy et al., 2005). While long-term performance following SEOs enjoys a wide body of research, private placements are more narrowly studied. Hertzel et al. (2002) discover similar long-term underperformance following private placements as previously observed with other SEO methods. In an analogous study, Eckbo and Norli (2004) find little evidence of underperformance for firms issuing equity privately on the OSE. Both Eckbo and Norli and Hertzel et al. examine whether the observed stock performance can be explained by an underreaction to public information by the market and thus be in line with the overconfidence hypothesis as proposed by Daniel et al. (1998). However, the opposing directions between the short- and long-term performance in both studies make the authors unable to justify their results taking this theory into account.[1] Overall, both papers are left with several unanswered questions for further research. In a more recent attempt to answer some of the perplex questions regarding long-term performance for firms issuing equity privately, Krishnamurthy et al. (2005) divide their sample based on investor identity and whether they participate in the equity offering or not. They find that long-term underperformance for nonparticipating investors is solely confined to placements with unaffiliated buyers. Taken together, the paucity of studies on long-term performance following private placements leaves several concerns regarding existing shareholders' wealth and the long-term stock performance unresolved.

The purpose of this thesis is to analyze the widespread use of private placements on the OSE and compare the results to applicable literature. The analysis is divided into two main parts where we study the stock performance over a short- and long horizon. Additionally, we undertake several tests to examine whether the monitoring-, certification- or the management entrenchment hypothesis can explain the observed stock price behavior related to private placements on the OSE. To provide additional insight to the results, we distinguish private placements based on the intended use of proceeds using the issuers' filings published on NewsWeb and supplement our findings with discussions regarding corporate governance on the OSE. By studying an unexamined time period, we offer new evidence to the existing literature of private placements and add valuable insight to the ongoing debate regarding the extensive use of private placements on the OSE.

We investigate the market's reaction to private placements on the OSE using a sample of 219 private placements over the time period 2000 to 2019. To measure the announcement stock price reaction, we use the event study methodology as advocated by MacKinlay (1999) and employ four different models to measure abnormal returns. We show that the announcement of a private placement is associated with a negative stock price reaction. This result is robust across the various models and contrasts earlier studies of private placements. Even though our findings contravene results from numerous papers regarding private placements, they are consistent with extant literature of other SEOs. This may suggest that the extensive use of private placements on the OSE leads to similar results as those obtained by different floatation methods in foreign markets. When dividing the sample into subgroups based on the intended use of proceeds, we reveal that the main drivers behind the negative announcement return are firms announcing *General* or

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[1] The theory implies that both the short- and long-term stock performance should be in the same direction.

Refinancing use of proceeds, whereas firms with a specific investment strategy appear to achieve normal returns.

Furthermore, we confirm that private placements are issued at large discounts. Hertzel and Smith (1993) argue that private placement discounts compensate buyers for information costs to certify the firm's value. Despite these discounts, the negative stock price reaction seems to contradict the certification hypothesis as proposed by Hertzel and Smith. Albeit missing statistical evidence, we conclude that certification is not an evident reason for firms to issue equity privately on the OSE. When adjusting the abnormal announcement returns for these discounts, much of the negative return diminishes and the abnormal returns become insignificant. This indicates that only a small portion of the negative announcement returns can be attributed to new information that is not already incorporated in the discount. Contrary to most foreign research, we observe that the largest shareholder typically decreases its ownership in private placements. To examine whether the negative announcement return is a consequence of less monitoring and thus an expectation of increased agency costs, we use a similar regression method as Wruck (1989). Additionally, we follow the approach suggested by Eckbo and Norli (2004) to test the validity of our results. Like Eckbo and Norli, we are unable to obtain statistical support and therefore disregard the monitoring hypothesis as an explanation for the observed stock price behavior.

In the next part of the analysis we investigate long-term performance by using the matched firm-, reference portfolio- and calendar time approach. We reinforce the results found by Eckbo and Norli that most firms issuing equity privately on the OSE achieve normal long-term returns. When dividing the sample into subcategories based on the intended use of proceeds, we obtain statistically significant underperformance for firms stating *Refinancing* purposes. The apparent underreaction for the *Refinancing* sample offers some support for the overconfidence hypothesis proposed by Daniel et al. (1998). However, we are unable to provide statistical proof that investors underreact to public information in private placements announcing *Refinancing* use of proceeds.

Motivated by prevalent evidence that firms tend to issue equity when share valuations are high (Loughran & Ritter, 1995; Spiess & Affleck-Graves, 1995; Hertzel et al., 2002), we calculate the 12-month abnormal runup returns for firms issuing equity privately. Even though we observe positive runup returns for the *General* and *Investment* subsamples, we do not gain statistical support for these results. However, firms stating *Refinancing* use of proceeds experience a significant *negative* abnormal return in the months leading up to the offering. As our results challenge previous findings, we believe that firms issuing equity privately are unable to exploit market over-optimism considering that participating investors are often well informed about the firm's prospects.

The findings from the short- and long-term analysis provide some initial support for the management entrenchment hypothesis proposed by Barclay et al. (2007). Although we obtain several results supporting the theory, we consider it unlikely that private placements on the OSE lead to management entrenchment. That is, strict rules and regulations related to equity offerings combined with doubtful evidence from the long-term analysis make such explanation questionable for most private placements on the OSE.

Further, we find that board authorizations enable firms to execute private placements in nearly three-quarters of our sample. The widespread use of board authorizations makes us wonder on

how private placements may affect shareholders' wealth. The authorizations are advocated as a time- and cost-efficient way for the board to raise additional capital without assembling the shareholders. To examine whether these authorizations can be considered a bad deal for existing shareholders, we follow Krishnamurthy et al. (2005) and combine the short- and long-term analysis to measure long run performance for participating- and nonparticipating investors individually. Utilizing the matched firm approach, we provide evidence that nonparticipating investors suffer from far poorer returns than participating investors. However, these poor returns can mainly be attributed to firms stating *Refinancing* purposes, indicating that the low returns conceivably can be factually justified as alternative actions most likely are unavailable. Furthermore, repair offerings are announced in most of these placements indicating that the underperformance may be miscalculated.

In assessing the totality of our empirical evidence, we show that private placement firms on the OSE suffer from significantly negative short-run abnormal returns, yet still most companies experience normal long-run stock performance. We believe that the apparent normal long-term returns for firms carrying out private placements are of central interest for the stock exchange as this finding seems to be in line with the equal treatment principle. Finally, we provide evidence that the pervasive use of board authorizations on the OSE cannot necessarily be considered a "bad deal" for existing shareholders.

The remainder of this thesis is organized as follows: Section 2 provides a general introduction to private placements and SEOs. Section 3 discusses theoretical concepts and extant literature of private placements. Section 4 gives a brief introduction to the event study methodology, while section 5 presents the dataset. Section 6 provides the results from the short-term analysis whereas section 7 and 8 examine the long-term performance of private placement firms. Finally, section 9 concludes the main findings of this thesis.

2 Private Placements

This chapter is divided into two main parts regarding private placements. The first part provides a general introduction to private placements and how they differ from other types of seasoned equity offerings. In the second part, we will look at private placements on the Oslo Stock Exchange, how they are carried out and the relevant rules and regulations.

2.1 Seasoned Equity Offering

Publicly listed firms have the advantage to raise additional capital through many types of seasoned equity offering (SEO) methods. SEOs are conducted by letting new or existing shareholders subscribe (buy) shares at a given price (subscription price). Shares are issued on the *primary* market, not the *secondary*, meaning that proceeds are assigned the issuer and not the shareholders. The firm can utilize a variety of approaches to collect funds in SEOs referred to as *flotation methods* where each method has its own characteristics and qualities. The choice of method is dependent on country specific traits such as legal systems, security regulations, the composition of ownership and the cost associated with the offering. Different types of flotation methods target different types of investors. The issue can either target a handful of selected institutional or individual investors, existing shareholders or the general public. Three common floatation methods directed towards these groups are *private placements*, *rights issues* and *public offerings*. In the following subsections, we will provide a brief introduction to each of these methods, focusing on the subscribers.

2.1.1 Private Placement

Private placements are equity offerings directed towards a predefined group of investors. The firm raises the entire issue through only one or a limited number of individuals, bypassing most of the existing shareholders and thus inducing possible dilution for nonparticipating shareholders. There are no formal ownership requirements in private placements but targeting either existing- or nonexistent shareholders exclusively are not uncommon. Along with being directed towards a group of investors, private placements often require a minimum subscription amount. There are usually lighter formal requirements in terms of documentation and due diligence for the issuer in private placements. The combination of few participating investors and milder formal requirements usually makes private placements a faster way to achieve a successful offering.

2.1.2 Rights Offering

In a rights offering, the issuer gives existing shareholders the right to purchase new shares at a prespecified price during a predetermined time period. Shareholders are granted subscription warrants on a *pro-rata basis*, meaning that their right to purchase additional shares is proportionate to their current holding. Subscription warrants share similarities with a call option as it gives the owner the right but not the obligation to buy additional shares. These characteristics enables the owner to sell the warrant which prohibit any wealth loss associated with the offering.

2.1.3   Public Offering

Public offerings, commonly referred to as follow-on offerings, are additional equity issues directed towards the general public. The follow-on offering resembles an initial public offering (IPO) in that there are none or few formal requirements to participate. As opposed to rights issues, existing shareholders and outside investors are entitled shares at the same basis which will induce a dilution effect for nonparticipating current shareholders.

2.2   Dilution

According to Fjesme and Norli (2011) the value of owning a share can be attributed to two sources. First, the residual claim of the firm's cash flow after other claimants have been paid and secondly the value arising from the ability to control the firm. The main consequence for shareholders in an equity issue is that the relative ownership of each shareholder decreases, generally recognized as *dilution* or *ownership dilution*. The main drawback of ownership dilution is that existing shareholders are giving up a proportion of their control in the company. Although equity offerings might lead to dilution of ownership, it does not necessarily mean that the shareholders' investment becomes diluted. Specifically, existing shareholders' investment is only diluted if the new capital structure provides a lower return than before the offering or if the shares are issued at a discount.

Equity issuances are frequently offered at a discount relative to the market value of the stock prior to the announcement. The purpose of this practice is to ensure that the company will receive its required funds. The magnitude of the discount normally depends on the choice of floatation method. In rights issues, the main purpose of the discount is to ensure that the stock price do not fall below the subscription price during the subscription period, whereas the main reason in private placements and public offerings is to make the issuance relatively more attractive for the participants.

2.3   Flotation Costs

The total cost associated with SEOs is generally divided into *direct* and *indirect* costs, reflecting an important aspect in the choice of flotation method (Eckbo et al., 2007). Direct costs include (I) the underwriter compensation and (II) charges and other expenses to the stock exchange, accountants, lawyers, advertising, etc. Indirect flotation costs are comprised of (I) issue discount, (II) announcement stock price movements, (III) cost of offering delays or cancellations and (IV) the management's time and effort dedicated to the process. Although direct costs are not disclosed in the European market, Gao and Ritter (2010) studied U.S. firms and documented that fees in *accelerated offers* are less than in public offerings considering that the underwriters require compensation for the additional time and effort in public offerings.[2]

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[2] *Accelerated offering:* an equity issue done within 48 hours, usually a private placement.

2.4   The Oslo Stock Exchange

The Oslo Stock Exchange (OSE) share many similarities with other stock exchanges but there are some distinct differences. There are primarily two main characteristics that separates the OSE from markets such as those in the U.S. and the UK. Firstly, the stock exchange is fairly concentrated in terms of ownership and secondly, the Norwegian Government is one of the major shareholders. The OSE also have some noticeable differences in terms of sector composition considering that almost half of the firms listed are either Energy- or Industrial companies (see Appendix A).

2.4.1   Seasoned Equity Offering on the Oslo Stock Exchange

The Oslo Stock Exchange is a relatively small marketplace for trading financial securities where issuers tend to have a strong preference for the chosen flotation method. Private placements are commonly selected as they allow for a flexible, time- and cost-efficient way to raise equity. Statistics provided by the OSE (2020) shows that more than two thirds of all equity issuances in the time period 2000 to 2019 were private placements (see Figure 2.1). Although private placements are typically smaller in offer size, they represent over half of the amount issued throughout the respective period.

Figure 2.1
All Registered Equity Issuances on the Oslo Stock Exchange During the Time Period 2000 to 2019
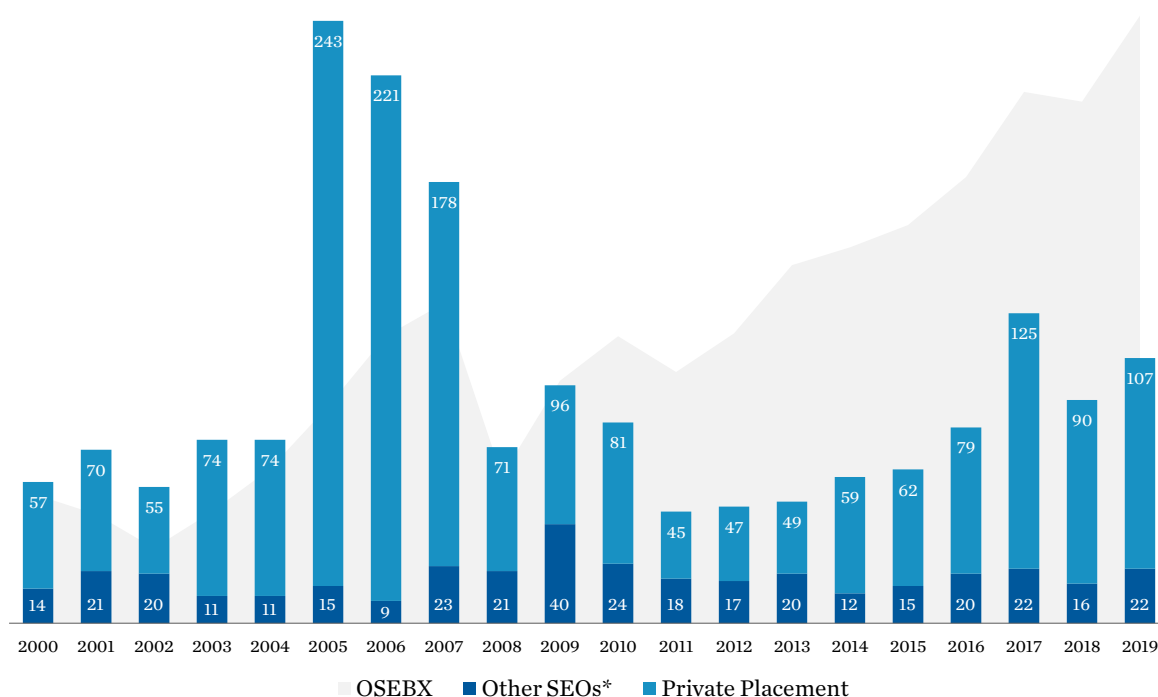
NOTE. — This graph shows the annual distribution of seasoned equity offerings on the Oslo Stock Exchange between 2000 and 2019. The sample of observations is retrieved from the Oslo Stock Exchange (2020). The OSEBX prices is obtained from the OSE (2020) and represents its development during the time period 2000-2019.
Other SEOs consists of repair offerings (see 2.4.3), public offerings and rights issues.

While the extensive use of private placements prolongs, the floatation method has been a

subject of debate amongst professors, managers and investors (Elvevold, 2019). The focus in those discussions is whether the widespread use of private placements is necessary in terms of how the nonparticipating investors are diluted. Arguments vary between the positive aspect of increased flexibility in the board's decision making to the negative side of overlooked investors. However, a mutual agreement is that the firm is responsible to make decisions that maximizes the return for all shareholders.

2.4.1.1   Issue Process on the Oslo Stock Exchange

The decision to raise additional equity is proposed by the Board and is subject to approval by the shareholders. Most companies listed on the OSE have granted authorization to increase the share capital without having to assemble a general meeting. Additionally, many firms have an *extra* authorization to waive the shareholders preferential rights by carrying out a private placement. These authorizations are usually given along with predefined constraints but provide additional flexibility for the Board in situations that requires rapid action. Without an authorization, the proposed equity issue is conditional on the general assembly's decision. Before being legally completed, the offering is subject to final approval by the Financial Supervisory Authority.

2.4.1.1.1   Private Placements on the Oslo Stock Exchange

Private placements on the OSE are typically carried out overnight. The company usually announces the contemplated offering after the stock market closes and declares a successful completion before trading opens the consecutive day. During this period, the subscription price is determined through an accelerated book-building process making sure that unexpected market reactions do not disturb the pricing.[3] Before this stage, the company has mandated one (or more) investment bank(s) to manage the offering process. The investment bank(s) assists with general planning of the process and prepares a term sheet (presentation) of the offering. More importantly, the investment bank(s) performs a confidential presounding with selected investors to evaluate the appetite for the contemplated placement (Fossan-Waage, 2020).

Private placements are generally limited to a specific number of investors with a minimum subscription amount (see 2.4.2.2). Additionally, the relative offer amount cannot exceed 20% of the number of outstanding shares measured over a 12-month period to circumvent prospectus requirements assigned by the stock exchange. However, waiving of preferential rights has to comply with the guidelines that will be discussed in section 2.4.2.

2.4.1.1.2   Rights Offering on the Oslo Stock Exchange

Rights offerings on the OSE are more complicated and time-consuming than private placements. The most distinct differences are that (I) rights offerings require the preparation of an offering- and listing prospectus, (II) the offer price is either determined by an investment bank or through a confidential presounding with selected investors *before* the announcement and (III) the shares are granted on a pro-rata basis.[4] As rights offerings are directed towards all current shareholders, the

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[3] Throughout the book-building process, the firm reserves the right to close or extend the application period at any time at their sole discretion and on short notice.
[4] The preferential rights (warrants) are typically listed on the stock exchange and are thus tradeable securities.

subscription-period for warrants has to last for at least two weeks. This exposes the offering for major failure risk in which the share price can drop below the offer price. To hedge against such an event, the offering can be guaranteed by one (or more) investor(s) or bank(s) that buys the shares in the event of failure. Finally, rights offerings are typically larger in relative size compared to private placements and the offer discount is typically higher (Kvaal & Ødegaard, 2011).

2.4.2 Rules and Regulation on the Oslo Stock Exchange

2.4.2.1 Principle of Equal Treatment

A particularly important provision regarding private placements on the OSE is the Norwegian Securities Trading Act (STA) Section 5–14. This section applies to all firms listed on the OSE and holds that issuers must treat their securityholders equally (hereafter the *equal treatment principle*). An equity offering where only a few investors are invited, such as a private placement, is a deviation from the equal treatment principle. However, STA Section 5-14 opens for unequal treatment if the equity issue is in the common interest of the firm and the shareholders. A private placement needs *factual justification* as the flotation method causes dilution of ownership and potentially represents a financial disadvantage for existing shareholders.

Circular no. 2/2014 published by the OSE provides a detailed overview and associated guidelines concerning the equal treatment principle. The Circular elaborates what section 5-14 means with factual justification and its associated criteria's. To have factual justification that enables differential treatment, the act must be *relevant* and *proportionate*. With relevant, the OSE means that it is likely that the issue represents the firm and the shareholders common interest in which the exchange focuses on long term financial performance.[5] With proportionate, the stock exchange means that the benefit must be evaluated in light of the disadvantage it represents for nonparticipating shareholders and alternative actions available is important when making this assessment. Finally, firms must disclose any subjects of debate in the board meeting considering that preferential rights are put aside (see example in Appendix B). The point of this disclosure is to emphasize that the stock exchange focuses on equal treatment among the shareholders and to ensure that companies are complying with the related rules and regulations.

2.4.2.2 Prospectus Requirements

The Security Trading Act (STA) Chapter 7 covers prospectus requirements in connection with equity offerings. The STA Chapter 7 experienced some major changes 7/21/2019, we will therefore provide the pre-change rules in parenthesis as these are most applicable for this thesis.

The general principle is that all publicly traded companies that issues equity are obligated to prepare a prospectus. However, STA Chapter 7 opens for exemptions from this general rule. Two frequently applied exemptions from general principle are; when the number of shares offered is below 20 (10) percent of outstanding shares measured over a 12-month period or the offering is directed towards less than 150 investors (and when securities are issued in minimum lots of EUR

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[5] However, areas of initial focus remain at the subscription price discount, the procedure to determine the offer price, disclosed use of proceeds and the repair effect of a (potential) subsequent offering (Oslo Børs, 2020).

100,000) (Fossan-Waage, 2020). The new regulation implies that issuing shares without a prospectus has become easier considering that firms are able to raise more equity relative to the share capital and the minimum subscription amount has been removed.

2.4.3   Repair Offering

Repair offerings are a Norwegian phenomenon and has apparently only been observed in the Norwegian capital markets. The offering is issued after a private placement and is exclusively directed towards nonparticipating shareholders. A firm is not required to do a repair offering subsequent to a private placement, but it is often used to justify the waiving of preferential rights. Specifically, the OSE takes it into account when evaluating whether a firm can deviate from the equal treatment principle. The main purpose of repair offerings is to reduce ownership dilution by letting nonparticipating shareholders buy shares at the same terms as in the private placement. Shares are granted on a pro-rata basis and resembles a rights-offering. However, if the stock price drops below the initial subscription price, the offering is effectively canceled.

There is no public research available on repair offerings, but statistics reported by the OSE indicates that repair offerings are rarely accomplished. Moreover, the relative size of these offerings is generally small, making the repair effect somewhat absent. We have no data to elaborate on feasible explanations, but a reasonable theory is that the stock price often drops below the subscription price. This presumption relies on conclusions drawn on prior literature concerning long-run performance following private placements and SEOs (Barclay et al., 2007; Hertzel et al., 2002; Asquith & Mullins, 1986; Loughran & Ritter, 1995). As a final remark, the repair offering initiates a prospectus requirement regardless of whether a prospectus was made for the private placement. This is a time-consuming and costly process for the issuer making repair offerings less attractive.

3 Theory and Literature Review

This section provides a brief introduction to theoretical concepts within corporate finance suited for this research. Further, we investigate papers that have studied the stock market's reaction to private placements, both in the short- and long-term. Finally, we summarize these papers with relevant discussions.

3.1 Agency Issues

The separation between ownership and control was first discussed by Berle and Means (1932). They argued that the separation between ownership and control raises an opportunity for managers to pursue their own interests instead of the shareholders'. Theoretically, the only objective of management is to act in shareholders' best interest, but Jensen and Meckling (1976) claimed that there exists a misalignment of incentives between the shareholders and management. They proposed the *principal-agent relationship* and argued that corporate assets might be employed to benefit managers rather than shareholders.[6] These expenses are defined as agency costs and are associated with incomplete contracts between owners and managers of a company.

According to Jensen (1986), firms that generate a substantial amount of free cash flow tend to invest the excess funds below the cost of capital rather than paying out dividends. He argued that debt financing and the associated fixed payments could alleviate this behavior. Fixed payments decrease the amount of free cash flow available for management to waste and facilitates efficient allocation of corporate resources. Additionally, creditors are more likely to monitor the management and thereby increase awareness within management's decision making.

Jensen and Meckling (1976) argued that the limited liability of equity prompts an incentive to increase the riskiness of the firm at the expense of creditors. This effect is commonly called *asset substitution* and the behavior can be clearly understood if we view the firm's common stock as a call option on the assets. In contrast to debtholders, shareholders can jump off the downside while they benefit from the upside. Therefore, the firm's management holds an incentive to invest proceeds from creditors in risky projects carrying major default risk. To prohibit such acts, creditors initiate covenants, monitoring and other cost containment activities, collectively called the agency cost of debt.

3.2 Capital Structure

The implications of corporate leverage were carefully examined in 1958 by Modigliani and Miller. They proposed the Modigliani-Miller theorem (M&M) which marks the cornerstone of modern thinking on capital structure. M&M holds that firm value is entirely dependent of future cash flows and that these cash flows are independent of leverage. Under the absence of market imperfections, there are no benefits from borrowing compared to issuing equity. Specifically, the firm value

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[6] Jensen and Meckling (1976, p. 308): "An agency relationship is a contract under which one or more persons (the principal[s]) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent."

remains unchanged for all capital structures as both future cash flows and the cost of capital is unaffected of leverage. This theoretical contribution is referred to as the *capital structure irrelevance result*. Although the result was theoretically sound, real world capital markets are subject to imperfections such as bankruptcy costs and corporate taxes.

Jensen and Meckling (1976) suggested that an optimal capital structure can be achieved by trading agency costs of debt against its benefits. With the preliminary proposal of Jensen and Meckling, DeAngelo and Masulis (1980) stated that managers are only expected to issue equity once the firm has deviated from its optimal capital structure. While shareholders have rational expectations about future cash flows, the announcement of an equity issuance will trigger a positive reaction. The optimal structure, however, may not be feasible due to regulations or other external factors.[7]

According to most asset pricing models, there is an infinitely elastic demand for equity and there exist perfect substitutes for all securities. Scholes (1972) however, claimed that each security is unique and there is no combination of securities that perfectly replicates a stock. He argued that the demand curve for stocks is downward sloping rather than horizontal. Therefore, the issuance of equity would increase supply and trigger a negative stock price reaction.

In the absence of incomplete debt contracts, Galai and Masulis (1976) suggested that the issuance of equity will cause a wealth transfer from shareholders to bondholders. The additional equity would decrease the volatility of the shareholders return and thus reduce the value of the shareholders' call option. In contrast to the wealth transfer hypothesis, Kalay and Shimrat (1987) documented that bond prices fall rather than increase after an equity issue. However, data constraints make the wealth transfer hypothesis inconclusive.

3.3   Asymmetric Information

Donaldson (1961) observed that firms preferred internal funds over external ones and that the financial policy is not motivated by an optimal capital structure. Drawing on these results, Myers and Majluf (1984) proposed that information asymmetries between insiders (management) and outsiders (investors) raise an adverse selection problem faced by investors. As the management has superior information about the firm's true value, the issuance of equity provokes a belief that the firm is overvalued. This causes the share price to drop once the firm announces an equity issue. As a result, Myers and Majluf suggested the pecking order theory; a financing hierarchy where information sensitive capital is the least preferred. The pecking order promotes internal financing, thereafter debt and ultimately equity. As demonstrated in Appendix C, large asymmetries raise an *underinvestment* problem in which the management is reluctant to issue information sensitive capital such as equity. However, the theory ignores a vast majority of methods to raise capital and disregards the possibility of selling equity to informed outsiders or proportionally to existing shareholders. Eckbo and Norli (2004) addressed the latter issue in terms of private placements and proposed a framework that considers the possibility of raising equity privately. Their results will

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[7] Multinational companies are subject to country-specific laws that can prevent them from reaching its optimal leverage, i.e. thin-capitalization rules (safe-harbor- and earnings-stripping rules).

be presented in section 3.5.4, but an examination of their "issue game" remains for another study.

3.4   The Efficient Market Hypothesis

The efficient market hypothesis (EMH) is one of the most controversial and well-examined theorems within economics. Fama (1970) proposed the EMH which asserts that a market is efficient if security prices immediately and fully reflect all available information. While Fama claims that security analysis and fundamental research of stocks is a losers-game, Grossman and Stiglitz (1980) proposed the *Grossman-Stiglitz paradox*. The paradox states that markets are efficient because individuals believe that they are not. These investors engage in timely and costly research but can extract any mispricing that appears. Grossman and Stiglitz claimed that new information is incorporated in the security prices immediately when there exist an equilibrium number of these individuals.

The examination of EMH has revealed several instances that are difficult to reconcile with efficient markets. Nicholson (1968) and Basu (1977) documented that stocks with low price-to-earnings (PE) ratios tend to be undervalued and that market participants are overly optimistic about high PE stocks. While low PE stocks are avoided, superior returns can be achieved from investing in these stocks. Another study by De Bondt and Thaler (1990) proposed that investors systematically overreacts to new information. However, Bernard and Thomas (1989) reported delayed market reactions and that securities need time to absorb and fully reflect new information. Further, Daniel et al. (1998) proposed that investors may have different perceptions of information. They documented that investors tend to overreact to private information signals and underreact to public information signals. Finally, the calendar anomaly observed by Keim (1983), commonly referred to as the *January effect*, holds that small-cap stocks exhibit superior returns in January. The theory states that investors were unable to learn from the return patterns and arbitrage the effect away, however, accounting for transaction costs, later reviews of the hypothesis document contradicting evidence. Nonetheless, with decreasing transaction costs, an increasing number of market participants and improving algorithms, researchers suggest that markets are becoming more efficient.

3.5   Literature Review of Private Placements

Although only a handful of empirical papers have researched private placements, the studies conducted documents a positive and significant abnormal return following the announcement (see Appendix E). This stock price behavior is interesting for two reasons; first, we would expect that private placement discounts would, ceteris paribus, trigger a negative stock price reaction due to the dilution of nonparticipating shareholders. Second, as extant research of public offerings documents a significant negative stock price reaction following the announcement, one would expect a somewhat similar reaction to a private placement (see Appendix F). Throughout the next subsections, we plunge into some of the prevailing hypotheses associated with private placements and include relevant discussions.

3.5.1 Monitoring Hypothesis

The monitoring hypothesis was proposed by Wruck (1989) as a motivation for private placements. She examined 128 private placements on the New York Stock Exchange in the period 1979 to 1985 and documented that private sales of equity had a positive mean announcement effect of 4.5 percent. The purchasers in private placements are theoretically active investors who are willing and able to monitor the management and ensure efficient allocation of corporate resources. While enhanced monitoring is expected to increase firm value, private placements are issued at discounts reflecting the cost of these activities. As evidence for such behavior, Wruck documented that ownership concentration tends to increase in private placements and that the issues were carried out at a considerable discount. More recent research however, document opposing evidence to the monitoring hypothesis. For instance, assuming that institutional investors are the strongest monitors among shareholders, both Wruck and Wu (2004) found that these investors typically decrease their ownership following private placements.

3.5.2 Certification Hypothesis

In a follow-up study of Wruck's (1989) monitoring hypothesis, Hertzel and Smith (1993) examined 106 private placements in the U.S. While the companies were smaller in size compared to Wruck's sample, they documented positive abnormal returns following private placement announcements. In contrast to the monitoring hypothesis, Hertzel and Smith argued that discounts in private placements reflect information costs carried by participating investors to validate the firm's value. The successful sale of stocks will thus signal favorable information about the company as informed investors put their stamp of approval on the market's valuation of the firm. This theory is recognized as the *certification hypothesis* and Hertzel and Smith suggested that private placements might mitigate Myers and Majluf's (1984) underinvestment problem in which managers are able to sell equity to informed outsiders. Furthermore, Fjesme and Norli (2011) argued that smaller and younger companies are more likely to benefit from certification. One would assume that the benefit is higher the more professional the new investor is compared to existing shareholders. Further, the beneficial effect of certification is likely higher if it has been a long time since the firm has gone through a similar review. Smaller and younger firms competitive advantage rely on asymmetric information and are thus reluctant to carry out other types of SEOs that may reveal their true qualities.

3.5.3 Management Entrenchment Hypothesis

The monitoring and certification hypothesis were later revisited by Barclay et al. (2007). They used a sample of 594 U.S. publicly traded firms in the period 1979 to 1997. Through a new classification of the placements they provided evidence that weakens the monitoring- and certification hypothesis. The authors reported that private placements are often allocated to *passive investors* that keep management in control of the firm. Evident from negative "long-run" stock performance following the placement, managers utilize these passive investors and follow their own interests rather than the shareholders'. This is proposed as the *management entrenchment hypothesis* and Barclay

et al. argued that entrenchment is a more evident reason for private placements than monitoring or certification. According to their research, some evidence that challenges this hypothesis is the observed positive short-run returns and the larger measurement problems incurred when estimating long-term abnormal returns.

Wu (2004) proposed the *managerial self-dealing hypothesis*. Based on the substantial price discounts documented by Hertzel and Smith (1993), she argued that managers with smaller initial shareholdings are expected to have a stronger incentive to carry out private placements that enables them to buy shares at a favorable price.[8]

3.5.4   Private Placements on the Oslo Stock Exchange

Drawing on the hypothesizes proposed above, Eckbo and Norli (2004) investigated the market's reaction to equity offerings on the Oslo Stock Exchange. The authors found positive abnormal announcement returns for private placements during the period 1980 to 1996. Interestingly, they found that the subscription price typically is offered at a premium rather than a discount. Although the authors do not give an explicit explanation for this premium, one might assume that a good portion of firms in their sample are financially attractive as the premium remains when excluding firms engaging in mergers and acquisitions. The premium contradicts the monitoring and certification hypothesis where private placement discounts reflect costs carried by the purchaser to monitor or certify the firm's value. Moreover, they did not document any significant changes in ownership concentration as observed by Wruck (1989). Eckbo and Norli argued that the stock price reaction is a biased estimate of the true information from the issue and that the positive market response might reflect *overconfidence* among the shareholders as proposed by Daniel et al., 1998. However, they failed to find statistical support for the hypothesis in the long-term returns.

3.5.5   Long-Run Abnormal Returns Following Private Placements

Although literature reveal short-term positive returns surrounding private placements, Barclay et al. (2007), Hertzel et al. (2002) and Krishnamurthy et al. (2005) documented that stock returns are negative in the long-run. Barclay et al. argued that the negative returns following a private placement strengthens the management entrenchment hypothesis.[9] They further stated that the decline in stock prices is difficult to reconcile with the monitoring- and certification hypothesis, undermining these hypotheses as feasible explanation for the positive stock market reaction. However, Barclay et al. were unable to explain the positive stock market reaction to private placements.

Hertzel et al. (2002) utilized the matched firm- and calendar time approach to measure abnormal returns over a 3-year holding period following private placements. The authors found negative abnormal returns compared to various benchmarks by utilizing different holding periods. All results were statistically different from zero, supporting that private placement firms performed worse than its benchmark. They concluded that their findings were not in line with any known

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[8] Privately placed equity purchased by managers is sold at larger discounts compared to other investors (44% and 19%, respectively).
[9] Barclay et al. measured abnormal returns until 120 days after the private placement and should thus not be considered a full long-term holding period.

behavioral theory and left their results for further study.

Krishnamurthy et al. (2005) divided their sample based on investor identity and whether they participate in the equity offering or not. They found that long-term underperformance for nonparticipating investors is solely confined to placements where the purchasers were unaffiliated with the firm.[10] As they obtain normal returns for participating investors, they proposed that buyers in private placements are well informed and acquire equity at a price that incorporates the post-issue stock price revision by the market to achieve normal returns. Additionally, by finding a positive runup return followed by negative post-issue returns they concluded that their results share similarities with studies of other SEO methods.

Eckbo and Norli (2004) found negative abnormal returns for firms issuing equity privately on the OSE over a 3-year holding period, yet they failed to provide statistical support for this underperformance. An interesting remark is that these authors found similar results for public SEOs. This result contrasts comparable studies from abroad in which SEO firms underperform otherwise comparable non-SEO firms (Asquith & Mullins, 1986; Loughran & Ritter, 1995) and might clarify the lack of significance for the private placement sample.

Table 3.1
Theoretical and Empirical Evidence Concerning the Expected Stock Price Reaction to a Private Placement

Hypothesis	Expected Sign[a]
	Private Placement
Management Entrenchment (Barclay et al., 2007)	(−)
Certification (Hertzel & Smith, 1993)	(+)
Monitoring (Wruck, 1989)	(+)
Wealth Distribution (Galai & Masulis, 1976)	(−)
Price Pressure (Scholes, 1972)	(−)
Increased Monitoring on the Stockholm Stock Exchange (Molin, 1999)	(+)
Optimal Capital Structure (DeAngelo & Masulis, 1980)	(+)

NOTE. — This table show the (expected) effect of the announcement of rights issues and private placements. Blank cells indicate that there is no research available for that particular combination of column and row. Note also that these are our interpretation of published research and not opinions expressed by the corresponding authors in the left column.
[a]The expected sign is in the short-term surrounding the event.

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[10] Krishnamurthy et al. calculate abnormal returns 3 days *prior* to the announcement over a 3-year holding period and incorporate the offer discount (return) for participating investors.

4   Methodology

In this section we provide a description of the methodology used throughout this thesis. We cite relevant papers to point out possible benefits and limitations of the methodology and summarize these findings at the end.

4.1   Event Study

According to literature, the short-term stock reaction to private placements is consistently positive. We find it interesting to reexamine these results on the OSE conducting a short-run event study of the stock market's reaction to private placements. The event study methodology can be traced back to the 1930s and is commonly used to measure valuation effects of corporate events.[11] There have been many papers written in which authors have discussed the methodology in great detail, but for the purpose of brevity this thesis draws merely on the general framework outlined by MacKinlay (1997) and Binder (1998).

Figure 4.1
Event Study Timeline
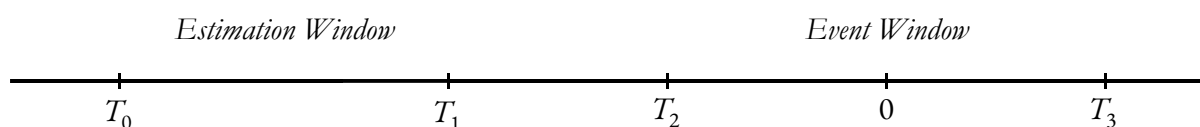
NOTE. — This figure illustrates the relevant notations for our event study timeline. The time period between T_0 and T_1 represents the estimation window. T_2 and T_3 marks the starting and ending point of the event window, respectively. Finally, 0 denotes the event day (τ). Please note that this figure is for illustrational purposes only.

4.1.1   Estimation Window

The event study methodology requires an estimation window that sufficiently estimates normal returns. Following MacKinlay (1997), we use an estimation window that comprises 250 trading days (approximately one trading year). The estimation window ends 10 days prior to the event such that event-driven effects does not interfere with our coefficients ($T_0 = -260$ and $T_1 = -10$). This is also consistent with Barclay et al.'s (2007) estimation window in their study of private placements. Finally, we require a minimum of 135 trading days prior to the event for the stock to be included.

4.1.2   Event Window

The event window should ideally reflect the time the market requires to absorb and react to new information (Kriving et al., 2003). While the financial markets are assumed to be efficient, several researchers have provided evidence that contradicts this assertion. Although those remarks raise concern about the proper length of the window, we choose to follow cited literature and divide our research into two parts: one short-run analysis and one long-run analysis.

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[11] Dooley's (1933) research of the price reaction following stock splits is perhaps the first event study published.

4.1.2.1 Short-Run Event Window

To account for possible information leakages and delayed stock price reactions, we examine the short-term abnormal returns over multiple event windows: (-3, 0); (-3, 1); (-1, 0) and (-1, 1). These event windows are in addition to the event day itself (0) as we are confident that we have recognized the correct *first trade date* after the announcement (see section 5.1 for procedure).

4.1.3 Long-Run Analysis

As reported by Fama (1998), stock prices might slowly adapt to information showing that the initial market reaction might be biased (De Bondt & Thaler, 1990; Bernard & Thomas, 1989; Daniel et al., 1998). Further, in accordance with the equal treatment principle on the OSE, we want to examine the effects of a private placement in the long run. We review the stock performance one trading year prior the announcement (0), thereafter we examine the stock returns in various intervals within three trading years post the event utilizing a wide spectrum of analytical tools.

4.2 Estimating the Expected Returns

The event study methodology relies on the presumption that we can estimate the expected returns. Despite decades of research, the key drivers behind stock returns continues to be debated amongst academics. Harvey et al. (2015) demonstrated that research has reported over 300 variables that deliberately explain stock returns. This pathway brings up the "bad-model" problems discussed by Fama (1998). He claimed that any asset pricing model is just a model that does not completely describe expected returns. While short-term stock returns are close to zero, long-run abnormal returns are vulnerable to model misspecification as small errors accumulate over time. Binder (1998) concisely stated that model misspecification is a result of either omitted variables or the inclusion of irrelevant factors. Through the next subsections, we propose a range of methods to measure the normal (expected) rate of return.

4.2.1 Constant-Mean Return Model

The constant-mean return model assumes that the normal return of the stock equals the average historical return. From equation (4.1), the mean return of stock i's return at time t is expressed as $\bar{R}_{it}$. Although the model is simple, Brown and Warner (1985) argue that it yields the same results as more sophisticated models.

$$E(R_{it}) = \bar{R}_{it} + e_{it}$$
$$e_{it} \sim N(0, \sigma_{e,i}^2)$$

$$(4.1)$$

4.2.2 Market Model

The market model represents a potential improvement over the constant-mean return model. Adding a market-wide factor increases its explanatory power, the variation will decrease and thus enhance the model's ability to detect and measure abnormal returns. The model follows the

specification given in equation (4.2).

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + e_{it}$$
$$e_{it} \sim N(0, \sigma_{e,i}^2)$$

(4.2)

Where R_{mt} represents the return of the market portfolio, while e_{it} captures unsystematic risk related to each security and β_i accounts for the stock's sensitivity with respect to the market movements. The intercept (α_i) and coefficient (β_i) is estimated by regressing the security's return on the markets return.

4.2.3   Market Adjusted Return

The market adjusted return is a simpler version of the market model in which the alpha is equal to zero and the beta is equal to one across all securities. This means that the expected return is equal to the market's return. Specifically, returns vary over time but not across securities. The general formula for the market adjusted return model is expressed in equation (4.3).

$$E(R_{it}) = R_{mt} + e_{it}$$
$$e_{it} \sim N(0, \sigma_{e,i}^2)$$

(4.3)

4.2.4   Capital Asset Pricing Model

The Capital Asset Pricing Model (CAPM) was developed by Sharpe (1964) and Lintner (1965) based on Markowitz's (1952) portfolio theory. CAPM is considered an equilibrium model which assumes that a stock diverging from its equilibrium price, will eventually drift back by market forces. Although the theoretical aspects of the model are justified, the underlying assumptions violate basic market functionalities.[12]

$$E(R_{it}) = r_f + \beta_i [E(r_m) - r_f] + e_{it}$$

(4.4)

Following equation (4.4), the expected return of security i is given by the return an investor can achieve with certainty, i.e. the risk free-rate (r_f) in addition to the market risk premium for investing in stocks scaled up by the systematic risk associated with the stock (β_i). CAPM holds that higher returns can only be achieved from taking on additional market risk as firm-specific risk can be diversified away by holding a well-diversified portfolio. The beta coefficient is estimated by regressing the security's excess return of the risk-free rate on the market's excess return.

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[12] The model does not comply with real life asset pricing because violations (transaction costs, information asymmetries, etc.) imply deviations from equilibrium.

4.2.5   Factor Model

Fama and French (1993) made an extension of the traditional CAPM and proposed a new model by adding risk factors for *size* and *value*. Studies show that small-cap and value stocks outperform otherwise comparable stocks. By including factors that accounted for these differences, Fama and French suggested the three-factor model specified in equation (4.5) to estimate expected returns.

$$E(R_{it}) = r_f + \beta_i[E(r_m) - r_f] + s_i SMB_t + h_i HML_t + e_{it} \tag{4.5}$$

The two additional risk-factors SMB_t and HML_t represent two zero investment portfolios. SMB_t consists of a long position in small cap stocks financed by a short position in large market capitalization firms. HML_t consists of a long position in high book-to-market (BM) stocks financed by a short position in low BM stocks. The coefficients are estimated by regressing the excess return of security i on factors expressed on the right hand side of equation (4.5). Since first introduced, additional factors have been added to the model, such as Carhart's (1997) *momentum* factor. As a conclusive remark, MacKinlay (1997) stated that there are small gains from using a multifactor model compared to the simple market model in short-term studies.

4.2.6   Matched Firm Approach

Apart from using models that predict expected returns, Loughran and Ritter (1995) proposed the *matched firm approach*. The method compares an event firm with a matching non-event firm based on predefined characteristics. By doing so, one can measure how an event firm performs relative to a non- event firm. Specifically, the expected return of the event firm is assumed to be the same as the return of the non-event firm. To identify matching firms, Barber et al. (1999) found that using firms with similar size and book-to-market ratios yield well-specified test statistics. Although economic shocks are believed to affect comparable firms similarly, corporate events themselves are unlikely to be random occurrences and hence associated with specific firms. Consequently, returns from the matching firm may differ from the issuer (Kothari & Warner, 2006).

4.2.7   Reference Portfolio Approach

An alternative to the matching firm approach is to identify a matching portfolio consisting of firms that share similar characteristics as the event firm. Barber et al. (1999) constructed reference portfolios that is used as the event firm's benchmark return by dividing firms into deciles based on size and book-to-market ratios. By matching an entire portfolio as opposed to a single firm, the likelihood of picking firms with similar risk and thus the same expected return is theoretically higher. However, when potentially eliminating problems with a model, other drawbacks might arise. The reference portfolio may mimic the event firm more precisely, but the diversification effect induces a skewness bias in the distribution of returns.

4.3 Measuring Abnormal Returns

There exist two methods commonly used to calculate abnormal returns: cumulative abnormal returns (CARs) and buy-and-hold abnormal returns (BHARs). We show the mathematical expressions for CAR and BHAR in equation (4.6) and (4.7) respectively.

$$CAR_{i,(\tau,T_3)} = \sum_{t=\tau}^{T_3} AR_{it}$$
$$AR_{it} = R_{it} - E(R_{it}) \tag{4.6}$$

$$BHAR_{i,(\tau,T_3)} = \prod_{t=\tau}^{T_3}(1 + R_{it}) - \prod_{t=\tau}^{T_3}(1 + E[R_{it}]) \tag{4.7}$$

As emphasized in numerous research papers, these methods can produce different inferences. While CARs utilize arithmetic returns, BHARs are compounded through the employment of geometric returns. These statistical differences may interfere with the associated test statistics and thus alter the results. Over the next sections, we highlight the most relevant differences and include suitable discussions.

4.3.1 Cumulative Abnormal Returns

The cumulative abnormal returns (CARs) are defined as the sum of daily returns over the period of interest. With the initial findings from Ritter (1991), Barber and Lyon (1997) concluded that CARs are a biased predictor of long-run returns. They argued that the lack of compounding yields misspecified test statistics over the long run (*measurement bias*). Additionally, CARs are subject to *new listing bias* and *skewness bias*, whereas the skewness bias is less severe for CARs than BHARs (see 4.3.2). Fama (1998) however, argued that CARs have fewer statistical difficulties compared to BHARs and thus reduce challenges related to the "bad-model" problems.

4.3.2 Buy-and-Hold Abnormal Returns

Buy-and-hold abnormal returns are measured by calculating the average multiyear return from buying and holding a portfolio of event stocks. The portfolio return is then compared to a similar strategy buying non-event firms. Equation (4.7) illustrates the compounding effect of BHARs and unlike arithmetic calculations, Barber and Lyon (1997) argued that BHARs are important as they precisely measure investor experience. However, Fama (1998) is concerned about the compounding of systematic errors. Moreover, he claims that the methodology ignores the overstated test statistics caused by cross-sectional dependence of abnormal returns. In fact, Mitchell and Stafford (2000) stated that BHARs should not be used for statistical inference, particularly when the test statistics are unadjusted for *positive cross-correlations* (see section 4.6). Despite these concerns, Barber and Lyon favor the use of BHARs but highlight three drawbacks that may arise in long-run studies. Firstly, the *new listing bias* which makes the abnormal returns

positively skewed as a result of underperforming newly listed firms (Ritter, 1991; Barber & Lyon, 1997). This bias translates into incorrect test statistics and associated results. Secondly, long-run abnormal returns are positively skewed, namely the *skewness bias*. This skewness bias is severe utilizing a reference portfolio but is mitigated using a single control-firm.[13] Unfortunately, the statistical power of a single control firm is very limited compared to a reference portfolio. We will elaborate more on this in the analysis-section. Finally, Barber and Lyon proposed the *rebalancing bias*, which is related to the monthly rebalancing of an equally weighted matching portfolio. Based on the previous discussions, Barber and Lyon prefer BHARs over CARs, however they and Ritter (1991) identify benefits of utilizing both methods.

4.4 Cross-Sectional Analysis

Cross-sectional analysis might be useful when there appears to be multiple sources that explain abnormal returns (MacKinlay, 1997). The analysis involves running a cross-sectional regression of abnormal returns on pre-specified variables of interest.[14] MacKinlay argued that the approach can add additional insight behind the main drivers of returns and the elementary regression is illustrated in equation (4.8).

$$CAR_i = \delta_0 + \delta_1 x_{li} + \delta_2 x_{2i} + \cdots + \delta_M x_{Mi} + e_{it} \tag{4.8}$$

Where CAR_i is the cumulative abnormal return of firm i, and x_{li} denotes firm specific characteristic l. While the use of cross-sectional analysis may add useful insights, the method remains questionable as the explanatory power is nearly always less than ten percent (Eckbo et al., 2007). Moreover, the abnormal returns might be correlated with the explanatory variables if the investors, conditional on the firm's characteristics, rationally anticipate the likelihood of an event. The missing explanatory variable, i.e. the market's expectation (conditional on the choice) of the manager's private information, makes the regression subject to the *omitted variable bias* (Scruggs, 2005). Furthermore, Eckbo et al. (1990) argued that linear estimators are inconsistent when the issuer select the event date. However, research is somewhat divided and for most studies the magnitude of self-selection bias remains unknown.

4.5 Significance Testing

Literature separate between parametric and nonparametric tests to examine the statistical significance of abnormal returns. Parametric tests hold the presumption of normal distribution while the nonparametric tests do not (MacKinlay, 1997). Some researchers suggest that parametric tests are well-specified and have higher power compared to nonparametric ones (Brown & Warner, 1985). However, Lyon et al. (1999) recommend the employment of both to account for the fact that returns might not be normally distributed. We will primarily be utilizing the conventional *t*-

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[13] The long-term return of a single security is highly skewed whereas a diversified reference portfolio is not.
[14] In the cross-sectional analysis, we will apply ordinary least squared to estimate the unknown parameters of the regression model (see Appendix D).

test (parametric) and the Wilcoxon signed-rank test (nonparametric) in the analysis section.

4.6 Limitations of Event Studies

Despite extensive research and several improvements, the event study methodology has its limitations. We will therefore provide possible pitfalls that may cause problems for our study and elaborate on how we have tried to minimize these obstacles.

Firstly, the results are based on the presumption that the event date is correctly identified and not anticipated (MacKinlay, 1997). We utilize a variety of event windows to overcome these potential problems, both in the short- and long-term analysis.

Secondly, the model used to estimate the expected returns may produce biased estimates. The matched firm approach is subject to substantial noise as each security is unique and there will never be an exact substitute of any stock (Scholes, 1972). Moreover, our event firms are lowering leverage and thus the overall riskiness in the firm. Theoretically, this translates into a lower rate of return which may lead to overstated underperformance (Eckbo et al., 2000). This problem however is more applicable over shorter horizons such as 120 days where firms are not always expected to relever, even if it is optimal to do so. We will be using numerous benchmark return approaches and employ suitable adjustments recommended by literature to avoid flawed statistical inferences. Additionally, we take advantage of the long-run buy-and-hold return specifications of the matching firm- and reference portfolio approach to avoid aggregating errors over longer horizons.

Thirdly, stocks that are not traded throughout the entire test period introduce a problem. Using daily stock prices, low trading liquidity will cause the closing price to be recorded at different times. MacKinlay (1997) argued that researchers are implicitly and incorrectly referring to the prices as "daily". The issue is referred to as nonsynchronous trading and does evidently affect the ordinary least squares estimates of the beta values. Scholes and Williams (1977) introduced a method to correct for nonsynchronous trading and found that the beta coefficients were underestimated by 10 to 20 percent. However, Jain (1986) found small differences compared to non-adjusted calculations. Although the literature is inconclusive, MacKinlay (1997) claims the problem may lead to biased ordinary least squares estimates. To test whether our results are robust with regards to the estimated betas, we will employ market adjusted returns in addition to the market model, CAPM and the Fama-French three-factor model.

Finally, calendar time clustering of events may violate the assumption of cross-sectional independence. Events that overlap might cause cross-sectional correlation in the abnormal returns. For example, major corporate events tend to cluster through time within an industry. This can lead to falsely rejecting the null hypothesis since test statistics are overstated (Brown & Warner, 1980; Fama, 1998). Michell and Stafford (2000) argued that assuming independency of returns may be problematic as abnormal returns are positively cross correlated when overlapping in calendar time. The problem of assuming independency of abnormal returns are most severe for the long-term BHARs. Thus, we never include firms with overlapping events. Finally, following Mitchell and Stafford, we take advantage of the calendar time portfolio approach in addition to BHARs such that we avoid problems associated with cross-sectional correlation in our sample.

5 Data

The purpose of this section is to clarify our sample-selection process. Thereafter, we give a descriptive overview of sample characteristics and provide additional insight around these findings which might be interesting for the analysis. Finally, we give a quick overview of the identified private placements divided into subgroups based on the intended use of proceeds.

5.1 Data Sample

The data sample is retrieved from the Dealogic Equity Capital Markets Analytical database for the time period 2000-2019. We favor Dealogic due to the reliable and comprehensive content on equity offerings compared to other databases. Trading- and accounting data were obtained from Thomson Reuters Datastream (2020) and Børsdatabasen (NHH, 2020), while ownership data was manually gathered from annual reports.

To verify the intended use of proceeds, announcement date, capital raised, number of shared issued and the flotation method, we cross-examined all our observations with information published at NewsWeb (2020).[15] Further, we compared the observations to an equity issue report provided by the Oslo Stock Exchange (2020) and noticed that at certain times over 50 percent of all private placements were missing. Due to the fear of a systematic error within the dataset from Dealogic, we manually retrieved 31 private placements from NewsWeb in order to eliminate potential bias for the years with the least amount of observations.[16] Finally, NewsWeb provide timestamps of the announcements which lead us to update several observations due to errors in the first trade date after announcement. Those dates were crosschecked with articles provided by Norwegian business newspapers such as *Dagens Næringsliv* and *Finansavisen*.

Our initial sample includes 709 observations, then we exclude all observations that meet the following criteria (the number in parenthesis is the number of observations removed):

(1)   Secondary-, rights-, public-, employee- and repair offerings (297).

(2)   Firms that issued equity within the past 270 trading days or had below 135 trading days prior the issuance to avoid overlapping events and meet the minimum criteria for available trading days for the estimation window (55).

(3)   No published information related to the event on NewsWeb or in Norwegian business newspapers (46).

(4)   Coexisting events around the equity offering (34).

(5)   Firms listed on Merkur Market, Oslo Axess or primarily in Sweden (28).

(6)   Private placements below 5 percent of total outstanding shareholding (26).

(7)   Non-trading days within the short-term event windows (2).

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[15] NewsWeb provides all company disclosures (announcements) for firms listed on the Oslo Stock Exchange.
[16] We had close to zero observations in the period 2000-2004, thus we manually recovered observations for this time period. Additionally, we retrieved observations for the latter half of 2019 as it was excluded from the dataset.

(8)   The sale of B-shares (2).

Accordingly, our sample is reduced to 219 private placements for the short-term analysis. However, we make further adjustments for the long-term analysis that will be addressed in the analysis section.

5.1.1   Sample Characteristics

In Table 5.1 we present the sample characteristics for 219 private placements on the OSE between 2000 and 2019. Panel A indicates that the mean (median) raised proceeds is NOK 413.1 (163.1) mill. The mean is almost four times what Eckbo and Norli (2004) found in a similar study on the OSE between 1980 and 1996. The average market value is NOK 2,523.4 mill., while the median is right above NOK 1 bill., implying that the sample includes some large firms which is confirmed by the maximum market value of NOK 52,180.3 mill. The relative deal size has a mean of 55.7 percent, which is considerably larger than comparable studies such as Hertzel et al. (2002) that report a mean value of 21.2 percent. The skewed mean is a consequence of some large outliers in our sample where the relative deal size is as high as 1,852.7 percent.[17] As excepted, we obtain a much lower median value of 11.2 percent, which is just above the 10 (20) percent threshold for prospectus requirements.[18] The sample constitutes of 133 unique firms issuing equity on average 1.6 (1) times with a mean book-to-market (BM) ratio of 1.2 (0.5). Although the median BM is smaller than documented by Eckbo and Norli, the mean is somewhat larger. The relationship between the mean and median indicates that there are a few (very high) value firms that inflate the average BM. The 75-day abnormal runup return exhibits an average of 14.4 (10.4) percent. This result contrasts the finding of Barclay et al. (2007) who observed negative returns prior to the offering, whereas Krishnamurthy et al. (2005) discovered positive returns. There could be many possible explanations for conflicting returns prior to the offering between different papers. One possible explanation is whether the majority of the sample was obtained during a bull- or bear-market. Moreover, Barclay et al. measured the abnormal returns through a 500-day period prior to the offering which is incomparable to our 75-day window.[19] Finally, the offer discount is on average 10.5 (5.4) percent which is smaller than what observed in similar studies. Nevertheless, these discounts directly contradict Eckbo and Norli who observed a *premium* rather than discount. This may indicate that their sample included more high-quality firms as the premium persists after private placements related to acquisitions are excluded from the sample.

Turning to Panel B we get a confirmation of the high ownership concentration on the OSE. The largest shareholder owns on average (median) 24.5 (18.8) percent of the firm and the minimum ownership is just above 5 percent. Further, the top twenty shareholders hold on average 68.5 (68.7) percent of the firm. Eckbo and Norli (2004) obtain similar figures for the ten largest shareholders during the time period 1980 to 1996 on the OSE, indicating that ownership has become more

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[17] The large outlier (1,852.7%) is a private placement carried out by Dolphin Group issuing a total of 151,673,000 shares with a pre-outstanding number of 8,168,705 shares (Dolphin Group ASA, 2010, p. 13).

[18] Deregulation of prospectus requirement as of 7/21/2019, relative deal size of <20% is prospectus exempt, pre-deregulation <10%. See section 2.4.2.2 for details.

[19] It should be noted that Barclay et al. (2007) obtained positive abnormal returns during the 10 days preceding the private placement.

dispersed in recent years.

Finally, Panel C provides the return on equity (ROE) and -assets (ROA) for the private placement firms in our sample. The mean ROE is −16.9 (−6.4) percent which indicates that we have some heavy negative outliers. We obtain similar results for the ROA measure, but the magnitude is less which is expected considering a larger denominator. These profitability figures are difficult to accommodate with the positive 75-day positive abnormal return preceding the offering. However, we emphasize that the assets are not adjusted for operating leases which can heavily impact the ROA-measure. Additionally, ROA incorporates all assets of the firm and not only the operating assets which may induce a mismatch between measured and actual operating performance. Finally, the manager's ability to influence both the ROE and ROA figure can over- or understate the number.

Table 5.1
Descriptive Statistics of the Private Placement Sample Consisting of 219 Private Placements on the Oslo Stock Exchange

Variable Description	Statistical Properties			
	Mean	Median	Min	Max
Panel A: Deal and Firm Specific Characteristics				
Deal value	413.1	163.1	5.7	5,450.0
Market capitalization	2,523.4	1,094.6	23.3	52,180.3
Relative deal size (%)	55.7	11.2	1.0	1,852.7
Number of placements per firm	1.6	1.0	1.0	6.0
Book-to-market[a]	1.2	0.5	−0.3	14.6
Runup (%)	14.4	10.4	−167.4	191.7
Offer discount [a] (%)	10.5	5.4	−21.6	77.6
Panel B: Ownership Characteristics[b] (%)				
Ownership largest shareholder	24.5	18.8	5.2	74.0
Ownership top 20 shareholders	68.5	68.7	17.3	100.0
Panel C: Profitability Figures (%)				
Return on equity[a]	−16.6	−6.4	−188.5	158.5
Return on assets[a]	−9.9	−0.3	−141.2	31.4

NOTE. — From Panel A *Deal value* is the reported offered amount measured in NOK mill. retrieved from NewsWeb. *Market capitalization* is the market value of equity one month prior the private placement measured in NOK mill. If the firm is not trading one month prior, we substitute in the next trading day. *Relative deal size* is the number of shares offered divided by the pre-placement outstanding number of shares times 100. We calculate the *Book-to-market* ratio using the latest reported book value of equity divided by *Market capitalization*. *Runup* is the abnormal return (%) using the market model measured from 75 days prior to the offering. The *Offer discount* is calculated by taking one (1) minus the disclosed issue price divided by the closing price one day prior the announcement times 100.

Ownership data presented in Panel B is obtained from the firm's annual reports and is the disclosed shareholder composition end-of-year preceding the private placement. Due to difference in reporting jurisdiction, some firms did not report the total list of top 20 shareholders. For these firms, we report data on the largest shareholder only.

Panel C report profitability figures obtained from Datastream where *Return on Equity* is calculated as net income divided by the book value of common equity the same year. *Return on Assets* is calculated as net earnings divided by total assets. We note that the reported assets are not adjusted for leases which may heavily impact firms that leases a large portion of their equipment. All figures are obtained from NewsWeb, annual reports or Datastream.

[a]Missing data for 7 observations due to inadequate data from Datastream.

[b]Ownership data for the largest shareholder is obtained for a total of 182 observations, while we were able to gather data for only 154 observations for the top 20 shareholders due to different listing jurisdictions.

In Table 5.2 we provide the annual allocation of private placements in our dataset. The

offerings are heavily concentrated in 2009 with over ten percent of total issuances, while the years 2000 to 2004 retain a narrow ten percent of all private placements. Annual raised proceeds range from a maximum (minimum) of NOK 5,450 (5.7) mill., indicating that our sample has a large spread in offer size. The aggregated offer proceeds are NOK 90,468 mill with the largest (smallest) contributor being 2017 (2004) with an issue amount of NOK 12,569 (305.5) mill. It is impossible to observe any obvious trends looking at the average- or relative deal size as these numbers are

Table 5.2
The Distribution of Firms on the Oslo Stock Exchange Issuing Equity Privately

Year	Issues	Proceeds raised	Min	Max	Average deal size	Relative deal size (%)
2000	2	1,249.4	355.7	893.7	624.7	17.50
2001	3	363.2	15.2	198.0	121.1	122.11
2002	5	482.9	34.5	133.9	96.6	24.23
2003	6	926.8	20.0	408.8	154.5	12.54
2004	6	305.5	12.3	166.4	50.9	16.54
2005	13	2,155.3	8.5	610.1	165.8	10.72
2006	13	10,755.4	33.3	5,450.0	827.3	23.07
2007	17	4,733.5	14.4	1,133.7	278.4	12.75
2008	5	2,221.2	44.8	1,257.6	444.2	19.31
2009	26	8,758.4	10.0	1,209.8	336.9	101.88
2010	12	4,388.2	22.1	1,643.4	365.7	193.04
2011	9	3,107.1	5.7	900.0	345.2	28.44
2012	19	5,814.0	8.1	1,300.0	306.0	26.82
2013	14	6,464.5	20.3	1,525.0	461.7	215.81
2014	5	1,592.6	28.1	1,206.0	318.5	33.39
2015	9	2,638.4	55.0	844.2	293.2	20.15
2016	13	8,919.1	52.8	2,199.5	686.1	44.05
2017	15	12,569.0	15.0	5,208.1	837.9	39.65
2018	12	7,994.4	23.0	2,464.4	666.2	22.51
2019	15	5,029.1	72.6	1,319.5	335.3	18.15
Total	219	90,468.0	5.7	5,450.0	385.8	55.67

NOTE. — This table illustrate how the offer proceeds has changed during the years. *Proceeds raised* is the amount offered during any particular year expressed in NOK mill. *Min* and *Max* are the highest and lowest offered proceeds for each row (year) from 2000 to 2019. The *Average deal size* column is the number in the *Proceeds raised* column divided by the number in the *Issues* column. Finally, *Relative deal size (%)* is the average of shares offered divided by pre-placement outstanding number of shares in each year.

very sensitive to outliers due to the small number of observations in many of the years.

Figure 5.1 seems to indicate that our dataset resembles the current sector composition on the OSE quite accurate (see Appendix A). We note that our sample is skewed towards the *Oil & Gas-*, *Information Technology-* and *Transportation* sector, holding 29-, 19- and 15 percent of the firms, respectively. This skewness does not raise any concern regarding interpretation of the results as the main goal of this thesis is to replicate the stock exchange being studied. We do however note

that these heavy industry-concentrations may lead to event clustering which is important to be aware of in the analysis section. Lastly, the *Oil & Gas-* and *Transportation* sector is cyclical industries which may be relevant to consider with regards to offering timing in relation to temporary industry overvaluation.

Figure 5.1
Sector Composition for All Firms in the Private Placement Sample
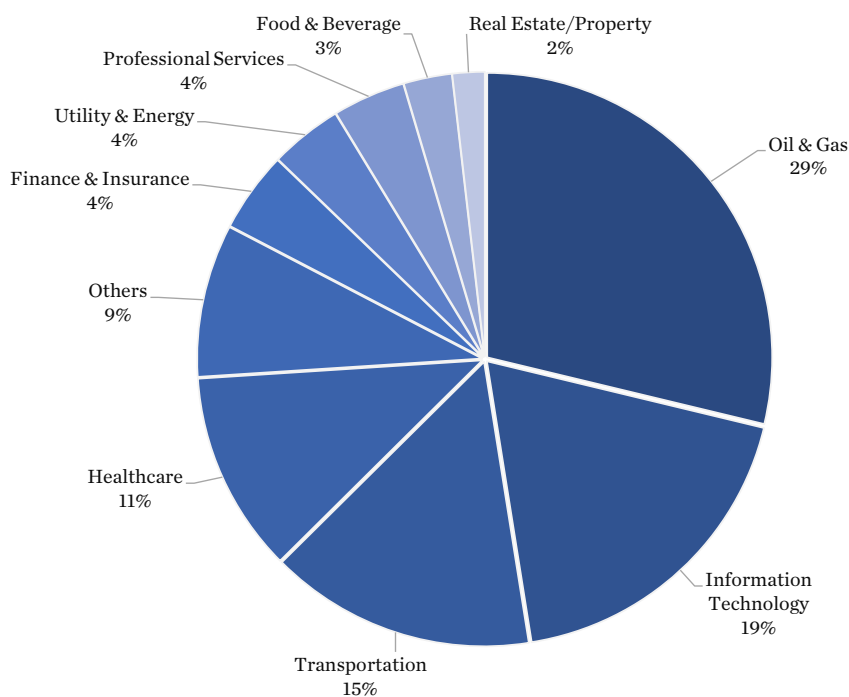
NOTE. — This figure displays the sector composition of the firms used in our study based on the GICS-code provided by Dealogic (2019). The *Others* category holds firms within *Agribusiness*, *Construction/Building*, *Consumer Products*, *Chemicals*, *Machinery*, *Auto/Truck*, *Metal & Steel* and *Mining* where each category holds less than 6 firms. This pie chart contains a total of 219 firms.

5.1.1.1   Subsample Characteristics

Considering that many of our conclusions will be based on results provided at a subsample level, we find it necessary to report a short descriptive summary of these firms as well. We refer to section 6.1.2 and Appendix G for details concerning each subcategory, but provide descriptive statistics for each category in Table 5.3 below. Each classification is based on the intended use of proceeds published at NewsWeb (2020).

Table 5.3
Descriptive Statistics for Each Intended use of Proceeds Category

Use of proceeds	N	Market value	BM	Deal value	Relative deal size (%)	Runup (%)
General	118	2,025.1	0.8	254.1	10.0	10.0
Investment	57	4,268.5	0.7	690.5	15.7	18.5
Refinancing	44	1,599.1	2.7	480.1	42.4	0.3

NOTE. — This table illustrates some selected characteristics to describe the various samples that will be used in the short- and long-term analysis. *N* is the number of observations in each subsample, *Market value* is the reported market one month prior to the private placement measured in NOK mill, we calculate the *BM* ratio using the latest reported book value of equity divided by *Market capitalization*, *Deal value* is the raised proceeds measured in NOK mill, *Relative deal size* is the number of shares offered divided by the pre-placement outstanding number of shares times 100 (we report the *median* and not average to avoid large outliers in the smaller samples), while the *Runup* is the abnormal return (%) using the market model measured from 75 days prior to the offering.

6 Short-Run Issuer Performance

The purpose of this chapter is to analyze the short-run stock price reaction surrounding private placements using the event study methodology. First off, we will use our entire sample of 219 observations by utilizing various estimation models as described in section 4.2. Secondly, we divide the sample based on the stated use of proceeds to see how different issue motives may impact the market reaction. Thirdly, we will adjust the returns for offer discounts to isolate the information effect in response to a private placement taking place. At last, we test Wruck's (1989) monitoring hypothesis by performing multiple cross-sectional and other applicable analyzes.

6.1 Short-Run Abnormal Returns

In calculating short-run expected returns, we employ the market adjusted model, market model, CAPM and the Fama-French three-factor model. Although Fama (1998) argued that daily returns are close to zero and that the choice of model is unlikely to affect the results, we find it interesting to utilize models that control for different risk factors. The Oslo Børs All-share Index (OSEAX) represents the market index, while daily NIBORs are used as the risk-free rate. Additional factors needed for the Fama French calculations are obtained from Ødegaard (2020).

6.1.1 All Events

Table 6.1 shows the short-term announcement returns related to private placements on the Oslo Stock Exchange (OSE) during the period 2000 to 2019. By utilizing cumulative average abnormal returns (CAARs) and average abnormal returns (AARs) we obtain negative results for all event windows independent of the estimation model. The most negative announcement return is observed on the event day (0) with a statistically significant average abnormal return between −4.20 and −4.25 percent. Our findings oppose those of Wruck (1989), Hertzel and Smith (1993) and Barclay et al. (2007) who obtain positive announcement abnormal returns.[20] Our results also contradict the findings of Eckbo and Norli's (2004) study of private placements on the OSE over the time period 1980 to 1997. Unlike our −2.60 percent abnormal return, they find a positive abnormal return of 2.66 percent during the same four-day event window (-3, 0). Although there is a discrepancy between the results, it is important to emphasize that we are examining a different time period.

With the negative short-term abnormal returns obtained from this analysis we can disregard the certification hypothesis proposed by Hertzel and Smith (1993) as an explanation for our findings. However, the results give some initial support for the management entrenchment hypothesis suggested by Barclay et al. (2007). Contrary to these authors, we provide their supposedly only missing evidence for entrenchment in private placements, namely negative abnormal returns in the short run. Moreover, private placements on the OSE typically target many investors meaning that the likelihood of buyers being passive increases and Barclay et al. suggested

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[20] Average abnormal returns from comparable papers are listed in Appendix E.

that managers are opportunistic when private placement purchasers are passive. As the management entrenchment hypothesis requires additional statistical support from the long-term analysis, we will get back to this theory in section 7.9.

Even though our findings contravene results from numerous papers regarding private placements, they are consistent with extant literature of other SEO methods (see Appendix F).

Table 6.1
Short-Term Cumulative Average Abnormal Returns (%) for Private Placements on the Oslo Stock Exchange for the Time Period 2000-2019

Estimation Model	Event Window (N=219)				
	(-3, 0)	(-3, 1)	(-1, 0)	(-1, 1)	(0)
Market Adjusted					
Mean	−2.50	−1.72	−3.48	−2.69	−4.20
Median	−1.08	−1.33	−2.55	−2.50	−2.49
$p(t)$	(0.02)	(0.12)	(0.00)	(0.00)	(0.00)
$p(z)$	(0.00)	(0.03)	(0.00)	(0.00)	(0.00)
Market Model					
Mean	−2.60	−1.84	−3.60	−2.84	−4.25
Median	−1.47	−1.57	−2.71	−2.63	−2.70
$p(t)$	(0.01)	(0.09)	(0.00)	(0.00)	(0.00)
$p(z)$	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
CAPM					
Mean	−2.40	−1.58	−3.50	−2.68	−4.20
Median	−0.81	−0.95	−2.60	−2.18	−2.71
$p(t)$	(0.02)	(0.15)	(0.00)	(0.00)	(0.00)
$p(z)$	(0.01)	(0.04)	(0.00)	(0.00)	(0.00)
Fama French 3-Factor					
Mean	−2.54	−1.74	−3.57	−2.78	−4.21
Median	−1.27	−1.15	−2.39	−2.27	−2.81
$p(t)$	(0.02)	(0.11)	(0.00)	(0.00)	(0.00)
$p(z)$	(0.01)	(0.02)	(0.00)	(0.00)	(0.00)

NOTE. — This table presents cumulative average abnormal returns for the short-term event windows specified in section 4.1.2.1. The sample consists of 219 private placements during the time period 2000 to 2019. We utilize the following formula to calculate the cumulative average abnormal returns (CAARs):

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

where N is the number of firms and $CAAR$ represents cumulative abnormal returns computed using the formula in equation (4.6). The estimation period consists of 250 trading days ending 10 days prior to the offering. We report p-values for a two-sided t- and Wilcoxon sign test assigned $p(t)$ and $p(z)$ respectively. The statistical test is whether the cumulative average abnormal return is different from zero. Stock prices are adjusted for dividends, splits and other corporate events and are obtained from Datastream (2020). All factors for estimating the different models are obtained from Ødegaard's (2020) webpage.

This may suggest that the extensive use of private placements on the OSE leads to similar results as those obtained by different floatation methods in foreign markets. We believe that the similarities with other SEOs can be attributed to three main differences between the OSE and other marketplaces. Firstly, the number of participating investors in private placements on the OSE is higher than in those abroad. For instance, in Wruck's (1989) study of private placements in the U.S., there is a single participant in 58 percent of the offerings and only 5 percent have more

than six purchasers. Barclay et al. (2007) documented similar characteristics in which 56 percent of the private placements were directed towards a single participant, while only 4 percent involved more than five investors. Although there is no public record of identified buyers in private placements on the OSE, there is evidence that the number of participating investors in our sample is substantially larger.[21] Secondly, private placements are the preferred floatation method on the OSE whereas follow-on public offerings are most common in the U.S. The commonality of private placements on the OSE may be one of the main reasons that our results resemble foreign SEO abnormal announcement returns. Thirdly, private placements in the U.S. are often characterized by letting a few large investors or key individuals access equity at a favorable price, thereby reducing agency costs and adding valuable assets to the company. Despite being issued at a discount, reduced agency costs as a consequence of increased ownership concentration often justify positive abnormal returns in private placements (Jensen & Meckling, 1976; Wruck, 1989). The regularity of private placements on the OSE combined with the large number of participating investors makes it unlikely that key individuals and/or valuable investors participate in these private placements. Overall, the widespread use of private placements in the Norwegian equity market and its demarcation with foreign marketplaces are presumably the main reasons for our conflicting results.

Figure 6.1 graphically illustrates daily AARs for firms announcing private placements on the OSE. The significant abnormal return of −4.25 percent at the event day (0) verifies that we have chosen the correct event dates. This is further confirmed by insignificant and minor abnormal returns on the days furthest from the event date. Apart from the statistically significant negative abnormal return on the event date, the figure indicates that firms experience minor positive abnormal returns preceding the private placement. This is consistent with the findings of Barclay

Figure 6.1
Average Daily Abnormal Returns (%) for All Observations Around the Event Day (0)
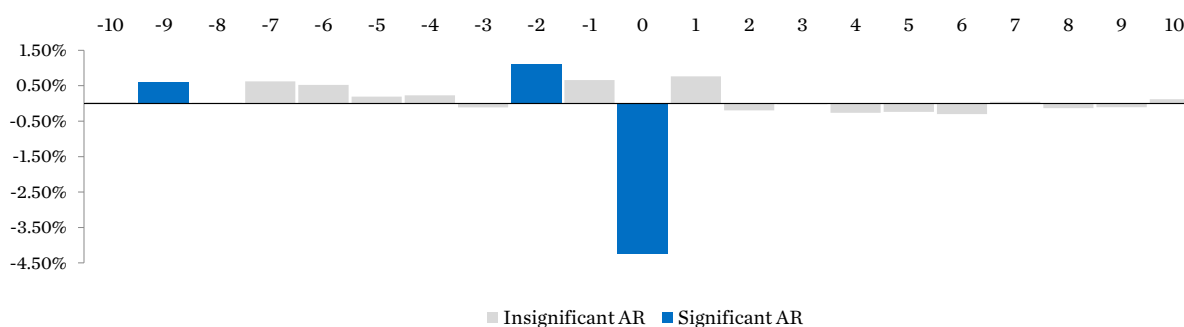
NOTE. — This figure illustrates daily abnormal returns 10 days prior- and post private placements using the market model with 250 days in the estimation window on the same sample. Average daily abnormal returns are calculated using this formula:

$$AAR = \frac{1}{N} \sum_{i=1}^{N} AR_{it}$$

where N is the number of firms and AR_{it} is the abnormal return for firm i on time t [see equation (4.6)]. We have utilized an estimation period of 250 trading days which ends 10 days prior to the offering. Abnormal returns on day (-9), (-2) and (0) are statistically significant at a 95% confidence level based on a two-sided t-test.

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[21] Through qualitative reading of disclosed information on NewsWeb and Norwegian business papers such as *Dagens Næringsliv, Finansavisen* and *E24*.

et al. (2007) who find that private placement firms experienced positive abnormal returns during the 10 days leading up to the announcement. Even though day (-9) and (-2) exhibits statistically significant returns of 0.61 and 1.11 percent respectively, the returns are difficult to reconcile with information leakage related to the event. Particularly, one would expect negative abnormal returns attributed to information leakages relying on the results presented in Table 6.1. Additionally, we anticipate at least one false significant out of the 21 return observations. Consequently, the significant returns prior to the event day does not appear to have a straightforward economic interpretation.

6.1.2   Abnormal Returns Categorized by Intended Use of Proceeds

In an attempt to identify the sources of the abnormal returns presented in Table 6.1, the sample is further divided into subcategories based on the stated use of proceeds. Each category is based on the content of the announcement text published at NewsWeb. Following Autore et al. (2008) we differentiate between *General*, *Refinancing* and *Investment* stated use of proceeds. Firms in the *General* subsample (118) state general corporate purposes as their main reason to issue equity but the category also contains firms with more ambiguous investment motives. The *Refinancing* subgroup (44) holds private placement firms that are in breach with covenants or undergoes financial restructuring. The *Investment* subsample (57) contains all firms that announce specific investment motives. These investments can be vessels or buildings, but we also include acquisitions as this is a specific investment motive. Examples of each classification can be reviewed in Appendix G.

Figure 6.2 shows the development in cumulative abnormal return surrounding the event date for the three subgroups. As expected, *Refinancing* firms experience the worst announcement returns. However, these firms seem to experience an interesting price reversal one day after the announcement that will be discussed in the next section. The major abnormal stock price reaction for the *General* and *Refinancing* subsamples occur at the date of announcement which is consistent with semi-strong efficient markets.

With reference to Figure 6.3, the abnormal announcement returns are only significant for the *General* and *Refinancing* subsamples. This is somewhat expected as many of the firms in the *General* category are announcing ambiguous- or no specific investment motives. Specifically, firms tend to be accurate about good news and vague about bad news. Turning to the *Refinancing* subsample a negative announcement reaction is highly anticipated as these firms often find themselves in financial distress. Much of this negative reaction however originates from the large offer discounts observed in the *Refinancing* sample which will be examined in the next section. We note that the abnormal return at day 1 for the *Refinancing* subsample is both positive and significantly different from zero, indicating a possible overreaction at the announcement day (De Bondt & Thaler, 1990). This overreaction proposal is further advocated by Chaudhury et al.'s (2017) finding that "loser stocks" typically exhibit an overreaction that reverses on the first trade date following the event. Although we have some significant abnormal returns leading up to the event, we are careful when interpreting these results as we expect a few false values. To conclude, the significant negative abnormal return is mainly attributable to firms stating refinancing- or general issue motives, while firms with specific investment strategies experience normal (insignificant abnormal) returns.

Figure 6.2
Cumulative Abnormal Returns for Each Intended Use of Proceeds Category
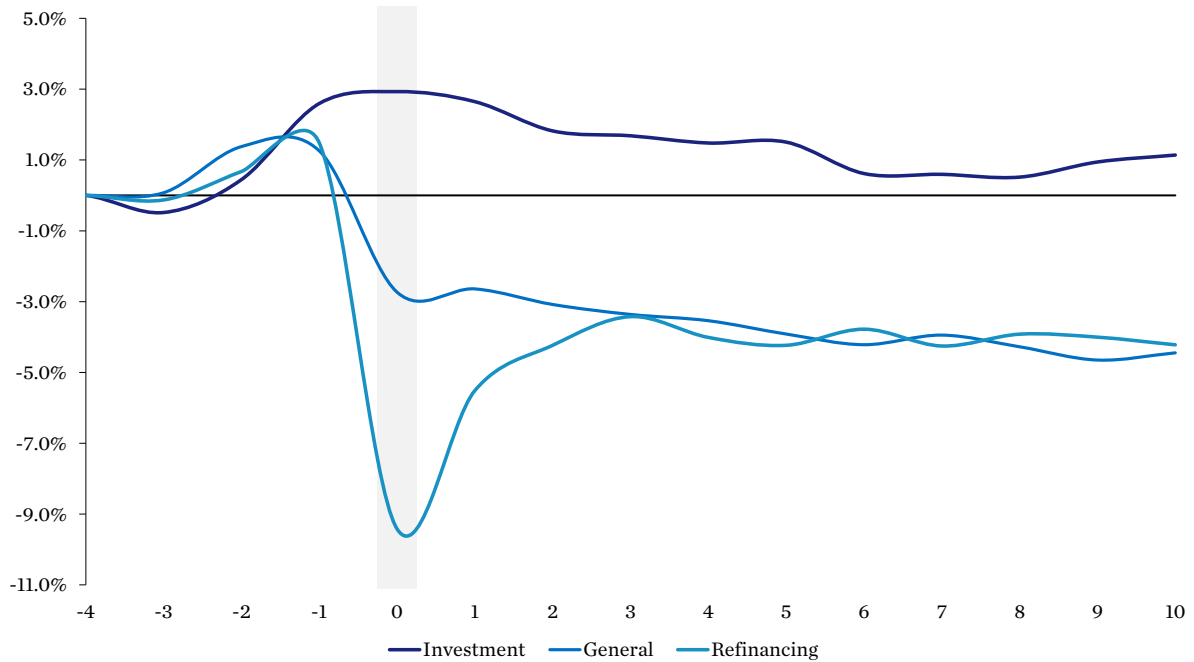
NOTE. — This figure illustrates the cumulative average abnormal returns (CAARs) for each intended use of proceeds category (*acquisition*, *investment*, *general*, and *refinancing*) 3 days prior the event to 10 days post. The abnormal returns are calculated utilizing the market model, thereafter we calculate CAARs utilizing the following formula:

$$CAAR = \frac{1}{n} \sum_{i=1}^{n} CAR(-3, t)$$

Where t is equal to all the days from -3 to 10, depending on the point in time the graph is illustrated. The shaded area illustrates the event.

Figure 6.3
The Statistical Significance of Daily Abnormal Returns Classified by the Intended Use of Proceeds
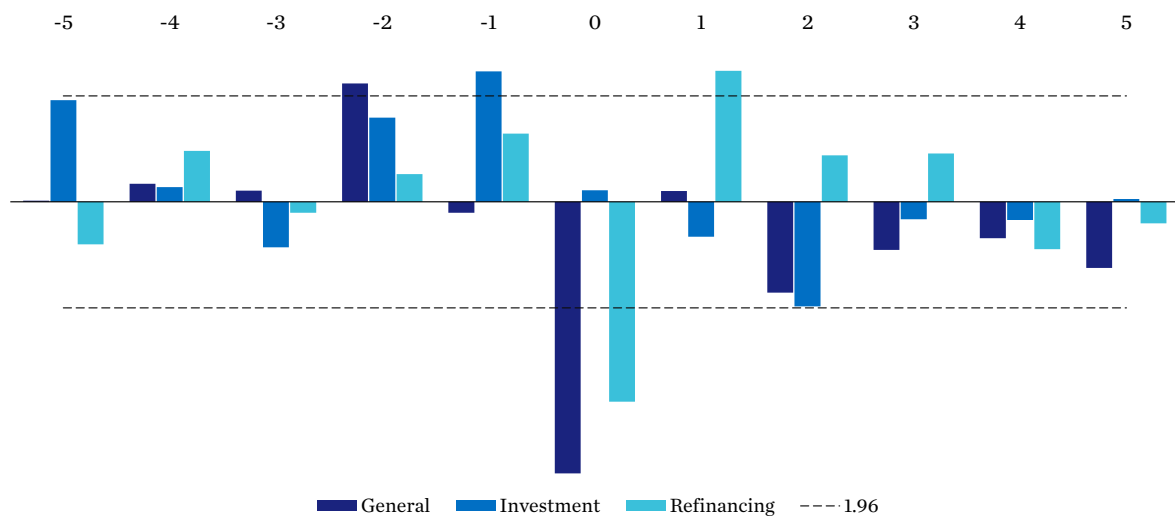
NOTE. — This figure illustrates *t*-values for the use of proceeds classifications *General*, *Investment* and *Refinancing* for 5 days prior and post the event. The stapled lines represent a 5% significance level (± 1.96) for the conventional *t*-statistics. Abnormal returns are estimated using the market model with an estimation period of 250 trading days ending 10 days prior the placement.

6.2   Private Placement Discounts

SEOs are often issued at discounts, meaning that the nonparticipating shareholders will suffer

from dilution. The private placement discounts presented in Table 6.2 (Panel A) are smaller than the discounts documented by extant research of private placements abroad (Wruck, 1989; Hertzel & Smith, 1993; Molin, 1996; Barclay et al., 2007).[22] Those discounts have thus far been explained by the cost of activities incurred by the purchaser to increase- or certify the firm's value (Wruck, 1989; Hertzel & Smith, 1993), or compensate investors for management entrenchment as proposed by Barclay et al. (2007). The dilution encountered by nonparticipating existing shareholders will be reflected in the stock price at the announcement. This is particularly important as 85 percent of our sample is issued at a discount while only 7 percent is issued at a premium. The remaining 8 percent is neither issued at a discount nor premium relative to the closing price one day prior to the announcement.

In Panel B the discounts are further divided into subcategories based on the firm's intended use of proceeds. The largest discounts are observed for the *Refinancing* subsample with an average (median) discount of 21.4 (15.3) percent, while there is no distinct difference between the two other subcategories. However, the total sample is interesting as the offer pricing has changed since Eckbo and Norli's (2004) study of private placements on the OSE before the 2000's. They documented an average *premium* rather than discount in the offerings. That said, they measured the

Table 6.2
Statistical Measurements of Discounts (%) in Private Placements on the Oslo Stock Exchange from 2000 to 2019

Description	N	Average	Median	Max	Min
Panel A: Discounts full sample					
All observations[a]	212	10.5	5.4	77.6	−21.6
Panel B: Discounts by stated use of proceeds					
General[a]	112	8.0	5.1	45.0	−21.6
Refinancing[a]	43	21.4	15.3	77.6	−11.1
Investment	57	7.1	3.9	30.6	−8.0

NOTE. — This table illustrates the average, median, max and minimum discount in share issuances through a sample of 212 observations. The discount is calculated using:

$$Discount = 1 - \left(\frac{P_{Offer}}{P_{-1}}\right) \cdot 100$$

Where P_{Offer} is the offer price while P_{-1} is the closing price one day prior to the announcement of the offering. All numbers except for those in column N are expressed in percentage.
[a]Missing data for 7 observations. These observations are categorized as *General* (6) and *Refinancing* (1).

offer discount relative to the share price *four* days prior to the announcement. This could be consistent with the observation of positive abnormal returns in the days leading up to the placement (see Figure 6.1). We do also note that this may be a feasible explanation for the conflicting stock price reaction exhibited in section 6.1.1.

6.2.1 Discount Adjusted Abnormal Returns

To analyze the net information effect of the abnormal returns, we isolate the event-driven effects in the estimated abnormal returns. More accurately, we estimate the return to old shareholders due

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[22] The reported average discount for private placements ranges from 15.9 to 17.0 percent throughout studies outside Norway (Barclay et al., 2007; Hertzel et al., 2002; Molin, 1996; Hertzel & Smith, 1993; Wruck, 1989).

to the information of the private placement taking place (Wruck, 1989; Molin, 1996; Eckbo & Norli, 2004). We employ the same approach as Bradley and Wakeman (1983) to remove any offer discount price effects. This is referred to as *discount adjusted abnormal returns* and are calculated using the formula in equation (6.1) below.

$$AAR_{adj} = \left(\frac{1}{1-\delta}\right) AR - \left(\frac{\delta}{1-\delta}\right)\left(\frac{P_{Offer} - P_{-1}}{P_{-1}}\right) \tag{6.1}$$

Where AAR_{adj} represents the adjusted average abnormal return, AR is the unadjusted abnormal return, δ is the fraction of shares owned by new shareholders, P_{Offer} is the offer price in the private placement and P_{-1} is the closing price one day prior to the announcement. Table 6.3 exhibits discount adjusted abnormal returns using 212 private placements with sufficient stock price data.[23] We observe an average ownership stake (δ) for new investors of 20.4 percent which is comparable to the 24 percent documented by Eckbo and Norli (2004). Without further adjustments the data yields an adjusted AAR of 10.33 percent which contradicts the negative abnormal returns previously obtained. This inconsistency is mainly caused by extreme outliers in

Table 6.3
Average Adjusted Announcement-Day Abnormal Returns (%)

Sample trimming	N	Discount	δ	AR	AAR_{adj}
None	212	10.47	20.40	−4.25	10.33
Trimmed[a]	208	9.83	19.08	−4.41	−0.33

NOTE. — This table illustrates discount adjusted abnormal returns at the announcement date (0). *N* is the number of observations, *Discount* is calculated using the same formula as described in Table 6.2, δ is calculated as the ownership fraction obtained by new shareholders, *AR* is the abnormal return at day 0 (announcement day) and AAR_{adj} is calculated using the formula in equation (6.1). Note that none of the AAR_{adj} are statistically significant using the conventional *t*-statistic.
[a]The trimmed sample excludes 4 observations that exceed abnormal returns of 200%.

which old shareholders were dramatically diluted, making the second term of equation (6.1) unreasonably negative. We have therefore decided to trim the sample by excluding all observations outside the [−200%:200%] range. The new result is more sensible as we obtain an adjusted AAR of −0.33 percent which is supposed to represent the net information effect of the private placement taking place. The trimmed adjusted AAR is not statistically significant at any conventional level using the *t*-statistic but share the same sign as the abnormal returns previously presented. Although the adjusted AAR is statistically indistinguishable from zero, we obtain a median value of −2.11 percent suggesting that most private placements are perceived as negative information. We do however note that the discount may carry other important information components related to the private placement.

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[23] As previously addressed, we lack sufficient stock data for a total of 7 observations.

6.3 Monitoring Hypothesis

6.3.1 Ownership Data

A prevalent hypothesis is that investors should expect abnormally positive returns following private placements as a consequence of increased monitoring (Wruck, 1989). The enhanced monitoring is a result of increased ownership by a new or large existing shareholder that decreases agency costs. The short-term abnormal announcement returns in our dataset is persistently and significantly negative and therefore not in line with the monitoring hypothesis. As discussed in section 6.1.1, we believe that this difference is partly rooted in the number of participating investors in private placements carried out on the OSE. Thus, we have gathered ownership data for 182 observations to check whether this belief can be validated.

Table 6.4 exhibits descriptive statistics of ownership for the largest- and top 20 shareholders. At first glance, these results seem to indicate that the largest shareholders are either not participating in the private placement or being diluted themselves. We observe that the largest owner on average (median) decreases her ownership by 4.17 (1.70) percent. Further, the ownership concentration of the top 20 shareholders decreases on average by 2.36 (2.15) percent. We find that the largest owner decreases her ownership in 70 percent of all observations, while in 12 percent there is no change and in the remaining 23 percent the ownership increases. These results seem to validate our preliminary belief that the large number of participating shareholders in private placements on the OSE does not decrease agency costs due to increased monitoring by a new large or existing owner.

Table 6.4
One Year Changes in Ownership Concentration Based on the Largest and Top 20 Shareholders in the Firm Measured the Fiscal Year Preceding the Private Placement

Variable description	N	Statistical measures of the change (%)		
		Mean	Median	Standard Deviation
Panel A: Largest shareholder				
Increases in shareholding	42	5.31	2.20	8.55
Decreases in shareholding	128	−7.67	−3.77	10.38
No change in shareholding	12	0.00	0.00	0.00
Total percentage unit change	182	−4.17	−1.70	11.08
Panel B: Top 20 investors				
Increases in shareholding	54	6.72	3.89	6.25
Decreases in shareholding	100	−7.26	−5.18	6.69
No change in shareholding	0	0.00	0.00	0.00
Total percentage unit change	154	−2.36	−2.15	9.34

NOTE. — This table illustrates the ownership changes for various shareholdings. Panel A exhibits the number of (N) observations, mean, median and standard deviation of the changes in shareholding for the largest owner (the largest owner measured end of year prior to the private placements). The change is measured from the year before the private placement relative to the event year. We report the same numbers calculated in the same manner for Panel B. Due to different reporting jurisdictions, not all firms report the top 20 shareholders (N differs). All numbers are obtained from the firms' annual reports.

6.3.2 Regression Approach

To further validate our preliminary belief that the monitoring hypothesis is a not principle explanation for the observed stock price behavior we apply several regression models. In Appendix H we provide the estimated regressions from regressing the discount adjusted abnormal returns for 182 observations solely on the change in ownership of the largest shareholder. We are employing the discount adjusted abnormal returns as we want to control for abnormal returns that originates from the information effect of a private placement taking place. However, we also utilize the unadjusted announcement abnormal return to avoid missing information effects that can be attributed to the discount. The first regression in Appendix H (Table H.1) provides insignificant results and is difficult to draw any reasonable inference from. The sign of the coefficient is however negative and indicates that an increase in ownership of the largest shareholder is perceived as negative information. Employing the unadjusted abnormal announcement return (Table H.2) makes the coefficient significant while the sign remains negative. Taken at face value, this negative coefficient appears to contradict the monitoring hypothesis.

Molin (1996) found similar results in which the coefficient was negative and insignificant, but the outcome changed after following Wruck's (1989) categorizing of initial ownership concentration. We therefore divide initial ownership of the largest shareholder into three subcategories depending on the largest shareholder's holding prior to the offering. Using the same thresholds as Wruck, we are unable to identify any firms in the first subcategory (below 5% initial ownership of the largest owner). Thus, we adjust the thresholds to better resemble the ownership concentration on the OSE. Specifically, let ownership level one ($\Delta Owner_1$) contain percentage unit changes in ownership of the largest owner where the largest owner initially holds 0-12.5% of the firm, while ownership level two ($\Delta Owner_2$) represent percentage unit changes in ownership for the largest owner where she holds 12.5-30% of the shares in the firm and finally ownership level three ($\Delta Owner_3$) incorporate percentage unit changes in ownership of the largest owner where she holds over 30% of the firm before the offering. We obtain 58, 67 and 57 observations in each of these subcategories, respectively. The thresholds are different from Wruck, but it is important to emphasize that ownership in the U.S. is much more dispersed than on the OSE.

$$(adj.)AR_0 = \delta_0 + \delta_1 \Delta Owner_1 + \delta_2 \Delta Owner_2 + \delta_3 \Delta Owner_3 + e_{it} \qquad (6.2)$$

Regression (6.2) captures the effect of ownership changes amongst the largest shareholder's which serves as a proxy for monitoring effects. The results from the regression are presented in Table 6.5 and show a negative coefficient for the first subcategory of ownership that is significant at a 1 percent level. This subcategory contains private placement firms where the largest owner initially holds 0-12.5 percent of the shares outstanding, these are typically large capitalized companies with dispersed ownership concentration. The coefficient indicates that the market reaction will be negative when the largest owner of a big firm increases her stake in the company. Although the coefficient is significant and negative, we should not draw too much inference from the estimation as the ownership category may not be large enough for effective and incentivized

monitoring. The more interesting coefficients (second and third) are not significant which makes it difficult to gain any useful insight from the estimated regression model with regards to monitoring.

When utilizing the unadjusted abnormal announcement returns, the second coefficient turns significant and the third switches sign to a negative compared to the first regression. Apparently, the results are not driven by the intended use of proceeds as the distribution of firms stating *General*, *Refinancing* and *Investment* motives are evenly distributed throughout the ownership categories.[24] However, a more thorough examination reveals that the ownership of the largest

Table 6.5
Cross-Sectional Regression of Discount-Adjusted and Unadjusted Announcement Abnormal Returns

Dependent variable	δ_0	δ_1	δ_2	δ_3
$adj.AR_0$ (%)	11.98 (0.238)	−12.02 (0.001)	−1.04 (0.471)	0.22 (0.838)
AR_0 (%)	−5.06 (0.000)	−1.49 (0.000)	−0.38 (0.004)	−0.05 (0.620)

NOTE. — This table shows the coefficients used in regression (6.2) with *p*-values reported in parenthesis. We have estimated the coefficients using OLS. The dependent variable is the announcement day (0) adjusted abnormal return calculated utilizing the approach described in section 6.2.1, but this sample of observations is not trimmed for outliers. The second dependent variable is used as a robustness check and is not adjusted for discounts in the offering to reflect all information available. The number of observations for subgroup 1, 2 and 3 are 58, 67 and 57, respectively.

shareholder typically increases when the stated use of proceeds is for refinancing purposes.[25] These results are interesting, though not unexpected, as the largest owner may often have close ties with the company. Thus, helping the firm that perhaps experiences financial distress may be perceived as an obligation for the largest owner. Moreover, Cronqvist and Nilsson (2004) found that large (family) owners preferred to maintain control of the company. Although not directly in line with our results, the sentimental value and close ties with the firm seem to support willingness by a large owner to maintain control and assure longevity of the company.

Overall, the results in Table 6.5 seem to provide no support for the monitoring hypothesis in private placements conducted on the OSE. This can be a consequence of the sample characteristics described in the latter paragraph or other discrepancies between the OSE and other stock exchanges. However, we did not find any new patterns dividing the sample based on the intended use of proceeds either. Additionally, we fail to control for any changes in ownership for shareholders other than the largest, for instance the replacement of the third largest shareholder. Such changes could indicate a new stakeholder providing professional advice, monitoring or other activities that increase firm value. However, the decrease amongst the top 20 shareholders provides limited support for such changes, but it may very well be the case.

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[24] The first subcategory holds 36 firms stating *General,* 13 *Refinancing* and 3 *Investment*, while the second holds 35 firms stating *General*, 11 *Refinancing* and 16 *Investment* and finally the third subcategory holds 32 firms stating *General*, 11 *Refinancing* and 7 *Investment*.
[25] When the largest shareholder increases her ownership, 32.50% of the observations are related to *Refinancing*, while only 17.54% are related to *Refinancing* when the largest owner decreases her ownership.

6.3.3 Ownership Change and Abnormal Announcement Day Return

To further validate that we are unable to provide any evidence for the monitoring hypothesis, we follow Eckbo and Norli (2004) by making two subcategories of abnormal returns. The first subcategory holds abnormal returns for firms where the ownership concentration decreases and the second holds abnormal returns for firms where the ownership concentration increases. If there is no change in ownership concentration, we do not include that abnormal return to avoid arbitrary results.

Table 6.6 shows that the abnormal returns for firms where the largest shareholder decreases her ownership are higher than for firms where the shareholder concentration increases in private placements. Initially, these results seem to give opposing evidence to the monitoring hypothesis as the two-sample t-test is significant at a 6 percent level. However, relying on the fact that the largest shareholder typically increases her ownership in private placements stating refinancing purposes raises questions regarding such conclusion.

Turning to the top 20 shareholders, results change dramatically. Abnormal announcement returns where the top 20 shareholder concentration decreases is lower than when the concentration increases. This outcome seems to support the monitoring hypothesis, however, the two-sample t-test is insignificant. All things considered; we are unable to provide any support for the monitoring hypothesis proposed by Wruck (1989).

Table 6.6
Ownership Change and Abnormal Announcement Day Return

Variable	N	Abnormal returns (%)		Test of difference
		Decreased	Increased	
Largest shareholder	169	−2.73	−6.98	(0.0525)
Top 20 shareholders	153	−4.73	−2.86	(0.3753)

NOTE. — This table illustrates the abnormal unadjusted announcement return calculated using the market model with 250 days in the estimation window. The abnormal returns are expressed in percentage units, while the *Test of difference* column includes the *p*-value for a two-sample *t*-test of no difference between the samples (*Decreased* and *Increased*).

6.4 Short-Term Analysis Summary

From the short-term analysis of the stock market reaction to private placements we find strong evidence of abnormally negative announcement returns. These results can primarily be attributed to firms stating *General* or *Refinancing* use of proceeds. Although the findings are inconsistent with extant literature of private placements, we believe that the inconsistency mainly can be attributed to the different time periods being analyzed and country specific differences in terms of how the issues are carried out and the individuals being targeted in the private placements. The abnormal returns are more similar to those obtained from studies of different floatation methods, indicating that the widespread use of private placements on the OSE resembles other SEOs carried out abroad in terms of market reaction. Additionally, the significantly negative abnormal return at the announcement day rule out the certification hypothesis as a feasible explanation for the observed stock behavior, but the results provide some initial support for the management entrenchment hypothesis that will be examined more thoroughly in section 7.9.

The offer discounts in our sample are smaller than the discounts observed in similar studies conducted abroad. When discount adjusting the abnormal returns, much of the negative announcement effect diminishes, indicating that only a small portion of the abnormal return can be attributed to the information effect of a private placement taking place.

Even though we observe a decrease in ownership concentration and negative abnormal returns, we find no evidence of expected changes in monitoring from running a cross-sectional analysis following Wruck (1989) and an alternative approach suggested by Eckbo and Norli (2004).

7 Long-Run Issuer Performance

As discussed in section 2.4.2, the OSE provides guidelines related to justification of unequal treatment among shareholders in private placements. The stock exchange has expressed that their focus is on long-term financial performance of the issuing firm. By measuring long-term performance, we are to a certain degree testing whether firms issuing equity privately demonstrate returns that are in line with this requirement. This chapter is divided into six main parts. First, we calculate BHARs as proposed by Barber et al. (1999) using the matched firm- and reference portfolio approach. The use of BHARs is desirable as it precisely measure long-run investor experience. However, Fama (1998) and Mitchell and Stafford (2000) argue that BHARs does not adequately control for cross-sectional dependence. To address this concern, we utilize the calendar time portfolio approach in the second part. In the third part, we analyze the stock performance before the equity offering is publicly announced to examine whether firms in our sample share similarities preceding the private placement. Fourthly, we will test the overconfidence hypothesis proposed by Daniel et al. (1998) to investigate whether investors underreact to public information. Fifthly, we analyze the operating performance of firms issuing equity privately by using accounting data obtained from Datastream (2020). Finally, we revisit the management entrenchment hypothesis proposed by Barclay et al. (2007) and provide relevant discussions that is applicable to our results.

7.1 Issues Regarding Long-Term Abnormal Performance

Measuring abnormal returns are associated with statistical difficulties. Barber and Lyon (1999) examined various methods used to measure long-run abnormal returns and found two general approaches that yield well-specified test statistics. The authors advocate the reference portfolio- and calendar time approach and argue that a pragmatic solution for a researcher who is analyzing long-run abnormal returns would be to use both. Although we apply both these approaches, we find it interesting to analyze whether the results are consistent when using the matched firm approach.

Short-term event studies are well-documented and widely used in academic papers. However, long-term analyzes introduce many obstacles when estimating "abnormal" performance over a longer horizon. Trying to find abnormalities caused by one event over several years is impossible and there are no models that can precisely capture it. However, we have chosen to conduct an advanced and extensive long-term study to account for the possible pitfalls one may encounter when measuring long-term abnormal returns. This has led to numerous results and corresponding tests, many of these with little or no statistically significant outcome. The stricter criterions for the long-term analysis makes the sample even smaller and leaves us exposed to various problems concerning the sample size of our dataset. We do however believe that the use of several approaches and adjustments recommended by academia make the results somewhat robust. This chapter is structured with a short introduction and motivation for each approach, while the results are presented and discussed in a subsequent chapter.

7.2 Sample Preparation for Analysis

For the different approaches addressed in the introduction we need to create three independent samples. The first is built upon the initial dataset from Dealogic and include the event firms issuing equity privately. The second sample is based upon all firms listed on the OSE that does not issue equity privately, these firms are used as matched firms and in the reference portfolios. The third sample includes all identified firms listed on the OSE during the period of interest and is used to create quartile- and quintile breakpoints for the subsample analysis and the reference portfolio approach. Each sample construction is described in detail below.

To avoid coexisting events in the first sample, we only include firms with three consecutive *non-event trading years* following the private placement.[26] Thereafter, we apply the same (1) to (8) criterions from section 5.1. To allow for a full three-year holding period, we restrict the sample to include private placements between 2000 and 2016. Additionally, we impose the requirement that firms must report a positive BM ratio. This leaves us with 134 private placements that will be used in the long-term analysis.

For the second sample that will be used as matched firms and reference portfolios, we obtain trading and accounting data for 521 identified firms listed on the OSE from 1999 to 2019. First, we exclude all newly listed firms over a period of three years to avoid the new listing bias discussed by Ritter (1991).[27] Firms that are excluded enters the sample after three consecutive years of trading. Secondly, firms that issue equity privately are excluded in a total of 37 months. This exclusion period starts 1 month preceding the offering and ends after 37 months. Finally, the sample lasts to the end of 2019 allowing for a three-year holding period for all firms. We note that the number of firms vary between 151 and 240 which is consistent with the number of firms listed on the OSE during the same period.[28]

The third and last sample consists of the same 521 firms as in the second sample. This sample is used to create size- and book-to-market breakpoints for the matching firm- and reference portfolio approach. We keep every firm that reports trading data throughout the period with no further adjustments to correctly replicate all stocks listed on the OSE at any point.

7.3 Buy-and-Hold Abnormal Returns

7.3.1 Matching Firm Approach

Following Barber and Lyon (1997), Barber et al. (1999), Hertzel et al. (2002) and Eckbo and Norli (2004) we divide the matching firm technique into two approaches. In the first approach we match firms based on size, while in the second approach we match firms based on a combination of size and book-to-market (BM). Although Næs et al. (2007) raise concerns regarding the relevance of the BM factor in the Norwegian market, we find it interesting to control for this factor. Further,

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[26] *Non-event trading year:* a trading year without issuing equity privately.
[27] Empirical evidence document that IPO stocks underperform non-IPO stocks (Ritter, 1991; Loughran & Ritter, 1995; Eckbo & Norli, 2000).
[28] This sample is adjusted for lack of available data, the new listing bias and firms that issues equity privately.

Jagadeesh (2000) argues that adding additional matching characteristics only improves the technique marginally.

In the first approach, we find the firm with market value closest to that of the issuer one month prior to the offering and select it as the matching firm. In the second approach, we identify all firms that have market values within 70 and 130 percent of the issuing firm. From this set of firms, we choose the one with BM ratio closest to that of the issuer. To avoid look-ahead bias in the selection process, we use the book value of equity that is reported for the year preceding the offering. For both approaches, we create a list of matched firms ranked from best to worst match. The best match is the firm that fulfills the selection criteria for each approach the best, i.e. closest market value (approach 1) or the firm within [0.70:1.30] range of the market value that has the closest BM (approach 2). Furthermore, if a matching firm delists or issues equity privately within the three-year holding period, a second and if necessary third, etc. firm is selected from the *original* list of matched firms (Loughran & Ritter, 1995; Eckbo et al., 1999). If the private placement firm delists, the holding period for both the issuing and matched firm ends on that date. BHRs for the issuer and matched firm are computed beginning the month after the private placement using both equal- and value weights. When value weighting the portfolio, we have created standardized market values for all issuer such that no firm is overweighed in the portfolio.[29]

7.3.1.1 Matching Firm Results

Table 7.1 provides the results from the matching firm approach for three different holding intervals. Although the magnitude varies between the equal- and value-weighted portfolios, the abnormal returns are persistently negative. The 24- and 36-month value-weighted (VW) portfolios for both size and size/BM matching exhibit negative abnormal returns that are significant at a 5 percent level. This indicates that large firms issuing equity privately suffer from substantial underperformance. It is important to emphasize that this underperformance cannot solely be attributed to the outperforming matched portfolio but that these large firms sustain considerable negative raw returns. For instance, the 36-month holding period for the private placement portfolio in the VW sample matched on size is −12.5 percent. A natural consequence of value weighting is that we put too much emphasis on a few large firms which is why we are cautious when interpreting these results. Hence, we will not focus too much on the VW portfolios throughout the following analyzes.

Hertzel et al. (2002) and Krishnamurthy et al. (2005) found significantly negative abnormal returns when equally weighting the portfolio. Apart from the immediate similarities in sign and magnitude for the equal-weighted (EW) size/BM matched portfolios, we do not obtain statistical support for the negative abnormal returns. In fact, our result is directly comparable to Eckbo and Norli's (2004) results from a study of long-term performance for private placement firms on the OSE. They found an insignificant EW abnormal return of −10.4 percent over a 36-month holding period for the size/BM portfolio which is comparable to our insignificant EW abnormal return of −16.9 percent. The EW portfolio matched solely on size yields no evidence of underperformance

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[29] All necessary market values when value-weighting are adjusted (discounted) back to year 2000.

for private placement firms.

Table 7.1
Equal- and Value-Weighted Buy-and-Hold Returns (%) for the Private Placement- and Matched Firm Based on Size and Size/Book-to-Market

Holding period	Size (N=134)			Size/BM (N=131)		
	Issuer	Match	Diff	Issuer	Match	Diff
12 m						
EW	−0.5	0.4	−0.9	−2.1	3.8	−5.9
VW	−6.6	−2.7	−3.9	−8.6	−6.2	−2.4
24 m						
EW	−0.5	5.9	−6.4	−3.0	9.5	−12.5
VW	−13.1	4.8	−17.9[a]	−14.6	0.8	−15.4[a]
36 m						
EW	7.3	9.4	−2.1	6.3	23.1	−16.9
VW	−12.5	9.0	−21.5[a]	−13.2	8.3	−21.5[a]

NOTE. — This table presents the buy-and-hold returns for the private placement sample divided into two different subgroups. The number in parenthesis represents the number of observations related to each matching approach. We calculate numbers in the columns Issuer and Match using:

$$B\bar{H}R = \sum_{i=1}^{N} \omega_i \left[\prod_{t=\tau+1}^{T_{it}} (1 + R_{it}) - 1 \right] \cdot 100$$

Where ω_i is equal to $1/N$ when using equal-weights and when employing value-weights ω_i is equal to MV_i / MV, where MV_i is the issuer's (standardized) market value and $MV = \sum_i MV_i$. N is the number of firms constituting the portfolio at the beginning of the holding period (at the beginning of the month after the private placement $[\tau + 1]$), while T_{it} is either equal to T_3 or when the issuer delists. The Diff column is the Issuer less the number in the Match column in the same row. Numbers in parenthesis for each panel are the number of observations in the size and size/book-to-market sample, respectively.
[a]Statistically significant at a 5% level using the conventional t-statistic (mean).

7.3.1.1.1   Abnormal Returns Categorized by Firm Characteristics

Fama (1993) documented that small stocks tend to outperform big stocks and that value stocks (high BM) tend to outperform growth stocks (low BM). To illustrate abnormal returns related to various firm characteristics, the sample is further divided into size- and BM quartiles. The quartile breakpoints are calculated using all stocks listed on the OSE in each month from 2000 to 2019 (see appendix I for the identified quartile breakpoints). Table 7.2 presents the abnormal performance of issuing firms sorted on size and BM. Initially we observe that our dataset is slightly tilted towards medium-sized growth firms. Apart from this, there is no apparent clustering around specific firm characteristics. Based on the preliminary view that small stocks presumably have more asymmetric information, we would expect that these firms utilized private placements more frequently. This is clearly not the case as the 1st size quartile in Table 7.2 only includes 21 percent of the 131 observations. Nonetheless, small stocks achieve greater BHARs than otherwise comparable big stocks. This difference stands in contrast to Hertzel et al. (2002) who observed negative abnormal stock performance across all size quartiles. However, we find that value-stocks perform better than otherwise comparable growth-stocks which is in line with the patterns discovered by Hertzel et al. That said, we only obtain statistical significance for one of the sixteen identified subgroups (big stocks in the 2nd BM quartile) which is likely to be a false positive. Thus, drawing any meaningful inference from these results is inappropriate.

Table 7.2
Equal-Weighted Average Difference in Three-Year Buy-and-Hold Stock Returns Between Firms Issuing Equity Privately and Non-Issuing Control Firms Matched on Size and Book-to-Market

(A)	Number of Observations	Size				Total
		Small	2nd	3rd	Big	
BM	Low	7	12	10	11	40
	2nd	5	5	13	9	32
	3rd	8	14	10	3	35
	High	7	9	8	-	24
	Total	27	40	41	23	131

(B)	Three-year BHARs (%)	Size				Total
		Small	2nd	3rd	Big	
BM	Low	73.5	−176.5	−93.1	5.1	−62.0
	2nd	128.1	−38.8	−31.3	−59.8[a]	−15.6
	3rd	−40.0	41.4	6.6	−24.3	7.2
	High	9.6	−22.0	80.7	-	21.4
	Total	33.4	−48.2	−0.9	−24.1	−16.9

NOTE. — Panel (A) reports the number of firms in each BM- and size classification during the time period 2000 to 2019. The quartile breakpoints for size is computed using the market values for all listed firms on OSE one month prior to the respective issuance. We utilized the same approach for all BM quartiles but using the latest reported book-values (end-of-year) prior to the offering. All size- and BM-breakpoints can be identified in Appendix I. Panel (B) shows the average abnormal buy-and-hold return for firms using the matched firm technique in a total of 16 quantified portfolios. The abnormal return is calculated over a holding period of three years (36 months) using monthly stock returns and the formula noted below.
[a]Statistically significant at a 5% level using the conventional t-statistic (mean).

7.3.2 Reference Portfolio

We follow Barber et al. (1999) and Mitchell and Stafford (2000) and construct size/book-to-market (BM) reference portfolios for all firms listed on the OSE from 1999 to 2019. Barber et al. report that reference portfolios yield well-specified test statistics if the new listing-, rebalancing- and skewness bias are accounted for. Moreover, the use of a reference portfolio eliminates much of the noise created by a single control firm. Therefore, we employ the reference portfolio approach as an alternative to the matching firm technique in section 7.3.1. We start off by ranking all firms each year based on their market capitalization in June. Then we form five size portfolios that are further divided into four BM portfolios each. We use the book value of equity that is reported for the year prior to the offering. We end up with 20 size/BM reference portfolios that will be used as benchmarks for the private placement firm's expected return. The rationale behind matching on both size and BM is premised on the findings of Jagadeesh (2000) that matching solely on size can lead to incorrect inferences.

To alleviate the new listing bias, we exclude all firms with less than 36 months of consecutive

trading.[30] Firms that issue equity privately are excluded in a total of 37 months. This exclusion period starts 1 month preceding the offering and ends after 37 months. Further, we use the same method as Barber et al. (1999) when calculating long horizon returns for the portfolios. Specifically, returns of the individual firms are first compounded and then summed across the securities:

$$B\bar{H}R_M = \sum_{i=1}^{N_s} \frac{\left[\prod_{t=\tau+1}^{T_3}(1 + R_{it})\right] - 1}{N_s} \qquad (7.1)$$

From equation (7.1), N_s is the number of securities trading in the first month of the return calculation that starts from the first month after the private placement ($\tau + 1$), while T_3 represents the end of the holding period. In every calendar month from 1999 to 2019, we compute the 3-year returns for each of the 20 size/BM portfolios using individual 3-year BHR's. This approach mitigates the rebalancing bias documented by Barber and Lyon (1997) and portrays a passive equally weighted investment in all securities constituting the reference portfolio. To make sure the reference portfolios reflect a true three-year holding period, firms that constitutes the portfolio and delist or issues equity privately before 36 months have passed are replaced with returns of an equal-weighted and monthly rebalanced reference portfolio. This reference portfolio is constructed such that it shares the same size and BM characteristics as the firm in the beginning of its holding period.

If the issuing firm delists before the end of its holding period, we substitute the remaining trading days with returns of an equal-weighted reference portfolio that is rebalanced monthly.[31] Although this leads to slightly overstated abnormal returns, Barber et al. (1999) ensure that the effect does not alter statistical inference.

To clarify, we have constructed two portfolios: one reference portfolio that never rebalances after being matched with firm (i), while the second portfolio is a monthly rebalanced reference portfolio that represents the return of delisted firms throughout the 36-month holding period.

7.3.2.1   Reference Portfolio Results

Table 7.3 shows the results from the reference portfolio approach. In Panel A we have identified matching portfolios for 134 private placement firms based on size/BM. This method yields similar results as the matching firm approach in which we obtain an EW abnormal return of −10.0 percent for the full sample. However, the magnitude of the abnormal performance is smaller which can be attributed to the slightly overstated abnormal return notified by Barber et al. (1999). Although the conventional t-statistic is insignificant, the Wilcoxon signed-rank test yields a significant p-value of 0.004. This gives some support that firms issuing equity privately on the OSE experience abnormally negative returns in the long run.

Furthermore, we divide BHARs into different portfolios utilizing the same firm characteristics

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[30] The low liquidity on OSE makes several firms subject to the lack of trading days. Thus, we require at least 33 trading months during the past 36 months. If the firm stops trading in three consecutive months, it is excluded from the dataset until the next 33 out 36 months are traded.

[31] We splice in the returns of an equal-weighted reference portfolio. These reference portfolios will share similar characteristics as the delisted firm measured in June at the start of its holding period.

Table 7.3
Buy-and-Hold Abnormal Performance Measured over 36 months in Excess of a Matching Reference Portfolio on Size/Book-to-Market

| Description | N | BHRs | | | $p(t)$ | $p(z)$ |
		Issuer	Match	Diff		
		Panel A: Full sample				
Full sample	134	12.0	22.0	−10.0	0.400	0.004
		Panel B: Firms sorted by OSE breakpoints[a]				
Small stocks (1st quintile)	13	4.8	23.6	−11.7	0.690	0.635
Big stocks (5th quintile)	20	−7.5	13.4	−20.9	0.175	0.067
Growth stocks (1st quartile)	42	10.0	27.6	−17.6	0.419	0.038
Value stocks (4th quartile)	26	46.2	71.9	−20.5	0.593	0.181

NOTE. — This table illustrates the buy-and-hold returns for the issuer the matched reference portfolio with the corresponding abnormal return from the beginning of the month after the private placement. The column labeled *Diff* is calculated as $B\bar{H}R_I - B\bar{H}R_M$.

$$B\bar{H}R_I = \sum_{t=1}^{N} \frac{1}{N} \left[\prod_{t=\tau+1}^{T_3} (1 + R_{it}) - 1 \right] \cdot 100$$

We present the *p*-values for a two-sided *t*-statistic and Wilcoxon sign rank test, testing if there is any difference in the returns between the issuer and the matched portfolio. The reason for the larger number of observations in this approach compared to the size/BM matching approach earlier (134 vs. 131) is that we were unable to obtain a matching firm for 3 of the observations.
Small stocks are all stocks that fall in the first quintile using OSE breakpoints, while *Big stocks* are all issuers that fall in the largest. To classify growth- and value stocks, we use book-to-market quartile breakpoints on OSE. *Growth stocks* are all securities in the first quartile, while *Value stocks* are identified in the fourth quartile.
[a]We refer to Appendix I for the identified size- and BM breakpoints.

as in section 7.3.1.[32] In Panel B we observe that both small- and big stocks underperform its reference portfolios. Small stocks generate an abnormal return of −11.7 percent while big stocks exhibit an abnormal return of −20.9 percent. Although we use quintiles instead of quartiles when sorting on size, this result contrasts the finding from the matching firm approach where small stocks outperformed its matched firms. The raw return for big stocks is negative when utilizing the reference portfolio approach (−7.5) which further reaffirms our belief that big stocks tends to perform poorly following private placements. Even though the big stocks portfolio yields insignificant *t*-statistics, the abnormal return of −20.9 percent is statistically significant at a 7 percent level using the Wilcoxon sign-ranked test.

Figure 7.1 illustrates the abnormal returns presented in Table 7.3 (Panel A) distributed across different abnormal return intervals. We observe that more than 62 percent of the private placement firms exhibit negative abnormal returns. Moreover, the figure indicates some large positive outliers which may explain the conflicting significance between the mean and median for the full sample.

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[32] Note that we use quintiles rather than quartiles for the size portfolios and that the breakpoints are created each June and not for each respective issuance month, meaning that the numbers are not directly comparable with the results presented earlier.

Figure 7.1
Histogram of Three-Year Abnormal Returns Using a Reference Portfolio Matched on Size/Book-to-Market
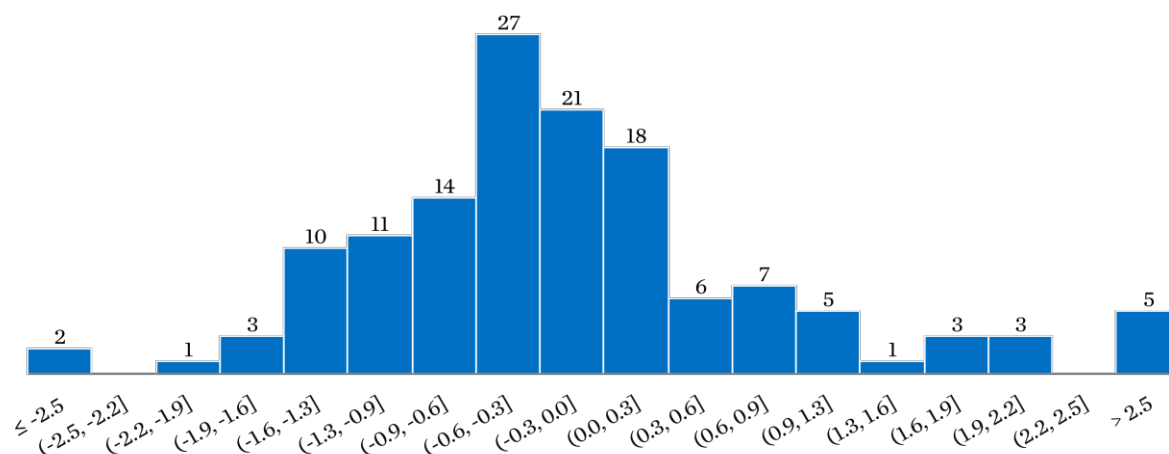
NOTE. — This figure illustrates the three-year abnormal returns using a benchmark (reference) portfolio matched on size/book-to-market. The portfolios are constructed as described in section 7.3.2 and the abnormal returns are the private placement firm's return *less* the matching portfolio's return. The numbers below the x-axis represents various percentage-intervals. For example, (2.2, 2.5] consists of firms with returns between 220 and 250 percent.

7.3.3 BHARs Categorized by the Intended Use of Proceeds

Seeking to elucidate the estimated BHARs we divide the sample based on the stated use of proceeds as in section 6.1.2. In Table 7.4 we present the BHARs using the matched firm- and reference portfolio approach for the three subcategories *Refinancing, General* and *Investment*. Overall, the results seem to resemble the observed short-term abnormal returns in which the *General* and *Refinancing* subcategories exhibit negative abnormal returns while firms stating specific *Investment* motives experience positive abnormal returns. We want to emphasize that the reference portfolio splice in returns for firms delisting during the period, meaning that the raw returns for issuers will be different between the two approaches.

The results in Table 7.4 show similar abnormal returns regardless of the approach. Firms stating *General* investment motives exhibit a negative average three-year BHAR. Opposed to our findings in the short-term analysis, the result obtains little statistical support meaning that these firms seem to generate normal long-term returns. Firms stating *Investment* motives experience on average positive excess returns, however as this finding is not statistically significant the return should be interpreted as normal. This result is similar to the short-term analysis in which the subsample showed slightly positive but insignificant abnormal returns. After investigating the low raw returns for the *Investment* subsample we discovered that these observations cluster around 2006 to 2009.[33] Firms investing during the financial crisis may be countercyclical and does potentially have a competitive advantage over comparable stocks based on size and BM. The *Refinancing* sample however exhibits a negative raw return for both approaches with a corresponding BHAR of −43.0 and −49.8 percent. In contrast to the *General* and *Investment* subsamples, we gain statistical support for these results. This is in line with our expectations given the short-term abnormal

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[33] 2006, 2007, 2008 and 2009 holds 23.5%, 12.0%, 5.9% and 8.8% of the *Investment* issuances, respectively.

Table 7.4
36-month Buy-and-Hold Abnormal Stock Performance Using the Matched Firm Approach on Size/BM and Reference Portfolio Approach

Portfolios (N)	BHRs (%)		Diff (%)		Statistics	
	Issuer	Match	Mean	Median	$p(t)$	$p(z)$
Panel A: Size/BM matched firm technique						
General (78)	17.5	32.3	−15.2	−17.4	(0.577)	(0.118)
Investment (32)	11.0	−3.6	14.7	8.7	(0.552)	(0.625)
Refinancing (21)	−26.9	33.6	−60.5	−62.5	(0.081)	(0.054)
Panel B: Reference portfolio approach						
General (78)	16.5	27.4	−10.9	−23.7	(0.534)	(0.024)
Investment (34)[a]	10.4	2.0	8.4	10.6	(0.684)	(0.543)
Refinancing (22)[a]	−34.3	16.7	−51.1	−58.2	(0.006)	(0.010)

NOTE. — This table illustrates the abnormal buy-and-hold return for the private placement firms starting one month after the private placement. Panel A exhibits the buy-and-hold returns using the matched firm approach presented earlier. The sample and matched firms remain the same, but we have now divided the numbers into various subsamples dependent on the stated use of proceeds.

Panel B reports same numbers for the reference portfolio whereas the sample remains the same, but we divide the buy-and-hold returns into three subsamples based on the intended use of proceeds.

We report the p-values of a two-sided t- and Wilcoxon signed-rank test in the statistics column. These are p-values of the test that there is no difference between the BHRs of issuers and its matched firm.

[a]The additional observations is due to the lack of matching firms in the matched firm approach.

returns and that many of these firms are in financial distress. Offering equity privately during financial distress may be a final refuge from bankruptcy for some of these firms. The latter assertion is strengthened considering that the largest owner repeatedly participates in these offerings (see section 6.3.2).

7.3.4   Summary of Buy-and-Hold Abnormal Returns

Although we gain persistently negative returns for the full sample, most of the measured abnormal returns should be considered normal as they lack statistical significance. A more thorough analysis shows that the negative returns primarily can be traced back to firms stating refinancing or general investment purposes when issuing equity. However, we do only find statistical support for underperformance in the *Refinancing* sample, whereas returns from the other subcategories should be interpreted as normal. We understand that comparing BHARs with a benchmark firm or reference portfolio is exposed to various statistical and empirical vulnerabilities. As both the reference portfolio and matched firm approach have individual flaws, gaining similar results from both approaches make us more confident that the observed results are somewhat dependable.

7.4   Factor Models

7.4.1   Jensen's Alpha

Jensen's alpha, commonly referred to as the *calendar-time portfolio approach* (CTA), is an alternative to buy-and-hold abnormal returns (BHARs). Fama (1998) and Mitchell and Stafford (2000) favor

the CTA over BHARs due to clustering of events across time. Abnormal returns are calculated in event time such that the portfolio variance accounts for the cross-sectional correlation in individual returns (Barber et al., 1999). For each month, we construct a portfolio comprising all firms issuing equity during the last three years. We require the portfolio to consist of at least one firm each month. Firms enter the portfolio at the beginning of the month after the private placement and are kept in the portfolio for 36 months or until delisting, whichever occurs first. We report both equal- and value-weighted portfolios utilizing the CAPM and the three-factor model proposed by Fama and French.[34] Specifically, we regress the monthly portfolio return (R_{pt}) in excess of the monthly NIBOR (r_f) on the risk factors shown in equation (7.2) and (7.3).

$$R_{pt} - r_f = \alpha_p + \beta_i[R_m - r_f] + e_{it} \tag{7.2}$$

$$R_{pt} - r_f = \alpha_p + \beta_i[R_m - r_f] + s_i SMB_t + h_i HML_t + e_{it} \tag{7.3}$$

Inference is drawn from the estimated alpha (α_p) and its statistical significance. The alpha is a proxy for monthly abnormal portfolio return after controlling for the specified risk factors, representing a test of the null hypothesis that monthly excess return is zero (Barber et al., 1999).

7.4.1.1   Jensen's Alpha Results

Table 7.5 reports the outcome from the CTA using both equal- and value weighted portfolios. In Panel A, the equal-weighted portfolio exhibits a significant alpha of −0.0135 which translates into a −38.7 percent abnormal return over a holding period of 36 months.[35] This result is noticeably more negative than those obtained using the matched firm and reference portfolio approach, but more importantly they share the same (negative) sign. Hertzel et al. (2002) obtained a regression intercept of −1.18 percent which is somewhat comparable with our monthly alpha of −1.35 percent. However, turning to the value-weighted portfolio, results change dramatically. The model estimates a positive alpha of 0.0029, translating into a 36-month abnormal holding return of 11 percent. Contrary to Hertzel et al., we do not retain the same magnitude and sign using value-weights. Nevertheless, the *p*-value of 0.495 is not statistically significant.

Looking at the subsamples we gain statistical significance for all categories. Contrary to the BHARs, firms signaling specific investment motives does worse than other firms. When dividing the sample into subsamples, the number of observations becomes very small which means that only a few observations determine the intercept and coefficients of the regression. At certain times, there is only one firm yielding the portfolio return. Thus, looking at the subsamples alone is exposed to substantial noise. Results in Panel B are estimated using the CAPM and share similarities with the results from the Fama-French three-factor model. However, the subsamples become insignificant, hence we will not discuss these results any further.

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[34] All the factors for the CAPM and 3-factor model is obtained from Ødegaard's (2020) website. Moreover, we do not need to adjust the market values as previously reported as the portfolio moves across time.

[35] *Abnormal 36 month return* $= (1 + \alpha)^{36}$

Table 7.5
Long-Term Abnormal Returns for Norwegian Private Placements Determined Using the Calendar Time Approach

Portfolios	α	Factor loadings			$Adj.R^2$
		β	s	h	
Panel A: Fama-French Three-Factor model					
Equal-Weighted					
Full sample (130)	−0.0135	1.398	0.530	0.112	0.516
	(0.002)	(0.000)	(0.000)	(0.294)	
Subsamples					
General (77)	−0.0119	1.275	0.458	0.016	0.434
	(0.015)	(0.000)	(0.004)	(0.891)	
Investment (32)	−0.0194	1.748	0.529	0.284	0.231
	(0.071)	(0.000)	(0.122)	(0.274)	
Refinancing (21)	−0.0145	1.703	0.834	0.370	0.321
	(0.068)	(0.000)	(0.001)	(0.052)	
Value-Weighted					
Full sample	0.0029	1.121	0.138	0.114	0.463
	(0.495)	(0.000)	(0.307)	(0.261)	
Panel B: Capital Asset Pricing Model					
Equal-Weighted					
Full sample (130)	−0.0099	1.209			0.489
	(0.027)	(0.000)			
Subsamples					
General (77)	−0.0090	1.118			0.418
	(0.064)	(0.000)			
Investment (32)	−0.0154	1.539			0.226
	(0.143)	(0.000)			
Refinancing (21)	−0.0079	1.379			0.283
	(0.316)	(0.000)			
Value-Weighted					
Full sample	0.0040	1.063			0.462
	(0.355)	(0.000)			

NOTE. — This table provides the estimated coefficients after regressing the equal-weighted (EW) and value-weighted (VW) portfolio returns on the prespecified factors. We calculate the monthly portfolio returns using:

$$R_{pt} = \sum_{i=1}^{n_t} x_{it} R_{it}$$

where n_t is the number of firms in the portfolio at time t, while $x_{it} = 1/n_t$ using equal weights and $x_{it} = MV_{it} / \sum MV_{it}$ when utilizing value-weights. p-values are calculated using a conventional t-test.

7.5 Rolling Portfolio

Based on the results from the matching firm approach, we follow Eckbo et al. (1999) and Betton et al. (2008) and utilize a rolling portfolio technique to evaluate the results from the matched firm approach. Using the Fama-French Three-Factor model, we regress monthly (excess) returns on the risk factors. Specifically, we create a zero-investment portfolio that is long in issuing firms and short in matched firms. The zero-investment portfolio eventually combines the matched firm and

calendar time approach and has the benefit of controlling for omitted risk factors (Betton et al., 2008). If the factor loadings are insignificant, the matching firm adequately accounts for the chosen risk factors as the coefficients are unable to explain the difference in return. Moreover, these factor loadings will directly identify the differences in risk exposures between the issuer and matched firm portfolio.

Betton et al. (2008) explains the approach as follows; suppose that if a vector F contains the true set of risk-factors and that the model captures a subset of these factors (F_1), the omitted factors (F_2) will not be accounted for in the regression model. PP is denoted as the issuing firm and M as the matching firm, the zero investment portfolio regression is expressed in equation (7.4).

$$R_{PP} - R_M = (\alpha_{PP} - \alpha_M) + F_1(\beta_{1PP} - \beta_{1M}) + u$$
$$u = F_2(\beta_{2PP} - \beta_{2M}) + e$$

(7.4)

According to Bretton et al. (2008) a term $(\beta_{1PP} - \beta_{1M})$ close to zero is defined as a "good match". This will yield factor loadings and alphas close to zero. If the factor loadings in the zero-investment portfolio are significant, it indicates that the excess return can be explained by the factors, not by the matching firm. Significant alpha(s) may indicate model misspecification, i.e. omitted risk factors. However, the matched firm approach has the advantage of controlling for such omitted risk factors through the issuing firm which should be reflected in an insignificant alpha close (or equal to) nil for the zero-investment portfolio.

7.5.1   Rolling Portfolio Results

Table 7.6 reports the alphas and factor loadings (coefficients) for our three portfolios regressed on the three-factors proposed by Fama and French (1993). We require each issuing firm to have a corresponding matching firm in this approach, forcing us to leave out some observations that were used in Table 7.5. First, we observe that the alphas are negative and significant for both the private placement- and matching firm, indicating that there are some omitted risk factors in the Fama-French 3-Factor model. However, the sign seems to imply that the omitted risk factors are equal for the two portfolios of firms. The most important finding from Table 7.6 is the small and insignificant factor loadings in the zero-investment portfolio. The zero-investment portfolio has a small and negative alpha (-0.01). As mentioned, the long-term analysis of stock performance is subject to substantial noise when estimating returns. However, the results indicate that our matching- and private placement firms share similar exposure to the three risk factors suggested by Fama and French.

Table 7.6
Alphas and Factor Loadings for Three-Year Rolling Portfolio of Issuing Firms, Non-Issuing Matched Firms and Zero-Investment Portfolio

Portfolio (N=131)	α	β	s	h	$Adj. R^2$
EW-PP	−0.02	1.32	0.45	−0.12	0.442
	(0.000)	(0.000)	(0.004)	(0.300)	
EW-Match	−0.01	1.19	0.76	−0.35	0.426
	(0.042)	(0.000)	(0.000)	(0.002)	
EW-Zero	−0.01	0.13	−0.31	0.23	0.022
	(0.090)	(0.324)	(0.120)	(0.136)	

NOTE. — This table illustrates the estimated alphas and factor loadings for the specified portfolios utilizing the regression below:

$$R_{pt} = \alpha_p + \beta_i[R_m - r_f] + s_i SMB_t + h_i HML_t + e_{it}$$

Where R_{pt} is either the excess return of the issuing-, matched- or the zero investment-portfolio. These portfolios are equal-weighted containing the private placement- and matched firms from section 7.3.1.1. We report p-values for the conventional t-statistic in parenthesis.

7.6   Pre-Issue Stock Performance

In numerous papers regarding private placements and SEOs there seem to be a trend of firms issuing equity after a period of abnormally high returns. This trend is often followed by abnormally negative long-term returns (Loughran & Ritter, 1995; Spiess & Affleck-Graves, 1995; Eckbo et al., 2007; Hertzel et al., 2002; Krishnamurthy et al., 2005). We want to check whether firms issuing equity privately on the OSE follow this common trend by estimating the abnormal returns prior to the announcement. We apply the same methodology as in the matched firm approach to identify the benchmark returns by matching on size/BM. To account for the fact that firms may have different characteristics one year prior to the offering and avoid lookahead bias, we match firms based on the size and BM reported 14 months prior to the private placement. This leaves us with a matched firm sample that is different from the one used in section 7.3.1. As a robustness check, we utilize the CTA employing the traditional CAPM and Fama-French (three) factors. We do however once again note that the Fama-French BM factor may not be as applicable for the Norwegian market (Næs et al., 2007).

The results are reported in Table 7.7 and the matched firm approach in Panel A demonstrates an average BHR of 18.1 percent for the entire sample. This return is neither severe nor statistically different to the matched firms and should therefore not be interpreted as abnormal. However, firms stating *Refinancing* use of proceeds achieve a significant abnormal return of −34.9 percent during the 12 months leading up to the offering. Relying on the fact that several of these firms are in financial distress and thus forced to issue equity, a negative return prior to the offering is expected. The *Investment* subsample exhibits an abnormal runup return of 37.3 percent. This result is significant at a 10 percent level using the conventional t-test but lacks support at a median level. We do not believe that firms stating specific *Investment* motives are opportunistic market timers as these investment opportunities typically arise unexpectedly. We would rather expect such a timing incentive for the *General* sample but based on the insignificant runup return presented in Table 7.7 we are unable to support such statement.

Table 7.7
Private Placement Firms Abnormal Return One Year Preceding the Announcement

Panel A: Size/BM matched firm technique						
	BHRs (%)		Diff (%)		Statistics	
Portfolios (N)	Issuer	Match	Mean	Median	$p(t)$	$p(z)$
Full sample (123)						
-13 to -1 month	18.1	12.4	5.7	−2.0	(0.467)	(0.766)
Subsamples						
General (73)	24.3	20.1	4.3	9.1	(0.489)	(0.540)
Investment (30)	44.5	7.2	37.3	16.4	(0.097)	(0.132)
Refinancing (20)	−42.9	−8.0	−34.9	−35.5	(0.010)	(0.014)
Panel B: Fama-French Three-Factor model and Capital Asset Pricing Model						
	Alpha and factor loadings					
Return period (N)	α	β	s	h	$Adj.R^2$	
Fama-French Three-Factor Model						
Full sample (123)	−0.000	1.34	0.47	−0.59	0.413	
	(0.977)	(0.000)	(0.010)	(0.555)		
Subsamples						
General (73)	0.012	1.25	0.40	0.12	0.251	
	(0.132)	(0.000)	(0.093)	(0.503)		
Investment (30)	0.003	1.21	0.32	−0.51	0.348	
	(0.703)	(0.000)	(0.186)	(0.007)		
Refinancing (20)	−0.045	1.53	0.56	−0.20	0.247	
	(0.001)	(0.000)	(0.156)	(0.483)		
Capital Asset Pricing Model						
Full sample (123)	0.003	1.19			0.398	
	(0.581)	(0.000)				
Subsamples						
General (73)	0.0153	1.10			0.251	
	(0.053)	(0.000)				
Investment (30)	0.006	1.157			0.315	
	(0.444)	(0.000)				
Refinancing (20)	−0.042	1.37			0.243	
	(0.002)	(0.000)				

NOTE. — This table illustrates the abnormal run-up return for the private placement firms. Panel A exhibits the buy-and-hold returns of purchasing the private placement firm 13 months prior to the issuance and holding the shares until one month prior to the offering. These returns are compared to the same strategy buying non-event firms with the same size/BM characteristics as the private placement firm. We report the p-values of a two-sided t- and Wilcoxon signed-rank test in the statistics column. These are p-values of the test that there is no difference between the BHRs of issuers and its matched firm.

Panel B reports the factor loadings and alpha of the Fama-French Three-Factor model where the intercept (alpha) proxies for monthly abnormal performance for an equal-weighted portfolio in decimal-units. We have utilized the Breusch-Pagan and White Test for heteroskedasticity but found no supporting evidence for this issue in the estimated regression model.

Turning to Panel B, we do not observe any distinct differences utilizing the CTA compared to the matched firm approach. The negative abnormal return for firms stating *Refinancing* purposes is further supported by a significant (monthly) alpha of −4.5 and −4.2 percent using the Fama-French

three factor- and CAPM, respectively. Although the *General* subsample exhibits a positive and significant alpha utilizing the CAPM, neither the matched firm nor Fama-French supports this finding.

Overall, we are unable to achieve support that managers on the OSE time their private placements to sell overvalued stock in so-called "windows of opportunities". We believe that issuing overpriced equity is unlikely given that participating investors engage in research and gain superior access to information concerning the firm's prospects. Thus, it is doubtful that these investors will agree to invest in overpriced equity. This is also consistent with Kang et al. (1999) who argued that firms are unlikely to be able to exploit market over-optimism in private placement because the participating investors are well informed. That said, private placements may not overcome asymmetric information issues given the rapid execution process, relatively high number of participating investors and the circumvention of prospectus preparation. However, as these characteristics are somewhat unique for Norwegian-style private placements, we will not further elaborate around these concerns. Although the *Investment* subsample gains some support for positive abnormal runup returns, the results does not seem to be explained by emerging growth- and investment opportunities rationally anticipated by the market (Leary & Roberts, 2005; De Angelo et al., 2010). These investment opportunities are instead believed to be unexpected and hence reflected in the apparent normal stock performance following the private placement.

7.7   Overconfidence Hypothesis

The long-term analysis viewed together with the short-term results provides some initial support for the overconfidence hypothesis proposed by Daniel et al. (1998). Under this hypothesis, the announcement period abnormal returns are an underreaction to the release of public information. For this to be true, the long-term abnormal returns should share the same sign as the short-term returns (Norli, 1999). Our results are predominantly in line with this hypothesis as we exhibit negative announcement returns that persist in the long run. However, the theory holds that there should be a positive correlation between the short- and long-run returns. Following Norli, we regress the long-run abnormal returns on the announcement period returns to assess whether such correlation exists.

Table 7.8 provides the results from running the regression for 12-, 24- and 36-months abnormal returns, respectively. The coefficients have a positive sign, meaning that there is a positive correlation between the announcement- and long-run returns. Taken at face value, this means that the findings are in line with the overconfidence hypothesis. However, we do not obtain any statistical significance for the estimated coefficients meaning that we are unable to precisely trace back the stock price development to the announcement-day return. The analysis was also conducted for the various stated use of proceeds without providing any further statistical support. These results undermine the overconfidence hypothesis as an explanation for the long-term (abnormal) returns.

Table 7.8
The Relationship Between Announcement Returns and Buy-and-Hold Returns

Estimated variable (N=131)	Holding period (months)		
	12	24	36
α	−0.049	−0.107	−0.129
	(0.694)	(0.360)	(0.500)
β	0.152	0.220	0.562
	(0.694)	(0.720)	(0.574)

NOTE. —This table illustrates the estimated intercepts and coefficients of regressing the 12-, 24- and 36-month BHAR starting one month after the offering on the announcement day abnormal return. We have utilized the matched firm approach by matching on size/BM to estimate the BHAR, while the market model is used to estimate the announcement abnormal returns employing the same specifications as described in chapter 4. Specifically, we regress:

$$BHAR_{it} = \alpha + \beta AR0_i + \varepsilon_i$$

Where $BHAR_{it}$ is the buy-and-hold abnormal return for firm i over a period of t-months, while $AR0_i$ is the announcement day (0) abnormal return of the private placement. ε_i is the error term and α represents the intercept. N represents the number of observations and p-values are reported in parentheses.

7.8 Operating Performance

A firm's financial- and operating performance is closely related. Thus, we want to examine the operating performance of issuing firms, both individually and relative to their industry. The analysis will be consistent with the long-run stock performance analysis as we use the same sample of firms through a four-year period starting one year prior to the placement. We follow Barber and Lyon (1996) and report nonparametric tests exclusively as these are uniformly more powerful than parametric tests in studies of operating performance.

7.8.1 Operating Performance Results

We report both unadjusted and adjusted figures for return on assets (ROA). The adjusted ROA is the private placement firm's ROA in excess of the industry median (Autore et al., 2009). We use the four-digit Standard Industrial Classification (SIC) code to match firms with its corresponding industry, however, for classifications with less than three firms, we employ the two-digit code (major industry). It is important to acknowledge that ROA suffers from three major drawbacks (Barber & Lyon, 1996). First, the total assets are (usually) recorded at historic costs, while net income is measured in current values.[36] The appropriate adjustment would be to use the current or replacement costs of total assets (Barber & Lyon, 1996). Secondly, total assets do not reflect operating assets exclusively. Thus, the true operating performance may be under- or overstated dependent on the firm's operations.[37] Finally, net income is an accrual-based measure and hence possible to influence based on the manager's incentives. We do however believe that earnings manipulation is not an important concern in our sample.

Table 7.9 reports the unadjusted- and adjusted ROA for firms carrying out private placements on the Oslo Stock Exchange between 2000 and 2016. In Panel A it is difficult to see any distinct

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[36] We do want to note that we should use *Operating income* in the numerator calculating ROA, i.e. Earnings Before Interest Taxes Depreciation (EBIT) and include (operating) interest income. However, Datastream (2020) provides the ROA measured with *Net income* and we will stick with that as the main goal of this thesis is not to understand operating performance.

[37] Prior to IFRS 16, operating leases were not recorded on the balance sheet, thus understating the total assets. Suitable adjustments should be applied for such firms, however our focus in this thesis is not operating performance of private placement firms.

pattern from the profitability figures, but it is noteworthy that the adjusted number is persistently negative (and often significant) throughout the period. This suggest that private placement firms perform worse than otherwise comparable non-issuers within the same industry. The results are

Table 7.9
Operating Performance Measured as Return on Assets (%) Around Private Placements

Variable description	Year(s) relative to the private placement (N)				
	-1 (128)	0 (123)	1 (115)	2 (104)	3 (102)
Panel A: Full sample					
Median ROA	1.16	1.38	1.29	0.76	1.49
Industry-adjusted ROA	−1.50[a]	−1.00[a]	−1.05	−1.43[a]	−0.41
Panel B: Subsamples based on the intended use of proceeds					
General					
Median ROA	0.96	1.48	1.56	1.26	1.68
Industry-adjusted ROA	−1.64[a]	−0.08	−0.99[a]	−0.69[a]	−0.55
Investment					
Median ROA	3.68	2.89	3.79	3.22	4.80
Industry-adjusted ROA	−0.19	−0.69	0.77	0.23	1.98
Refinancing					
Median ROA	−1.72	−3.92	−1.85	−1.73	0.18
Industry-adjusted ROA	−3.02	−5.05[a]	−3.08	−3.29	−0.81

NOTE. — This table illustrates the return on assets (ROA) and the industry-adjusted ROA figure. Due to inadequate data from Datastream (2020), we were unable to retain observations for all our observations used in the long-term analysis. We do however think that these firms resemble our sample in sufficient detail. The industry-adjusted ROA is calculated as the median of each firm's ROA in excess of the industry's median ROA. ROA is calculated as *Net Income* divided by *Total Assets* (Datastream, 2020).
[a]Statistically different from zero using the Wilcoxon signed-rank test at a 5% level.

in line with Hertzel et al. (2002) who observed negative profitability measured by ROA for private placement firms. Further, we do not observe any significant improvement throughout the period utilizing the Wilcoxon Rank Sums test.

Turning to Panel B, more interesting findings emerge. Overall, we see that the *General* and *Refinancing* subsamples does worse than firms with more credible *Investment* motives. *General* firms seem to experience a slight improvement in operating performance following the private placement, but the change is not significant. Firms with specific investment motives exhibit positive industry-adjusted ROA's following the private placement which is consistent with the observed normal stock behavior. The subgroup undergoes a slight decline in ROA during the issue year that we believe can be attributed to the increased asset base during the issue year before the investment starts generating sustainable cash flows. This statement however lacks support from the two-sample Wilcoxon rank sum test considering that neither of the post issue years are statistically different from the issue year. Finally, the *Refinancing* subsample exhibits negative unadjusted profitability, which is in line with the negative raw stock returns previously observed. Moreover, the industry-adjusted ROA is far more negative than the comparable samples. This helps to explain the negative runup- and significant long-term abnormal post issue performance. Although the sample goes through the same dip in performance as the *Investment* firms, we are

unable to provide any statistical support for changes in the operating performance relative to the private placement year (0). We do however believe that this dip in performance can be attributed to write-off of outstanding debt considering that many of these firms are in financial distress.

7.9   Management Entrenchment

As discussed in the short-term analysis section 6.1.1, the negative short-term abnormal return offers some initial support for the management entrenchment hypothesis. The hypothesis is further supported by three main findings. Firstly, we know that almost every private placement in our sample is targeted towards multiple investors. Secondly, we have evidence that most private placements investors in our sample are passive which is in line with multiple participants and further validated by qualitative research that shows little evidence of interaction between the purchases and the issuing firm either before or after the placement. Thirdly, from the ownership data presented in section 6.3.1, the largest shareholder typically decreases her ownership in private placements and the overall concentration of the top 20 shareholders shrinks. This may indicate that there are smaller and thus more passive investors in private placements on the OSE. These are all characteristics that may support that managers are exploiting passive investors to entrench themselves.

Throughout the long-term analysis we have found some support of underperformance for firms issuing equity privately. This finding is essential for the management entrenchment hypothesis to hold. Following Barclay et al. (2007) we regress the 12-month abnormal return from the matched firm approach on two variables; premium as percent of firm value and the natural log of firm size.[38] Table 7.10 reports the multiple regression accounting for the discount or premium in percentage of the firm's equity. Specifically, the variable *Premium in % of firm value* captures

Table 7.10
Regression of 12-month Abnormal Returns following Barclay et al. (2007)

Dependent variable	N	Intercept	Premium as % of firm value	*Log* Firm size	R^2
12-month BHAR	121	25.372 (0.517)	1.012 (0.052)	−3.781 (0.481)	0.032

NOTE. — This table illustrates the 12-month BHAR for the matched firm approach (size/BM) regressed on the *Premium as % of firm value* and *Log Firm size*. *Premium as % of firm value* is calculated following Barclay et al. (2007) using the following formula: $[(p_{Offer} - p_{-1})N_p/p_e N_t] \cdot 100$ where N_p is the number of shares offered and N_t represents the total number of shares outstanding measured *prior* to the placement. The *Log Firm size* is the natural logarithm of the firm's market value one month after the placement.

long-term abnormal returns based on the premium relative to the block of equity sold in the offering. The estimated positive and (somewhat) significant coefficient indicates that when there is a large discount on a large-percentage sale of equity, the associated stock returns tend to be negative. Turning to the monitoring- and certification hypothesis again, a greater discount should presumably mean greater monitoring or certification, but these results show opposite patterns. We obtain results that seem to be in line with opportunistic management as a larger discount should

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[38] Barclay et al. (2007) includes Tobin's Q, an active placement dummy and a managerial placement dummy in their regression model. Moreover, they use 120 days and not one trading year.

reflect compensation for more entrenchment and thus lower firm value (Barclay et al., 2007). However, we are unable to extend this analysis to account for the probability of a value increasing acquisition but note that we achieve similar results as Barclay et al. Specifically, managerial entrenchment will prohibit value-increasing takeover attempts and other related inquires to keep themselves in control of the firm.

The management entrenchment hypothesis is of great interest for our study as this is the only known hypothesis that explain a negative stock reaction to a private placement announcement. Even though the pecking order hierarchy of financial instruments holds that internal funds are preferred, and that the issuance of equity leads to a negative stock price reaction, the theory fails to explain certain opportunities that typically arise in private placements. On the other hand, it is important to note that private placements often are carried out for refinancing purposes. Hence, it is very unlikely that managers exploit such opportunities to entrench themselves, even though the significant long-term underperformance (isolated) provides some support for such behavior. The most likely issue motive that could indicate entrenchment is found in the *General* subsample. Although we find some evidence of underperformance for this sample, the evidence is not compelling throughout the different approaches. Despite the significantly negative abnormal return at the announcement, we are unable to obtain statistical support for long-term underperformance which is an important aspect of the proposition.

As a final remark for the management entrenchment hypothesis one must ask how managers are able to entrench themselves in private placements on the OSE. The stock exchange is involved in strict monitoring of equity offerings and makes sure that firms are following the related rules and regulations. It is also important to emphasize that Barclay et al. studied the US stock market, meaning that their findings and tests may not be as applicable for private placements on the OSE. Moreover, it does not exist a public record of identified buyers in private placements which makes it difficult to recognize and separate between active- and passive buyers. Therefore, we are not able to confirm whether management entrenchment can explain the observed stock price behavior on the OSE related to private placements, although it may clarify some.

7.10   Long-Term Analysis Summary

The long-term analysis contrasts the short-term chapter in which the findings are somewhat in line with extant literature of private placements. Overall, our results provide some support of long-term underperformance amongst firms that conducted private placements on the OSE between 2000 and 2016. Although the abnormal returns are uniformly negative using equal-weighted portfolios, we find little statistical support for these findings employing the matched firm and reference portfolio approach.

When dividing the sample into subgroups based on the intended use of proceeds, we obtain statistical support for negative abnormal returns for firms stating *Refinancing* use of proceeds. This finding is in line with the results from the short-term analysis and are expected considering that a large portion of these firms are in financial distress. The *General* and *Investment* subsamples however seem to achieve normal returns in the years following a private placement, although the *General*

subsample exhibits some evidence of underperformance throughout the various analyzes.

When looking at runup returns for firms issuing equity privately we find no significantly positive returns in the 12-months leading up to the private placement. Thus, we are unable to provide any support for the hypothesis that managers time their offerings to periods when the share price is (too) high.

The long-term abnormal returns share sign with the results from the short-term analysis, both in total and at a subsample level. This led us to test whether the overconfidence hypothesis was applicable for our sample. After performing a regression analysis proposed by Norli (1999) of both the total- and subsamples, we are unable to obtain statistical support for this hypothesis.

The operating performance analysis shows that firms that announce private placements tend to experience poor operating performance prior to the offering relative to their industry. However, firms stating specific investment motives seem to improve their profitability after issuing equity privately. That said, we are unable to provide any statistical support for this apparent improvement using the Wilcoxon rank sum test.

Finally, we further investigated whether the management entrenchment hypothesis can explain the observed stock performance. As equity issued privately on the OSE usually targets what Barclay et al. (2007) describes as passive investors combined with the negative short-term stock price reaction observed in 6.1.1, we get some initial support for the hypothesis. However, we believe that private placements must be viewed in context with other factors such as the intended use of proceeds. Further, we are not able to obtain accurate ownership data and other post-placement events such as Barclay et al. assessed in their study. All in all, we believe that some of our results are in line with management entrenchment, but with the lack of conclusive evidence and other implications related to private placements, we leave this hypothesis for further study.

8   Investor Experience

The goal of this chapter is to apply a combination of both the short- and long-term analysis that adequately determine the investor experience for both participating and nonparticipating investors in private placements. The objective of this chapter is to measure the participating investors' return and comparing it to the nonparticipating investors' return. We follow Krishnamurthy et al. (2005) and use the matched firm approach from section 7.3.1 but implement an event window including dates within the short-term analysis. Specifically, we match the issuer with its benchmark firm one month prior to the private placement based on size/BM and measure buy-and-hold returns (BHRs) from one day before the announcement over 12, 24, and 36 months. When measuring BHR for the participating investor, we incorporate the offer discount from the related private placement. For the nonparticipating investors, we use returns from the share price one day prior to the private placement without further adjustments.

8.1   Abnormal Return to Private Placement Investors

Results from the investor experience analysis are reported in Table 8.1 and show that nonparticipating shareholders experience abnormally negative returns when including the event day. Even though we gain statistical significance (z) throughout the holding period for nonparticipating shareholders, we are careful when drawing inference from these results. When dividing the nonparticipating sample based on the stated use of proceeds a clearer picture appears. We observe that the negative abnormal return can mainly be attributed to firms stating *Refinancing* use of proceeds. During a 36-month holding period for the *Refinancing* sample, nonparticipating investors achieve abnormal returns of -74.4 percent. The extremely negative abnormal return can partly be traced back to the matched firm.

The story for participating investors is quite different. From Panel B we observe that investors buying shares in the private placements earn a mean raw return of 11.5 percent the first 12 months, which is 3.2 percent higher than the matched firms. Even though the positive 12-month abnormal return does not provide any statistical significance, the return is 16.4 percent higher than for the nonparticipating investors. After a 36-month holding period, nonparticipating investors earn mean (abnormal) returns of −27.0 percent which is almost twice as negative as the participating shareholders' (abnormal) return of −15.0 percent.

Krishnamurthy et al. (2005) suggests that the normal returns achieved by participating investors indicate that private placement investors are better informed than other investors. In turn, this may imply that participating investors exploit an information advantage and incorporate post-issue revisions about the firm's prospects when they participate in the private placements. Specifically, investors in private placements avoid overpaying for equity by purchasing shares at a discounted price that correctly reflects the future decline in share price (Krishnamurthy et al., 2005). However, this information advantage seems to be less relevant for firms stating *Refinancing* purposes as the participating investors gain negative 36-month raw returns.

Table 8.1
Equal-Weighted Abnormal Returns (%) to Participating and Nonparticipating Investors
Measured over a 12-, 24- and 36-month Holding Period Using the Matched Firm Approach

Period	BHRs (%)		Diff (%)		Statistics	
	Issuer	Match	Mean	Median	$p(t)$	$p(z)$
Panel A: Returns to nonparticipating investors (N=131)						
Full sample						
12 months	−4.9	8.3	−13.2	−11.5	(0.057)	(0.033)
24 months	−4.0	15.7	−19.7	−12.9	(0.073)	(0.018)
36 months	1.4	28.4	−27.0	−26.6	(0.117)	(0.008)
Subsamples (36 months)[a]						
General (78)	10.3	29.1	−18.8	−27.1	(0.435)	(0.069)
Investment (32)	2.6	13.2	−15.8	6.6	(0.583)	(0.818)
Refinancing (21)	−25.6	49.1	−74.7	−69.1	(0.051)	(0.026)
Panel B: Returns to participating investors (N=131)						
Full sample						
12 months	11.5	8.3	3.2	−2.5	(0.693)	(0.730)
24 months	9.5	15.6	−6.2	−3.1	(0.582)	(0.137)
36 months	13.5	28.4	−15.0	−19.0	(0.404)	(0.042)
Subsamples (36 months)[a]						
General (78)	21.2	29.1	−7.9	−16.9	(0.758)	(0.985)
Investment (32)	8.3	13.2	−4.9	7.8	(0.855)	(0.985)
Refinancing (21)	−7.4	49.1	−56.5	−68.5	(0.200)	(0.055)

NOTE. — This table illustrates the abnormal returns for nonparticipating investors in the private placement (Panel A) versus participating investors (Panel B). In Panel A, we calculate returns assuming that the investor buys the non-discounted share one day prior to the announcement date and holds it over the respective holding periods (12-, 24- and 36 months), while in Panel B we calculate the return from the discount in the private placement (we use the discount-adjusted stock price to perfectly replicate the stock price investors paid to participate in the private placement) in addition to the buy-and-hold return (BHR) of purchasing shares one day prior to the announcement. The formula for participating investors return (BHR_P) is:

$$BHR_P = \sum_{i=1}^{N} \frac{1}{N} \left(\left[1 + \frac{P_{i,0}}{P_{i,-1} \cdot (1 - Discount_i)} \right] \cdot \left[\prod_{t=1}^{T_{it}} (1 + R_{it}) \right] - 1 \right) \cdot 100$$

Where $P_{i,0}$ is the stock price after the first month of holding, while $P_{i,-1}$ is the stock price one day before the announced private placement and $Discount_i$ is the discount for firm i calculated using the formula described below Table 6.2. Note that the return for nonparticipating investors utilize the same formula, however, there is no discount-adjusting of the stock price.

The *Statistics* rows include the p-values that the abnormal returns (*Diff*) are statistically different from zero for a t-test and Wilcoxon signed-rank test. Note that we obtain no distinct differences between the equal- and value-weighted portfolios or the chosen estimation model, thus we stick with the EW-portfolios for the matched firm approach in this table.

[a]The (statistical) results are not affected whether the holding period is 12-, 24- or 36 months. Thus, we will only report the 36-month holding period.

8.1.1 Repair Offerings

Even though we provide results that indicate significant underperformance for nonparticipating investors, we are unable to incorporate the effect of potential repair offerings. As discussed above, the main driver for the significant underperformance is the *Refinancing* subsample. In 75 percent of the private placements in this subsample, the issuer announces a contemplated subsequent repair offering. Repair offerings share many similarities with rights offerings and are targeted exclusively towards existing nonparticipating investors (see section 2.4.3). The repair offering allows existing

shareholders to buy shares at the same terms as in the private placement. This means that if the share price drops below the subscription price, the repair offering is effectively canceled. As pointed out in section 6.2, private placements issued for refinancing purposes has an average discount of 21.4 percent. The large discount will, ceteris paribus, increase the probability of a successful repair offering. As the average discount in these placements are 21 percent, the probability of the repair offering being carried out is presumably quite high. However, we are not able to incorporate the effect of a subsequent repair offering as this requires substantial modifications to the models used to estimate long-term abnormal returns. We believe that the incorporation of repair offerings would yield less significant underperformance, if any at all.

8.1.2   Board Authorization on the Oslo Stock Exchange

The majority of the private placements in our sample are carried out solely based on board authorizations without having to assemble the shareholders.[39] Thus, the negative abnormal returns for nonparticipating shareholders raise some interesting questions from a corporate governance point of view. Private placements on the OSE are typically conducted overnight, hence the flexibility provided by board authorizations is fundamental to achieve the time advantage of private placements. Board authorizations are granted by the shareholders and should consequently reflect their interest. At first glance, the results presented in Table 8.1 may suggest that shareholders effectively are allowing themselves to become diluted and transfer their wealth to participating shareholders. This is reflected in the abnormally negative performance for nonparticipating shareholders as opposed to the apparent normal performance for participating investors. However, as discussed throughout this thesis these results must be viewed in the context of intended use of proceeds and the financial health of the issuing company. Specifically, firms stating *Refinancing* purposes may find themselves in dire straits and are required to raise capital as quickly as possible. In these situations, it is reasonable to believe that board authorization will be of great importance by saving valuable time and costs for all shareholders. Considering that the alternative potentially is much worse, generalizing private placements and board authorizations as a "bad deal" for existing shareholders is obviously unreasonable. This argument is presumably also applicable when lucrative investment prospects arise that needs swift action to seize the deal. However, the main proportion of our sample consists of private placements stating their use of proceeds for general purposes. Some firms that fall within this category have a specific strategy of how the proceeds will be used, while others are more ambiguous when disclosing the intended use of proceeds. We find it very interesting that private placements conducted for general corporate purposes represents most of our sample. As we achieve some statistical support for underperformance within this subgroup, the vague issue motive may at its outermost indicate that managers are utilizing private placements to enrich participating investors by transferring wealth from existing shareholders to participating investors. An interesting approach to this hypothesis could be to divide the general category into further subgroups based on how vague their issue motive is through a qualitative analysis. Such research is however beyond the scope of this thesis.

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[39] We identified that 71% of the private placements in our sample were carried out solely based on board authorizations.

9   Conclusion

The purpose of this thesis has been to examine stock performance of firms issuing equity privately on the Oslo Stock Exchange (OSE) between 2000 and 2019. The study is divided into two main parts. The first part utilizes the traditional event study methodology to analyze short term stock returns surrounding the announcement of a private placement, whereas the second part examines long-term stock performance from the month following the placement until three years after. Beyond studying stock performance, we have tested various hypotheses related to private placements and equity offerings in general. In the final chapter of the analyzes we extract the most important findings throughout the thesis and make some noteworthy remarks regarding the extensive use of private placements on the OSE.

Previous studies have found positive short-term returns associated with private placement announcements. Our analysis contradicts these findings as we obtain a significant negative abnormal return of −4.25 at the announcement day. The majority of previous studies has analyzed the stock price reaction to private placements in the U.S., we therefore believe that our conflicting results mainly can be attributed to three key differences between the OSE and foreign marketplaces. Firstly, the number of participating investors in private placements on the OSE is higher than in those abroad. Secondly, private placements are the preferred floatation method on the OSE whereas follow-on public offerings are most common in the U.S. Thirdly, private placements in the U.S. are often characterized by letting a few large investors or key individuals access equity at a favorable price, thereby reducing agency costs and adding valuable assets to the company. This argument seems to be true for only a handful of private placements on the OSE. Thus, we believe that the widespread use of private placements in the Norwegian equity market and its demarcation with foreign marketplaces are the main reasons for our conflicting results. To further investigate the roots of our negative abnormal announcement return, we divide the sample into subgroups based on the intended use of proceeds. This analysis shows that the negative announcement return is driven by firms stating *General* or *Refinancing* purposes, while firms with specific investment motives exhibit normal returns. Furthermore, we confirm that private placements are issued at large discounts with an average offer discount of 10.5 percent for the full sample. When removing these discounts from the announcement return, much of the negative stock price reaction diminishes and the abnormal return becomes insignificant. This imply that private placements convey little information that is not already reflected in the offer discount.

Private placements are a deviation from the equal treatment principle on the OSE which impose certain requirements by the stock exchange. The firm must factually justify that the placement is in the best interest of all shareholders and long-term performance is prioritized in this justification. Using the matched firm-, reference portfolio- and calendar time approach we reinforce the results found by Eckbo and Norli (2004) that most private placements on the OSE are followed by long-term *normal* returns. These normal returns imply that the abnormalities in the long-term analysis are statistically indistinguishable from zero. As in the short-term analysis we divide the sample into subgroups based on the intended use of proceeds. This procedure revealed that firms stating *Refinancing* use of proceeds suffered negative long-term abnormal returns,

whereas firms with *General* or specific investment motives appear to achieve normal returns. This finding implies that firms attempting to refinance are often unsuccessful and that their underperformance will persist in the long run. Motivated by prevalent evidence that firms tend to issue equity when share valuations are (too) high (Loughran & Ritter, 1995; Spiess & Affleck-Graves, 1995; Hertzel et al., 2002), we calculate the 12-month abnormal runup return for firms issuing equity privately. Even though we observe positive runup returns for the *General* and *Investment* subsamples, these returns are statistically indistinguishable from zero. However, firms stating *Refinancing* use of proceeds experience a statistically significant *negative* abnormal return in the months leading up to the offering. As our results challenge previous findings, we believe that firms issuing equity privately are unable to exploit market over-optimism considering that participating investors are often well informed about the firm's prospects. Finally, the results for the *Refinancing* subsample are seemingly in line with the overconfidence hypothesis proposed by Daniel et al. (1998), yet we do not obtain statistical support for this theory.

Three hypotheses that have tried to explain the stock price reaction to private placements exclusively are the monitoring-, certification- and the management entrenchment hypothesis. While the two first mainly focuses on short term stock price reactions, the latter accounts for both short- and long-term performance. The negative short-term return observed in our sample is inconsistent with certification, but we are not able to disregard the monitoring hypothesis. Even though we obtain abnormally negative short term returns we cannot rule out the possibility that this reaction originate from decreased monitoring and thus increased agency costs. By further investigating the hypothesis we find that the largest owner typically decreases her ownership in private placements. Initially, this finding is consistent with decreased monitoring, yet we are unable to provide statistical support for changes in monitoring as an explanation for our results. On the other hand, the management entrenchment hypothesis is supported by two key findings in our sample. Firstly, we gain abnormally negative short-term returns followed by similar long-term returns. Secondly, investors participating in private placements on the OSE appear to be passive. According to Barclay et al. (2007) this indicates that managers are exploiting private placements for entrenchment. Even though many of our results are in line with the hypothesis, strict regulation and surveillance by the OSE in addition to the failure of incorporating post-placement events leaves the hypothesis inconclusive as a justification for our findings. Be that as it may, the evidence gained from testing the hypothesis further undermines the certification- and monitoring hypothesis. When assessing the most applicable hypotheses for this thesis we find some notable similarities with the management entrenchment hypothesis. Although it may explain some of our results, we believe that our findings mainly can be justified by other factors that are not accounted for in these hypotheses such as the intended use of proceeds.

In the final chapter we examine the returns for participating- and nonparticipating investors individually. In this approach we are effectively combining the short- and long-term analysis. Accounting for the short-term stock price reaction, we obtain statistical support that existing nonparticipating shareholders suffer negative abnormal returns over a 12- and 24-month holding period. When dividing the returns into subsamples, the long-term underperformance is confined to firms stating *Refinancing* purposes. As a private placement may be a final resort in the pursue of

quick capital for firms in financial distress, alternative actions may neither be available nor better. Furthermore, we are unable to account for potential repair offerings following the placement that can reduce the dilution of both ownership and investment. Accordingly, the abnormally negative performance should be interpreted carefully, making us unable to conclude that nonparticipating investors are worse off than if the private placement did not take place. These arguments undermine that nonparticipating shareholders are exploited by the widespread use of board authorizations and that the equal treatment principle is violated even though it might seem like it at first glance.

Although concluding that the equal treatment principle is not violated in private placements, our thesis leaves some unanswered questions regarding the practice of private placements. In order to strengthen the findings in this thesis we believe that conducting similar tests as we have executed with a larger sample size may yield different results in the long run. Furthermore, as briefly discussed in the second to last chapter, firms with general purposes as their reason to issue equity privately raise concerns regarding the widespread use of board authorizations. An interesting approach to this matter would be to further separate the *General* subcategory based on a qualitative analysis and to differentiate the sample on how vague the issuers filings are. This approach may reveal results that indicates misuse of board authorizations and violations of the equal treatment principle.

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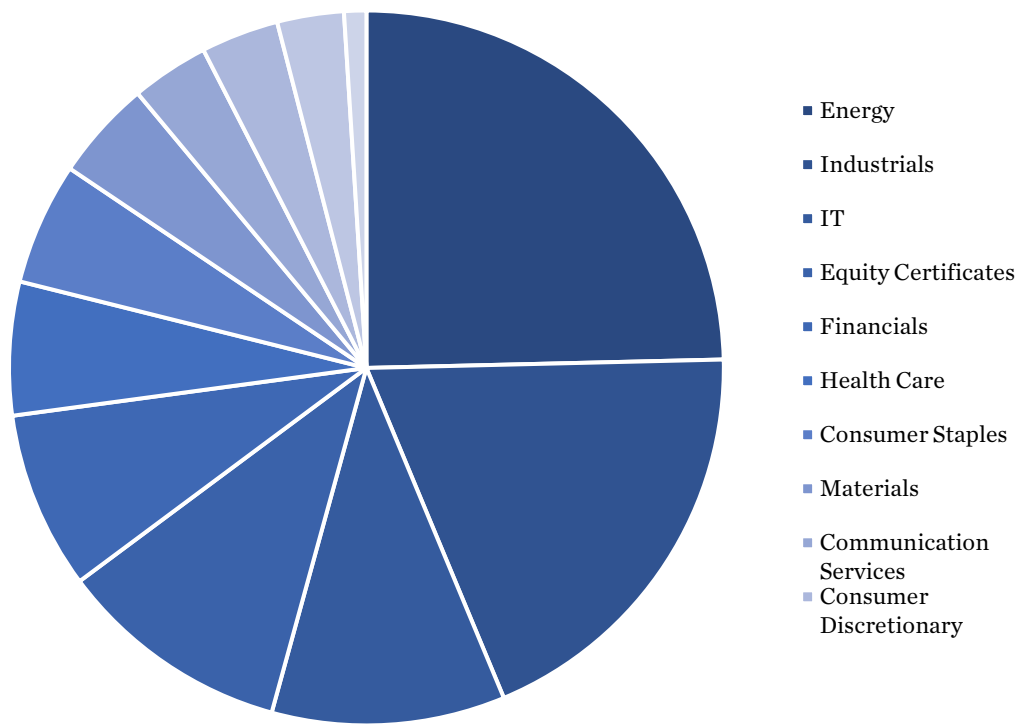
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Appendix A
Sector Composition on the Oslo Stock Exchange as of Beginning of 2020

Figure A.1
Sector Composition at the Oslo Stock Exchange (2020)

- Energy
- Industrials
- IT
- Equity Certificates
- Financials
- Health Care
- Consumer Staples
- Materials
- Communication Services
- Consumer Discretionary

NOTE. — This graph illustrates the sector characteristics on the Oslo Stock Exchange as of 31.12.2019. We have used all firms listed on the stock exchange and used their respective industry to create this pie chart.
Source: the Oslo Stock Exchange (2020).

Appendix B
Board Discussions Related to Section 5-14

Table B.1
Examples of Text Retrieved from NewsWeb (2020)

Issuer (Date)	Disclosed Board Discussions
Panoro Energy (22.10.2019)	"The Board believes that the Company's financial position should be strengthened ahead of these positive developments. The Board is further of the opinion that, taken into account the relative size of the Placement, an offer of shares directed to certain investors will result in a better subscription price, involve less time and costs and transaction risk that is the case of for a rights issue and hence, that the Placement is in the best interest of the Company. Consequently, the Board has resolved to waive exiting shareholders' preferential rights to subscribe for the New Shares."
NEL (21.01.2020)	"The Company has considered the Private Placement in light of the equal treatment obligations under the Norwegian Securities Trading Act and Oslo Børs' Circular no. 2/2014 and is of the opinion that the waiver of the preferential rights inherent in a private placement is considered necessary in the interest of time and successful completion. However, subject to completion of the Private Placement, the Board of Directors of the Company will consider to carry out a subsequent offering directed towards existing shareholders in the Company as of the end of trading today, 21 January 2020 (and as registered in the VPS as of the end of 23 January 2020) who are not resident in a jurisdiction where such offering would be unlawful, or would (in jurisdictions other than Norway) require any prospectus filing, registration or similar action who were not allocated shares in the Private Placement (the "Subsequent Offering"). The subscription price in a potential Subsequent Offering will be equal to the subscription price in the Private Placement. Taking into consideration the time, costs and expected terms of alternative methods of the securing the desired funding, as well as the subsequent offering considered, the Board of Directors has concluded that the conclusion of the Private Placement on acceptable terms at this time is in the common interest of the shareholders of the Company."

NOTE. — The texts presented above show how companies (post Circular no. 2/2014) are required to disclose discussions and various factors that resulted in deviation from the equal treatment rule in Section 5-14.

Appendix C
Myers and Majluf (1984)

Myers and Majluf (1984) introduced a theoretical model where the insiders (the management) knows the true value of assets in place, but the decision to raise equity and undertake the project is made in the best interest of existing shareholders. The management is reluctant to communicate information concerning the true value because it can reveal any corporate secrets to competitors. Assuming that the firm is limited to two states (good and bad), the bad state wants to mimic the good state to take advantage of the mispriced equity. Mimicking suppresses any signaling from the firm which leads to a weighted average valuation of the two states.

The purpose of this appendix is to explain the main insight (mathematically) from the model developed by Myers and Majluf (1984) and illustrates issues associated with asymmetries. This case demonstrates an investment opportunity at which the firm must give it up due to asymmetric information. We refer to Myers and Majluf's article for the full set of underlying assumptions for this example to hold.

Table C.1
List of Variables for the Myers and Majluf Example

List of Variables
a = Assets in place
b = Net Present Value (NPV) *of the Investment*
E = Capital raised
I = Investment amount
V_s^O = *Firm value for old shareholders in state s*
V^I = *Firm value if the firm issues and invest*

NOTE. – This is the complete set of variables that will be used to provide a mathematical example of the *underinvestment problem*.

For example, if the NPV in state 1 is larger than zero, i.e. $b_1 > 0$ but $b_2 < 0$, we will observe, for a sufficiently high NPV in state 1, that state 2 wants to mimic the strategy performed in state 1. To be more specific, let's assume the following values for an investment (I) amount equal to 100.

Table C.2
Numbers to Illustrate the Myers and Majluf's Underinvestment Problem

	State 1	State 2
a	200	50
b	100	-10

NOTE. — The difference between 200 and 50 is large (assets in place for state 1 and 2 respectively), hence we can expect a large degree of mispricing. The negative NPV in state 2 indicates that there will not be a separating equilibrium at which only state 2 issues and invests (I&I). Moreover, the large NPV in state 1 increases the credible threat for state 2 to mimic in order to exploit the mispricing of assets in place. This intuition supports the fact that we can end up with a pooling equilibrium at (DN, DN).

To test the above hypothesis, we must specify a set of believes concerning the management's decisions. First, let us assume that the market believes that the firm will only I&I in state 1, we can specify the belief in Equation 4 below.

$$Prob(s = 1|I\&I) = 1 \tag{5}$$

Using this specified belief in Equation 4, we can calculate the share of the firm retained by old shareholders and the corresponding market values for each state. The share retained by old shareholders is:

$$\frac{100 + 1 \cdot (200 + 100) + 0 \cdot \left(50 + (-10)\right) - 100}{100 + 1 \cdot (200 + 100) + 0 \cdot \left(50 + (-10)\right)}$$

0.75

According to this share of the firm (75%), we can specify the market values for old shareholders obtained from both state 1 and state 2 for I&I and DN respectively (see Table C.3).

Table C.3
Example of Myers and Majluf's Underinvestment Problem

	State 1	State 2
DN	200	50
I&I	**300**[a]	**105**[b]

NOTE. — The market values obtained for the old shareholders (given the specified belief) indicates that state 2 is better off from I&I, i.e. as previously expected, state 2 has an incentive to mimic state 1 and thus eliminate this equilibrium. Please note that the shaded areas are just to clarify the specified beliefs.

Clearly, if the market anticipates that the firm will only I&I in state 1, state 2 will mimic (replicate) the strategy in state 1 and thus eliminate the separating (fully revealing) equilibrium. Consider, however, a strategy where the firm does nothing in both states. We can specify the

---

[a] $V_2^O = 0.75 \cdot (50 + (-10) + 100)$
[b] $V_2^O = 0.75 \cdot (50 + (-10) + 100)$

market believes off the equilibrium path subsequently:

$$Prob(s = 1 | I\&I) = 0 \qquad (6)$$

We can then calculate the retained share by old shareholders (following the intuition as stated before) by stating that if the firm issues and invest, it cannot be in state 1:

$$\frac{100 + 0 \cdot (200 + 100) + 1 \cdot \left(50 + (-10)\right) - 100}{100 + 0 \cdot (200 + 100) + 1 \cdot \left(50 + (-10)\right)}$$

$$0.29$$

According to this share of the firm (29%), we can find the values for old shareholders obtained in both state 1 and state 2 for I&I and DN respectively (see Table C.3.1).

Table C.3.1
Example of Myers and Majluf's Underinvestment Problem (cont.)

	State 1	State 2
DN	**200**	**50**
I&I	114	40

NOTE. — As previously expected, state 2's incentive to mimic will discourage state 1 to I&I. Please note that the shaded areas are just to clarify the specified beliefs. In this case, the belief is off the equilibrium path at which the firm is not expected to issue and invest in state 1. Therefore, we must specify a belief at which the firm issues and invests in state 2 which is off the equilibrium path.

Now, we have a pooling equilibrium (DN, DN) at which the market cannot separate the two states from another. This implies that the firm value will equal the weighted average of the two states because the insiders cannot credibly communicate their information about state 1 to the market. The managers choose to forego a positive NPV (since they act in the old shareholders' best interest), i.e. the *underinvestment problem*. Noteworthy, we should check the equilibrium at which the firm does nothing in state 1 and issues and invest in state 2, however, the negative NPV in state 2 gives us the answer right away. As a conclusive remark to underline the pecking order theory; if the firm had slack (cash on hand) equal to the investment amount (100), the firm value would have been 170 compared to 125 as in this case.

Appendix D
Ordinary Least Squared Assumptions

I.   Linear in Parameters

The first assumption is that the regression model is linear in parameters (Wooldridge, 2012). This means that a set of linear parameters and an error term can estimate the explained variable. It is important to note that the explanatory variables do not need to be linear. However, if the relationship appears to be non-linear, a model re-specification may be suitable.

II.   Random Sampling

The sample that is drawn from a population must be a result of random selection (Wooldridge, 2012). This will (hopefully) ensure that the data is not correlated with each other. Violation of this assumption will cause the results to differ from the true value of the population and hence the coefficients are biased. The sample construction is vital for this assumption to hold.

III.   Zero Conditional Mean

The zero conditional mean assumption claims that the expected value of the error terms has a zero-mean value (Wooldridge, 2012). We want the error term to express random errors in our model, not systematical ones. Mathematically, the assumption is expressed as:

$$E(e_i|x_i) = 0 \tag{7}$$

The error term accounts for the variation in the dependent variable that the independent variables do not explain. For instance, if the mean value is above zero, the expected values from the model are systematically underpredicted. In some cases, a re-specification of the model may help and increase the predictability of the model.

IV.   No Multicollinearity

Multicollinearity exists when two or more explanatory variables in a multiple regression model are highly correlated (Wooldridge, 2012). Put differently, one predictor variable can be used to explain another. This phenomenon violates the assumptions that all explanatory variables should be independent which give unreliable results.

V.   Homoscedasticity

The fifth assumption apply that the variance of the error terms should be homoscedastic (Wooldridge, 2012). This means that the variance in the error terms should be independent of the explanatory variables and thus constant for all observations. Mathematically, the assumption is expressed as:

$$Var(e_i|x_i) = \sigma^2 \qquad (8)$$

If the size of the error term differs across values of an independent variable, the homoscedastic assumption is violated. We can easily examine this by looking at a scatterplot, i.e. if the variance increases or decreases throughout the dataset. Moreover, we can apply relevant tests to check whether the assumptions hold or not. A serious problem associated with a violation of this assumption is statistical inference, i.e. t-tests and confidence intervals are no longer correct (standard errors are biased).

Appendix E
Empirical Research of Private Placements

Table E.1
Methods and Results Related to prior Empirical Research on Private Placements

Study	Estimation Window	Event Window	Sample Period	Sample Size	Abnormal Return
Barclay, Holderness and Sheehan (2007)	(-260, -11)	(-1, 0)	1979-1997	559	1.70%
		(-1, 120)			-9.80%
		(-10, 120)			-8.80%
Molin (1996)	(-200, -20)	(0)	1987-1994	76	2.74%
		(-1, 1)			3.21%
		(-3, 1)			2.00%
		(-30, 20)			N/A
Hertzel and Smith (1993)	N/A	(-500, -30)	1980-1987	106	-14.80%
		(-59, -30)			1.23%
		(-29, -10)			4.99%
		(-9, 0)			3.28%
		(-3, 0)			1.72%
		(1, 10)			1.51%
		(-29, 10)			8.78%
Wruck (1989)	(-200, -60)	(-59, -4)	1979-1985	99	5.97%
		(-3, 0)			4.41%
		(-3, -2)			2.52%
		(-1, 0)			1.89%
		(1, 20)			-1.43%
Eckbo and Norli (2004)	(-310, 160)	(-1, 0)	1980-1996	153*	1.39%**
		(-3, 0)			2.66%**

NOTE. — This table summarize the different event window lengths applied in previous private placements studies. The abnormal returns are computed using the market model, otherwise something else is stated.

*This number included mergers. The sample size without mergers is 126.

**Mergers are included. See Eckbo and Norli (2004) for discussion regarding this subject.

Appendix F
Empirical Research of Seasoned Equity Offerings

Table F.1
Results Related to SEOs Internationally

Study	Sample Period	Sample Size	Abnormal Return
Asquith and Mullins (1986)	1963-1981	392	-1.60%
Kalay and Shimrat (1987)	1970-1982	455	-3.36%
Korajczyk, Lucas and McDonald (1990)	1974-1983	1,285	-2.94%
Eckbo and Masulis (1992)	1963-1981	1,057	-2.00%
Bayless and Chaplinsky (1996)	1968-1980	1,884	-2.30%
Atinkilic and Hansen (2003)	1990-1997	1,703	-2.23%
Heron and Lie (2004)	1980-1998	3,658	-2.50%

NOTE. — We refer to Eckbo, Masulis and Norli (2007, Figure 14, p. 156) concerning these values.

Appendix G
Use of Proceeds

Table G.1
Examples of Text Retrieved from NewsWeb (2020) and the Corresponding Use of Proceeds Category

Issuer	Date	Category	Typical wording
Havila Shipping	12/10/2012	Investment	"Net proceeds will be used to finance the equity portion which will be payable by the Company in the AHTS Transaction in which the Company intends to acquire the equity in the ship owning companies Havila Mars KS and Havila Mercury KS, each owning Havila Mars and Havila Mercury respectively."
Aker BP		Investment	"The Company intends to apply the net proceeds from the Private Placement to finance the acquisition of Hess Norge AS and for other general corporate purposes."
WEIFA	9/9/2014	General	"The net proceeds from the Private Placement will be used to fund strategic growth initiatives within the Company's Consumer Health and/or B2B business."
Bionor Pharma	6/14/2012	General	"The Company has a comprehensive clinical and preclinical program and will use the proceeds from the Private Placement to potentially fund these programs, for general business purposes and to strengthen the Company's balance sheet."
Dolphin Group	2/13/2013	Investment	"The proceeds from the Private Placement will be used to finance the equity part of the streamer package for Geo Atlantic as well as for working capital purposes."
Seabird Exploration Ltd	11/10/2009	Investment	"The proceeds from the Private Placement will be used for the equity financing requirement for one additional Ocean Bottom Node operation and for general corporate purposes. Furthermore SeaBird seeks to raise USD 26m in debt financing to fully fund the additional Node operation. This is intended to be provided by a GIEK (Garanti-instituttet for eksportkreditt) guaranteed financing, where SeaBird has received a conditional term sheet from BN bank for their up to 20% participation in the Guarantee together with GIEK."

Issuer	Date	Category	Typical wording
Renewable Energy Corp.	6/22/2012	Refinancing	"The proceeds from the Private Placement will be used for a partial cash redemption of EUR 100 million (including voting fee) of the Company's outstanding convertible bonds, investments related to sustaining a leading industry position, strengthening of the balance sheet and general corporate purposes"
Songa Offshore	10/16/2008	Refinancing	"The purpose of the private placement is to finance the Company's short term liquidity requirements, including debt repayment, cash calls from total return swaps and increase in Company's cashholdings."

NOTE. — The purpose of this table is to provide readers with the rationale behind our categorization of events based on the disclosed information from NewsWeb (2020).

85

Appendix H
Regression Outputs

Table H.1
Results from Regressing the Discount Adjusted Announcement Abnormal Return on the Change in Ownership for the Largest Shareholder

Discount Adjusted	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]
change_largest	-0.774	0.894	-0.86	0.388	-2.538	0.991
Constant	15.786	10.297	1.53	0.127	-4.535	36.106
Mean dependent var		18.848	SD dependent var			128.912
R-squared		0.004	Number of obs			178.000
F-test		0.749	Prob > F			0.388
Akaike crit. (AIC)		2237.233	Bayesian crit. (BIC)			2243.597

*** p<0.01, ** p<0.05, * p<0.1*

Table H.2
Results from Regressing the Unadjusted Announcement Abnormal Return on the Change in Ownership for the Largest Shareholder

Unadjusted Return	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]
Change Largest	-0.212***	0.080	-2.65	0.009	-0.370	-0.054
Constant	-4.669***	0.944	-4.94	0.000	-6.533	-2.805
Mean dependent var		-3.799	SD dependent var			12.109
R-squared		0.038	Number of obs			181.000
F-test		7.005	Prob > F			0.009
Akaike crit. (AIC)		1412.512	Bayesian crit. (BIC)			1418.909

*** p<0.01, ** p<0.05, * p<0.1*

Appendix I
Size- and book-to-market Breakpoints on the Oslo Stock Exchange

Table I.1
Allocation of Size Quintiles from 1999 to 2019 Measured each June

Year	Size Quintiles (NOK mill.)				
	1	2	3	4	5
2019	347	1,062	2,841	11,431	<
2018	439	1,492	3,363	11,468	<
2017	345	924	3,027	9,089	<
2016	243	600	1,795	7,610	<
2015	246	735	2,199	8,301	<
2014	263	756	2,283	7,645	<
2013	173	512	1,333	5,351	<
2012	169	536	1,440	4,103	<
2011	222	656	1,553	5,265	<
2010	188	514	1,421	4,522	<
2009	143	379	768	3,476	<
2008	362	834	2,067	5,762	<
2007	411	1,101	2,817	8,273	<
2006	355	871	2,130	6,599	<
2005	272	596	1,361	4,617	<
2004	191	502	1,105	3,048	<
2003	78	212	600	2,028	<
2002	94	270	813	2,307	<
2001	129	419	1,040	2,682	<
2000	184	457	1,173	2,902	<
1999	149	387	965	2,163	<

NOTE. — This table illustrates the maximum value corresponding to each quintile measured in NOK mill. each June from 1999 to 2019. The purpose of this table is to illustrate the different quintile identified to allocate firms in its respective quin- and quartile during the period.

Table I.2
Allocation of Book-to-Market Quartiles from 1999 to 2019 Measured each June

Year	Book-to-market Quartiles			
	1	2	3	4
2019	0.29	0.63	1.43	86.09
2018	0.24	0.52	1.14	58.95
2017	0.29	0.65	1.68	62.56
2016	0.34	0.85	2.63	53.41
2015	0.28	0.71	1.75	171.97
2014	0.35	0.65	1.32	222.49
2013	0.38	0.77	1.35	344.60
2012	0.42	0.97	1.58	260.51
2011	0.39	0.82	1.26	620.88
2010	0.42	0.88	1.48	81.65
2009	0.54	1.04	1.91	98.85
2008	0.31	0.52	0.84	42.58
2007	0.21	0.35	0.56	19.41

Year	Book-to-market Quartiles			
	1	**2**	**3**	**4**
2006	0.21	0.38	0.67	33.40
2005	0.25	0.41	0.64	34.70
2004	0.29	0.55	0.86	80.42
2003	0.54	0.88	1.61	59.30
2002	0.47	0.83	1.36	49.87
2001	0.44	0.72	1.26	104.48
2000	0.33	0.68	1.24	72.92
1999	0.50	0.82	1.58	90.16

NOTE. — This table illustrates the maximum value corresponding to each book-to-market quartile using the book value of equity reported $t-1$ divided by the market value in June each year from 1999 to 2019. The purpose of this table is to illustrate the different quintile identified to allocate firms in its respective quin- and quartile during the period.