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Prospectus Disclosure and Stock Price Dynamics around Seasoned Equity Offerings

Empirical Evidence from the Norwegian Equity Market

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Contents

ABSTRACT **5**

PREFACE **6**

1. INTRODUCTION **7**

2. SEASONED EQUITY OFFERINGS **11**

2.1 INTRODUCTION TO SEASONED EQUITY OFFERINGS 11

2.2 FLOTATION METHODS 12

2.2.1 Fully marketed offers *13*

2.2.2 Accelerated offers *13*

2.2.3 Rights offers *14*

2.3 FLOTATION COSTS 15

2.4 CHARACTERISTICS OF SEASONED EQUITY OFFERINGS IN NORWAY 16

3. THEORETICAL CONCEPTS RELATED TO EQUITY OFFERINGS **17**

3.1 MARKET EFFICIENCY AND CAPITAL STRUCTURE IN PERFECT CAPITAL MARKETS 17

3.1.1 Efficient market hypothesis *17*

3.1.2 Capital structure irrelevancy *18*

3.2 CAPITAL STRUCTURE IN IMPERFECT MARKETS 18

3.2.1 Agency issues *19*

3.2.2 Asymmetric information *20*

3.3 THEORETICAL EXAMPLE OF CHANGE IN FIRM VALUE UPON SEO ANNOUNCEMENT 22

4. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT **24**

4.1 INTENDED USE OF PROCEEDS AND STOCK PRICE REACTION TO SEO ANNOUNCEMENTS 24

4.2 INTENDED USE OF PROCEEDS AND LONG-RUN POST-ISSUE MARKET PERFORMANCE 26

4.3 INTENDED USE OF PROCEEDS AND POST-ISSUE OPERATING PERFORMANCE 28

5. DATA, SAMPLE SELECTION AND USE OF PROCEEDS CLASSIFICATION **30**

5.1 DATA AND SAMPLE SELECTION CRITERIA 30

5.2 INTENDED USE OF PROCEEDS CLASSIFICATION 31

5.3 SAMPLE DATA 32

6. METHODOLOGY **36**

6.1 ABNORMAL SEO ANNOUNCEMENT RETURNS 36

6.1.1 Estimation of abnormal announcement returns *36*

6.1.2 Cross-sectional regression analysis *38*

6.2 LONG-RUN POST-ISSUE ABNORMAL STOCK RETURNS 41

6.2.1 Matched-firm technique *42*

6.2.2 Time-series regressions *43*

6.3 CROSS-SECTIONAL ANALYSIS OF EX POST OPERATING PERFORMANCE 45

6.4 METHODOLOGY LIMITATIONS 47

7. EMPIRICAL RESULTS: SHORT-TERM EFFECTS 49

7.1 INTENDED USE OF PROCEEDS AND ABNORMAL ANNOUNCEMENT RETURNS 49

7.1.1 Descriptive sample statistics *49*

7.1.2 Market reaction to SEO announcements *50*

7.1.3 Offer price discount in accelerated offers *54*

7.1.4 Multivariate regression analysis *57*

8. EMPIRICAL RESULTS: LONG-TERM EFFECTS 63

8.1 INTENDED USE OF PROCEEDS AND LONG-RUN POST-ISSUE STOCK PERFORMANCE 63

8.1.1 Matched-firm technique *63*

8.1.2 Time-series regressions *68*

8.1.3 Seasoned equity offerings and market timing *71*

8.2 EX POST USE OF PROCEEDS AND OPERATING PERFORMANCE 75

8.2.1 Ex post use of proceeds and firm characteristics *75*

8.2.2 Ex post operating performance *78*

9. CONCLUSION 85

REFERENCES 88

APPENDIX A: STATISTICAL TESTS 94

APPENDIX B: USE OF PROCEEDS EXAMPLES 97

APPENDIX C: INDUSTRY-COMPOSITION 98

APPENDIX D: CORRELATION MATRIX 99

APPENDIX E: OLS REGRESSIONS ON CAR(-1,1) 100

APPENDIX F: FACTOR LOADINGS TIME-SERIES REGRESSIONS 101

List of tables

Table 1 - Number of sample SEOs: Oil vs. Non-Oil 33

Table 2 – Descriptive sample statistics 50

Table 3 – CARs around SEO announcement split by the intended use of proceeds 53

Table 4 – Two-sample t-test and Wilcoxon rank-sum test on CARs 54

Table 5 – Mean and median offer price discounts in accelerated offers 55

Table 6 – Cross-sectional regression analysis on abnormal announcement returns 58

Table 7 - Post-issue BHARs split by intended use of proceeds 65

Table 8 – Time-series regressions on 36-month long-run post-issue stock returns 69

Table 9 – Time-series regressions on long-run stock returns around SEOs 72

Table 10 – Ex post use of funds 75

Table 11 – Ex post change in leverage and liquidity ratio 77

Table 12 – Operating performance around seasoned equity offerings 79

Table 13 – Quantile regressions on change in ex post operating performance 82

List of figures

Figure 1 – Number of sample SEOs split by the intended use of proceeds (2000-2018) 33

Figure 2 – Industry-composition of sample firms 34

Figure 3 – Number of sample SEOs per flotation method 35

Figure 4 – Event study 37

Figure 5 – CAAR around SEO announcement 51

Figure 6 – 36-month development in ex post mean buy-and-hold abnormal returns 64

Figure 7 – Development in 48-month mean buy-and-hold abnormal returns around SEOs 73

Abstract

This paper examines the stylised facts concerning stock price dynamics around seasoned equity offerings, using a sample of 463 seasoned equity offerings made on the Oslo Stock Exchange between 2000 and 2018. We introduce the ex ante stated use of proceeds as a differentiating variable to test various branches of the capital structure theory.

Our main findings emphasise the importance of asymmetric information and agency issues in equity offerings, contradicting the more rationale explanations of the well documented "new issues puzzle". Stocks of SEO firms exhibit on average abnormal announcement returns of -4%, with a subsequent abnormal performance of -10% per year over a three-year period. We conclude that investors systematically underestimate, but correctly show the direction of valuation effects upon the announcement of equity offerings. While we do not preclude that mispricing is a partial determining factor of the security choice, we suggest that firms choose the least costly way of financing by utilising periods where the accessibility to capital is better, which appear to be associated with overly optimistic market expectations.

Furthermore, the ex ante stated use of proceeds helps to differentiate issuers with better post-offering prospects. We show that the market correctly incorporates new information revealed upon the announcement when proceeds are raised to fund specific investments. Conversely, our results indicate that the apparent timing motive generally is restricted to issuers disclosing vague investment plans or those who leave the filings ambiguous. These issuers seem to take advantage of "windows" where the investor sentiment is especially strong, and subsequently suffer from too optimistic market expectations. However, the underperformance is documented to be most severe for issuers of distressed equity, which appear to raise funds during prolonged market downturns and consequently fail to satisfactorily turn around the performance of its existing assets in place.

Our findings are economically important in the sense that the disclosed information on the intended use of proceeds is publicly available upon or prior to the offerings. This means that investors can use ex ante information to get valuable insights into the future stock performance of the issuing firms.

Preface

With the completion of this thesis, we mark the end of our Master of Science in Financial Economics at the Norwegian School of Economics. We entered September 2019 with no topic at hand, only a number of ideas. Our interest for corporate finance finally led us towards the stylised facts about the capital structure decision.

The process has been of many ups and downs, leaving us, at times, with the feeling of perplexity. However, as Bertrand Russell once said: "The time you enjoy wasting is not wasted time". We only grow through diversity, so we welcome the bumps on the ride.

We would finally like to show our appreciation to our supervisor, Thore Johnsen, providing us with generous support and guidance throughout the process. In addition, we would like to thank DNB Markets for providing us with access to Dealogic, making this thesis possible.

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1. Introduction

Seasoned equity offerings have for long been subject of considerable debate in the academia. A vast body of existing literature documents a negative market reaction to the announcement of such offerings, and subsequently poor long-run stock returns. The price dynamics around these offerings seem to indicate that managers are issuing equity in periods of temporary overvaluation, where the market underreacts to information revealed upon the announcements. These stylised facts have been among the greatest challenges to the conventional paradigm of market efficiency and, to some researchers, motivated to the development of behavioural asset pricing models.

Stigler (1964) was the first researcher to document the surprisingly low stock returns following seasoned equity offerings. The findings have later been documented by Spiess and Affleck-Graves (1995) and Loughran and Ritter (1997), showing that SEO firms in the US underperform non-issuing control firms by 20-30% over a three-to five-year period. Supportive evidence is provided by Eberhart and Siddique (2002) and Burch et al. (2004). Levis (1995) and Armitage (2002) also provide early evidence on negative abnormal post-issue returns in the UK, which Ngatuni et al. (2007) corroborate. However, Barber and Lyon (1997) and Kothari and Warner (1997) have shown that time aggregation of abnormal returns have a substantial impact on the results. Later, it has also been shown that pricing model specifications and time variation in expected returns may resolve the puzzling price dynamics (see Mitchell and Stafford, 2000; Eckbo et al., 2000).

The debate of what causes the apparent ability of firms to time their equity issues to periods followed by low market returns is still inconclusive. Common explanations for the documented value decline can be put into to three broad non-mutually exclusive categories. First, researchers suggest that the announcement of a seasoned equity offering indirectly conveys negative information about the existing firm value. Given that the market slowly incorporates such information, firms can take advantage of asymmetric information and issue equity in periods of temporary overvaluation to transfer wealth from new to existing shareholders. Second, in presence of agency problems, the capital inflow may not be utilised in a value-maximising manner. This explanation suggests that firms with less valuable growth prospects are more likely to raise proceeds to engage in agency spending due to misaligned incentives between managers and shareholders. Lastly, more rational explanations have been developed over the last two decades, whereof some researches attribute the value decline to a

form of pseudo market timing or a failure in properly controlling for fundamental shifts in the riskiness of the firms' assets around the offerings.

In our study, we intend to analyse both announcement returns and long-run stock and operating performance following seasoned equity offerings on the Norwegian market. We also intend to better understand the motives for firms to issue seasoned equity, and the information that is revealed to the market about the quality of the issuers' subsequent uses of capital inflow. This again helps us to better understand the role of agency issues and asymmetry between managers and investors in equity offerings. We revisit and provide new evidence on whether equity is issued for a value-increasing manner by focusing on firms' stated intention for the proceeds soon-to-be raised. Using issuers' filings from Oslo Bors NewsWeb, we document whether the use of proceeds is primarily intended for specific investments (*Investment),* vague growth initiatives (*Capex*), refinancing reasons (*Refinancing*), or if the firms left the filings ambiguous by stating that the majority of the capital is raised for general corporate purposes (*General*). As these filings are the primary source of information upon the announcement of equity offerings, managers may influence market expectations by the information they reveal, hence it is fundamental to understand the usefulness of such disclosures.

We divide the empirical analysis into three steps. First, we examine the market reaction to the announcement of seasoned equity offerings in relation to the disclosed information on the intended use of proceeds. We expect issuers revealing specific investment motives to exhibit superior announcement returns relative to that of more ambiguous issuers, hence they are expected to credibly signal that proceeds are to be raised for profitable investments. This prediction is consistent with the findings of Silva and Bilinski (2015) and Walker and Yost (2008), who document that investors react positively to the announcement of specific investment plans, whereas more ambiguous issuers exhibit negative abnormal returns around the announcement date. Both papers find support in the view that agency issues are important factors in equity offerings. Second, we examine prospectus disclosure and long-run post-issue stock performance, using both the matched-firm technique and beta pricing models. Consistent with the expectations on announcement effects, we expect issuers disclosing specific investment motives to exhibit no abnormal performance over a post-issue period of three years. We also suggest that ambiguous issuers may be more likely to have a timing motive or similar attempt to mask bad information about firm prospects. Our predictions are based on findings by Autore et al. (2009), who find little significant ex post underperformance for issuers citing specific investment motives in the US. They argue that these issuers are raising

equity in response of arising investment opportunities, regardless of under-or overvaluation of their stocks. They also find that issuers that are vague about their primary motivation behind the offering, or intend to repay debt, appear to exploit overly optimistic market expectations. Finally, we examine ex post firm characteristics to better understand the link between ex ante stated use of proceeds and post-issue operating performance. Consistent with their findings on long-run stock performance, Autore et al. (2009) find evidence that issuers stating general or pure capital structure motives exhibit greater declines in the operating performance relative to that of issuers revealing specific investment plans. The findings are in line with Hertzel and Li (2007), who document that issuers with higher growth options invest more after the equity offerings and do not suffer from poor post-issue performance. We thus expect the ex post operating performance to be generally consistent with the findings on long-run post-issue stock returns.

Our main findings suggest that prospectus disclosure on the intended use of proceeds helps to differentiate issuers that may have a timing-motive to those that are in immediate need of liquidity or credibly intend to take on arising growth opportunities. Firms revealing specific investment motives on average exhibit positive abnormal returns upon the announcement of the offering, and with no subsequently abnormal stock performance in the long-run. This suggests that these issuers are credibly signalling that the proceeds are raised for a value-increasing manner. Moreover, we find large offer price discounts and negative stock returns upon the announcement for issuers stating that proceeds are raised for vague investment or general purposes. These issuers also exhibit strong pre-issue stock returns and subsequently poor stock and operating performance in the long-run. Our findings suggest that ambiguous issuers are more likely to engage in agency spending or take advantage of periods of temporary stock overvaluation. Finally, the empirical results indicate that issuers stating refinancing reasons usually are in financial distress and raise equity during prolonged market downturns. The offer price is often set well below the market price to ensure a successful completion of the offering, where the announcement returns suffer accordingly. These issuers also significantly underperform benchmark firms matched on size and book-to-market ratio over a three-year period. We suggest that investors are too confident about a turnaround in the operating performance of these firms' existing assets, and are consequently disappointed when the performance does not improve satisfactorily. Overall, we find evidence that investors systematically underestimate, but correctly show the direction of, valuation effects upon the announcement of equity offerings when proceeds are not intended for specific investment

reasons. Consistent with previous literature, this implies that investors are overly optimistic about these firms' prospects at the time of the announcement.

Our paper contributes to the literature in three ways. Firstly, to our knowledge, the paper is the first to investigate the relationship between the ex ante stated use of proceeds and long-run post-SEO performance in the Norwegian equity market. Secondly, we provide evidence on the predictive ability of publicly-available information for long-run post-issue stock returns. Specifically, we show that differentiating SEOs on the basis of intended use of proceeds provides an opportunity to identify firms with better post-offering prospects. Finally, we take a second look on disclosed information on the intended use of proceeds and the market reaction upon SEO announcements using a somewhat broader sample than Width and Årseth (2018).

We have organised the remainder of this paper as following. In Section 2, we provide an introduction to seasoned equity offerings, followed by some fundamental theoretical concepts relevant for our paper in Section 3. In Section 4, we review existing literature and present our expectations and hypotheses for the empirical analysis. In Section 5, we present a detailed description of our data and sample selection criteria, while we in Section 6 describe the different methodologies that we apply. Eventually, in Section 7 and 8, we present and discuss the empirical results, before we provide our conclusion in Section 9.

2. Seasoned Equity Offerings

In this section, we provide an introduction to seasoned equity offerings as well as explaining the main reasons for raising external capital through the equity capital market. Furthermore, we present the most common flotation methods and how these are structured. We also describe different types of costs related to equity offerings. Eventually, we provide a brief description of some unique characteristics for the Norwegian equity market.

2.1 Introduction to seasoned equity offerings

Throughout the lifespan of a company, capital is necessary to secure sufficient financial flexibility to survive economic downturns or take on arising growth opportunities. When a firm is in need of capital, firms will have the choice of raising external funds or use internal financing, if available, also referred to as retained earnings. Given the likelihood that internal funds may be insufficient, raising funds from external sources may be the only viable alternative, more often than not. External capital can be raised in various ways, both in the private and public market. One of the main advantages of being publicly listed on a stock exchange is the improved accessibility to external capital, both equity and debt. Raising equity capital in the public market can be done through a seasoned equity offering (SEO), also referred to as a follow-on offering. An SEO refers to an equity offering that follows from a firm's initial public offering (IPO). This type of raising capital is much like an IPO but differentiates in the way that the company is already publicly traded ex ante to the offering, hence the price setting is generally much less complex. Furthermore, we can differentiate SEOs between primary and secondary offerings. While a primary offering refers to the issuance of additional shares, secondary offerings are already outstanding shares sold by existing shareholders. Thus, only primary offerings or a mix between primary and secondary offerings raise proceeds for the issuer.

When firms contemplate or decide to do a seasoned equity offering, an announcement is disclosed through a market channel for the respective stock exchange. The issuer is typically required to publish detailed terms and rights combined with relevant information on the company itself. These are restricted to regulatory requirements and may vary significantly according to jurisdictions. In relation to this, SEO firms typically disclose information regarding the main reasons for the equity issue, referred to as the *intended use of proceeds*.

The most common disclosed motives for conducting SEOs are needs for increased liquidity, refinance or replace existing or maturing securities, capital expenditures or new investments. Firms also reveal more vague information, such that the proceeds will be used for general corporate purposes. These prospectus disclosures are important in the way that some issuing firms may, for various reasons, have incentives to be more ambiguous on the intended use of proceeds, whilst others are better off by revealing specific information regarding the capital raise. We will discuss this further in Section 3.3.

In relation to a contemplated seasoned equity offering, firms usually employ one or several investment banks to underwrite the equity issue, referred to as the *underwriters*. The underwriters typically act as advisors during the process and; originate, structure, and execute the offering. In most cases, they also guarantee for the completion of the issue. Their specific role and how they are selected vary from deal to deal, dependent on the issuers' choice of *flotation method*. We refer to the flotation method as the choice of deal type; in other words, how the offering process is structured. This is important in the way that it may have a substantial impact on the pricing of the offering, execution time, targeted investors, and costs related to the underwriting process. We describe this further in the subsequent section.

2.2 Flotation methods

Following Gao and Ritter (2010), we categorise primary offerings into three major types: fully marketed offers, accelerated offers, and rights offers. While rights offers are exclusively directed towards existing shareholders, accelerated and fully marketed offers may open up for new investors. There also exist several subgroups within the three main categories of flotation methods, which differ in the way they are structured. The importance of the various deal types differs across countries, with larger capital markets exhibiting different preferences than those in smaller capital markets (Eckbo et al., 2007). This has also varied over time. For instance, before the late 1990s, fully marketed offers dominated in the US, while rights offers were the more common choice of flotation method in regions such as Asia and Europe. During the last decades, more and more companies worldwide have raised equity through accelerated offers. Bortolli et al. (2008) suggest that this trend represents a shift towards an auction model. They find that these transactions are associated with lower underwriting fees and suffer less from underpricing.

2.2.1 Fully marketed offers

In a fully marketed offer, the issuer usually appoints one or more investment banks to act as the underwriters on the deal, with the responsibility to price and market the potential offering. The process, which typically takes up to two-three weeks, resembles much like an IPO where the underwriters conduct due diligence investigation, certify the quality of the company, print prospectus and arrange a road show[1]. At the same time, the bookrunner (lead underwriter) examines the investor demand and builds an orderbook used to determine the offer price (Gao and Ritter, 2010). Subsequently, the final offer price and prospectus are disclosed, and the underwriters distribute shares to the participating investors.

The flotation method is considered to be the most time-consuming form of an SEO and is often used by less recognised firms with a high degree of asymmetric information between managers and the market. Fully marketed offers are also considered as the most expensive deal type in terms of direct costs due to high underwriting fees and substantial marketing effort. However, in contrast to Bortolli et al. (2008), Geo and Ritter (2010) find evidence that marketing flattens the demand curve of the issuers' stock, resulting in higher offer price and post-issue share price. Consequently, they argue that the choice of flotation method is much about a trade-off between direct and indirect costs[2].

2.2.2 Accelerated offers

The second category of flotation method is accelerated offers, which can further be divided into accelerated bookbuild offers and bought deals. These types of offerings abstain from the time-consuming marketing period applied in fully marketed offerings. For accelerated bookbuild offers, the investment banks submit proposals for the right to underwrite the sale, often specifying a gross spread (Gao and Ritter, 2010). Then the issuing firm typically selects a syndicate of underwriters, which begin the bookbuilding immediately after the announcement of the offering. Due to this "accelerated" underwriting process, the execution time is usually less than 48 hours.

[1] Management of the issuing firm meets selected institutional investors, analysts, brokers etc.

[2] We describe these types of offering costs in Section 2.3

Unlike accelerated bookbuild offers, the issuing firm will in a bought deal announce the number of shares it contemplates to sell, and underwriters participate in an auction to acquire the total amount of these shares. The highest bidder (or a syndicate of bidders) wins the deal and re-sells the shares to investors, typically within 24 hours. As a consequence, the risk of financing is to a greater extent transferred to the underwriters in bought deals. However, the participating banks often end up acquiring the new shares at a fair discount, hence they are compensated for the increased riskiness of the underwriting process.

In many cases, the announcement and execution of accelerated offers take place after market closing to reduce disruptions in the pricing process, hence an overnight bookbuild is often preferred. To secure a rapid execution process, the underwriters typically turn towards certain large institutional and private investors (this may also include some of the existing shareholders). The main advantage of accelerated offers compared to fully marketed offers is therefore the substantial reduction in time and resources spent on the offering, which in turn lower the costs related to the underwriting process. Due to the structure of these transactions, accelerated offers are often used by well-known firms, in smaller equity transactions, in acquisition processes, or firms in severe need of swift liquidity.

2.2.3 Rights offers

In contrast to fully marketed and accelerated offers, rights offerings only target existing shareholders. In a rights offer, current shareholders receive rights (short-term warrants) to purchase additional stock shares. The shares are offered on a pro rata basis at a fixed offer price. The shareholders then need to decide whether they want to exercise their rights or not. Consequently, the flotation method gives existing shareholders the opportunity to not be diluted in the equity offering. Furthermore, the deal type protects existing shareholders from underpricing as a potential discount accrues to themselves. To incentivise existing shareholders to participate in the offering, the subscription price (at which each share may be purchased) is generally set to a discount relative to the current market price, which also allows for adverse share price movements prior to the issue. However, it is common that the rights are transferable, allowing the holders of the rights to sell them in the open market, hence they are compensated for being diluted if they decide to not exercise their rights.

While rights offers generally are preferable due to; the underpricing protection for existing shareholders, low underwriting costs, and non-dilutive characteristics (for participating

shareholders), the long duration of the subscription period makes the offering process more time-consuming and provides less structural flexibility for the issuer. Also, a rights issue may not be appropriate when raising large amounts of capital as the funds available to individual shareholders are likely to be somewhat limited (Watson and Head, 2007).

2.3 Flotation costs

An important notion in the choice of flotation method is the expected cost of the offering. Although not as costly as IPOs, seasoned offerings are still expensive. Eckbo et al. (2007) differ between direct and indirect flotation costs, where the direct costs include components such as: (i) underwriter compensation, primarily made up by fees to underwriters (including warrants and over-allotment options[3]); and (ii) out-of-pocket expenses, including fees to law firms and accountants, registration and listing fees, printing, and marketing expenses (including road shows). Indirect flotation costs include: (i) underpricing, commonly referred to as the offer price relative to the closing price on the offer date or the pre-issue closing price; (ii) stock price reaction to the initial offering announcement (including any follow-up announcements on offering-specific characteristics), as this is affecting the offer price; and (iii) potential costs of delays and cancellations, in which the issuer is bearing most of the out of pocket expenses without realising the benefits of raising capital.

It is well known that underwriting compensation represents an economically important portion of flotation costs when firms conduct seasoned equity offerings, documented to be in the range between 3% and 8% of gross issue proceeds (Lee and Masulis, 2007). Additionally, existing literature finds evidence of SEO announcement returns in the range between -2% and -3%. This has an important implication, as a firm offering 10% of current shares outstanding, assuming an announcement return of -2%, only raises the equity capital by 80% of the gross issue proceeds. Consequently, the equity announcement effect may also represent a significant component of equity flotation costs. In that respect, with the less costly process of rights offers, it has for a long time been puzzling why rights offers have not been the preferred choice of flotation method in some countries, notably the US. One argument is that the underwriter can more credibly certify the firm quality if taking on a larger role. Hence, in presence of

[3]Overall-allotment option, also known as greenshoe provision, is an option available to underwriters to sell additional shares in an equity offering than initially planned.

asymmetric information and low expected shareholder takeup, the benefits of certification might overcome the underwriting compensation (Eckbo and Masulis, 1992). Also, this flotation type is subject to certain procedural requirements making the offering process more time-consuming. It is therefore plausible to believe that the limited flexibility also makes the flotation method less attractive.

2.4 Characteristics of seasoned equity offerings in Norway

Issuing new shares in the Norwegian market is a fairly uncomplicated process. In contrast to the US, the offerings are often carried out through an accelerated process, or more commonly referred to as *private placements,* reflecting the fact that these offerings often are directed towards a limited group of investors. However, security offerings in Norway need to comply with the equal treatment principles under the Norwegian Securities Act, which states that: *issuers of financial instruments admitted to trading on a Norwegian regulated market must treat the holders of their financial instruments on an equal basis*. *Differential treatment is permitted if the issuer has factual basis in the common interest of the issuer and the holders*[4]. In connection with equity offerings, this means that all the current shareholders must be treated equally unless the issuing firm and its shareholders, for various reasons, have a common interest in deviating from this.

The increase in use of private placements in Norway has been subject to debate, as the existing shareholders not invited to participate in the offerings often are substantially diluted, without or only a small subsequent repair offering. Subsequent repair offers are to some degree a Norwegian phenomenon, where rights are offered to existing shareholders not invited to participate in the private placement, with the purpose of reducing the dilutive effect of the placement. Due to the strong trend in the use of private placements, Oslo Stock Exchange now intends to place particular emphasis on the issuers' compliance with the duty to treat investors equally (Oslo Børs, 2019).

[4] Oslo Børs (2019). *Guidelines on the rule of equal treatment.*

3. Theoretical concepts related to equity offerings

This section describes basic corporate finance theory on market efficiency and capital structure. Additionally, we explain some theoretical concepts commonly referred to in empirical studies on seasoned equity offerings. Finally, we present a theoretical example of why some firms reveal more specific information when contemplating to raise equity capital. Together, this underpins the basis for our expectations of the empirical findings in Section 7 and 8.

3.1 Market efficiency and capital structure in perfect capital markets

3.1.1 Efficient market hypothesis

Persistent long-run underperformance following IPOs and SEOs has been extensively debated in the literature, and has for many years been among the greatest challenges to the traditional paradigm of market efficiency. The efficient market hypothesis (EMH) asserts that securities reflect all available information, in other words, its true fundamental value. Thus, given that the securities markets are efficient, there should not be possible to out- or underperform the market over time. However, since information is costly, Grossman and Stiglitz (1980) argue that if securities reflect all available information, market participants do not have incentives to gather, analyse and trade on available information, hence securities will no longer reflect its intrinsic value. This is referred to as *the efficiency paradox.* They further argue that a non-deteriorated market equilibrium only will arise if there exists sufficient market inefficiency, compensating for the cost of collecting and trade on the information. The profits earned by diligent investors may thus be considered as economic rents accruing to those that are willing to engage in the costly collection of information (Lo and MacKinley, 1999).

Assuming that the semi-strong form of market efficiency holds, in which all publicly available information is reflected in the security prices, new public information that occurs should be reflected immediately following the announcement. Therefore, a corporate event study where new information is revealed may indicate the degree of market efficiency. The literature is somewhat inconsistent in its findings when studying different corporate events. However, DeBondt and Thaler (1985) suggest that the stock market tends to overreact to various news but will with time stabilise around its new intrinsic value. Moreover, Bernard and Thomas

(1989) analyse stock price reactions to earnings-announcements. Their findings suggest the existence of a post-announcement drift, in which new information is not fully reflected in the stock prices immediately after the announcement. They argue that the market fails to interpret the implications regarding the companies' future earnings in light of current earnings, hence the new information will only be gradually reflected in the stock prices. However, a more recent study by Jeffrey et al. (2008) indicates that transaction costs can provide an explanation for both the persistence and the existence of the post-earnings announcement drift.

3.1.2 Capital structure irrelevancy

In an important paper that surprised researchers and practitioners at the time, Modigliani and Miller (1958) proposed that the value of a firm is independent of its capital structure and rather solely depends on its future cash flows. Their reasoning is under the assumption of perfect capital markets, where all securities are fairly priced, no taxes and transaction costs, and that the cash flows are not affected by the financing decision (Berk and DeMarzo, 2017). They argue that the cost of capital remains constant despite a change in the capital structure. The rationale is that higher leverage increases the risk of the equity, hence equity holders require higher returns to be compensated for the additional risk of holding the equity. Consequently, the increase in cost of equity is offset by higher leverage, as the cost of debt is lower than cost of equity, hence the cost of capital remains unchanged. Although the underlying assumptions of perfect capital markets do not hold in practice, the setting provides an important benchmark.

3.2 Capital structure in imperfect markets

In reality, the capital structure has considerable implications for firms that intend to raise capital. Firm managers spend much time, effort and expenses determining the optimal capital structure. There are also large, systematic variations in capital structures across industries, reflecting that the leverage is of critical importance to a firm's future value and success. The latest theories suggest a trade-off between several factors when determining the optimal capital structure to maximize firm value. As firms pay taxes on income earned, they benefit from leverage in the way that interest on debt financing is tax-deductible, referred to as interest tax shield. This suggests that the optimal capital structure is when the interest paid on the debt equals the firm's earnings before interest and taxes. However, leverage also increases costs of financial distress as the likelihood that a firm will be unable to meet its debt obligations

increases. Consequently, differences in the magnitude of financial distress costs and the volatility of cash flows can explain some of the differences in leverage across industries (Berk and DeMarzo, 2017). That said, the literature has extended the model to include other effects of leverage, as this solely cannot explain all variations observed. With the presence of market imperfections, the choice of capital structure can affect firms' costs of financial distress, alter managers' incentives, and signal information to investors. Thus, the trade-off theory also includes costs and benefits of incentives that arise of leverage. In relation to this, we present some of the most important implications for issuances of seasoned equity below.

3.2.1 Agency issues

For a levered firm, a conflict of interest arises if an investment decision has different consequences for the value of equity and the value of the debt, often more severe when the risk of financial distress is high (Berk and DeMarzo, 2017). As the management is hired and retained by the board of directors (which are elected by the shareholders), the managers may often take actions that harm the creditors while shareholders are better off. For instance, if a company is in severe financial distress, the managers may be willing to take on very risky investments as the shareholders have little (or nothing) to lose if the investment fails, even if the NPV of the investment is negative. However, this excessive risk-taking may decrease the expected value for the debtholders significantly. On the contrary, assuming that the same company only can invest in a less risky project with positive NPV and that the current firm value is less than the outstanding debt, the firm may choose not to finance the project as the shareholders might be worse off. This is referred to as the debt overhang or under-investment problem, representing an agency cost to the firm.

Furthermore, Jensen and Meckling (1976) brought the agent theory into light by describing how misaligned incentives between agents (managers) and principals (debt and equity holders) can result in decisions favouring the agents at the expense of the principals. Since managers often face little threat of being replaced, unless the firms' performance is very poor[5], they can run the business in their own best interests without being exposed to the same risk as the principals. Jensen (1986) suggests that managers in levered firms with high levels of excess cash flow are more likely to raise capital to invest in a value-decreasing manner, as they may

[5] See, for example, D. Jenter and K. Lewellen (2012) – Performance-induced CEO Turnover, *working paper*

have incentives to grow the firm size rather than improve profitability[6]. Furthermore, Myers and Majluf (1984) also suggest that managers have incentives to raise equity and invest in negative NPV projects if they consider the equity overvalued and expect the loss from the unprofitable investment to be offset by the gain from issuing equity above its intrinsic value. This is closely related to the degree from asymmetric information, which we describe in the subsequent section. Lastly, the wealth-transfer-effect hypothesis, presented by Galai and Masulis (1976), suggests that an unexpected reduction in leverage due to an equity capital raise, transfer wealth from shareholders to debtholders. They argue that debtholders gain since they still receive the same risk-premium even though the riskiness of the debt is reduced.

3.2.2 Asymmetric information

Besides having incentives to alter a firm's capital structure at the expense of the debt and equity holders, managers are also likely to hold superior information about the firm and its future cash flows relative to that of outside investors (Berk and DeMarzo, 2017). In such instances, there exists a level of asymmetric information between managers and investors, which further may motivate managers to take specific actions in modifying the capital structure. Below, we discuss some of these complications in relation to equity issuances.

Adverse selection

Adverse selection is a result of information divergence between seller and buyer. Arkelof (1970) refers to adverse selection as the lemon principle, in which the seller of a good holds superior information to that of the buyer, hence the buyer is only willing to buy the good at a discounted price. Even though this is a general principle for any setting in which the seller holds superior information, it is highly relevant in the equity capital market as the insiders often hold superior information to that of outside investors. For instance, considering that a large existing shareholder (or some of the managers) decides to sell a significant stake of its ownership for various reasons, outside investors may then question the firm prospects as one would expect the insiders to hold superior information. Consequently, outside investors lower the price that they are willing to pay for the equity, as they require compensation for the increased uncertainty. The theory could help to partly explain the discounts observed in

[6] According to Berk and DeMarzo (2017), one potential reason is that managers in larger firms have higher salaries. Additionally, they may be attracted to the prestige of running larger companies as well as more publicity.

connection to equity offerings where managers are selling equity on behalf of the firm. The issue discount acts as a cost of issuing equity, and owners with good information may thus refrain from issuing equity. This again leads us to the same lemons problem, as only managers that know the security has a low value will sell, hence investors are only willing to acquire the offered shares at a discount (Berk and DeMarzo, 2017).

Market timing and signalling effects

The market timing hypothesis describes how managers preferred choice of financing may depend on whether they believe their equity is under – or overvalued. If managers consider the market to be overly optimistic about future growth prospects, they have incentives to issue overvalued equity. Should however the management have the impression that their equity is undervalued, their preferred choice of financing would rather be cash on the balance (if available) or debt. Managers' choice of financing is also closely linked to the theory about the signalling effect, which describes how investors consider the management to be the superior source of information and thus can invest according to the action taken by the management. Since investors often expect the management to be positively biased, they have to credibly signal its knowledge about the firm to convince the market. The theory suggests that the use of leverage might more credibly signal valuable growth prospects than the use of equity, as the firm then might be at risk of defaulting if these growth opportunities are non-existing. In other words, the actions might be too costly to take if the claims were untrue (Berk and DeMarzo, 2017).

Consistent with the idea that debt offerings might credibly signal more valuable growth prospects, Myers (1984) suggests that managers would prefer to use retained earnings as their choice of financing, and only equity as a last resort, referred to as the *pecking order theory*. The hypothesis can be said to be supported by aggregate data on corporate finance, showing that firms are net repurchases, rather than issuers, of equity. The opposite trend is observed for debt offerings. Moreover, only 10% of firms' capex needs have on average been financed through external capital, supporting the view of retained earnings being the preferred source of financing (Berk and DeMarzo, 2017; Federal Reserve, 2015).

3.3 Theoretical example of change in firm value upon SEO announcement

As described in Section 2.1, at the time of the SEO announcement, firms typically disclose the main motive of the of the equity offering. However, for various reasons, some firms choose to be more ambiguous than others. According to Walker and Yost (2008), firms may bear strategic costs of revealing specifics in cases where; the information is useful to rivals, proceeds are used to increase liquidity to have the flexibility to take on future growth opportunities, or where the management tends to engage in agency spending. Conversely, firms raising proceeds for projects that are more valuable than the market is currently considering as the marginal benefit of new projects have incentives to reveal specific information about its investment plans. Following Walker and Yost (2008) and Myers and Majluf (1984), we provide a mathematical description of the theoretical market reaction upon the announcement of seasoned equity offerings in relation to what type of information the issuing firms choose to reveal. The illustration assumes that the growth prospect of a company is known and that the market will make unbiased value estimation based on the information revealed. We also assume that firms have only good projects or only bad projects to invest in.

In the first equation, we assume that no firms reveal specific information in the equity offering. R_H and R_L are the rates of return on the good and bad projects, respectively. Furthermore, we assume that $R_H > R_L$ and $R_H > 1$. α is the probability assessed by the market of whether the projects are good or bad, and firms must raise capital I to invest in the specific projects. Then the expected change in value ΔV for firm j is:

$$\Delta V_j = [\alpha R_H + (1 - \alpha) R_L - 1] I_j \qquad \text{Eq. (1)}$$

Next, we assume that the market is capable of identifying good and bad projects if the firm chooses to disclose specifics. However, we also assume that some firms with value-creating projects choose to not reveal specific information for various strategic reasons. Thus, when a firm chooses to reveal a good project, the market will assign $\alpha = 1$, leaving us with the following equation for these issuers:

$$\Delta V_j = [R_H - 1] I_j \qquad \text{Eq. (2)}$$

From Equation (1) and (2), we see that firms with good projects available will choose to disclose information on their intended use of proceeds, unless having a strategic reason for

doing otherwise (Eq. (2) greater than Eq. (1)). Conversely, we would expect firms with bad projects (or having strategic reasons) to be ambiguous.

Further, assuming that only some firms reveal specific information and that δ is the probability that a non-revealing firm has a good project, the equation for firms that do not reveal will be:

$$\Delta V_j = [\delta R_H + (1 - \delta) R_L - 1] I_j \qquad \text{Eq. (3)}$$

and if a firm with bad projects reveals specifics, the change in value is:

$$\Delta V_j = [R_L - 1] I_j \qquad \text{Eq. (4)}$$

From Equation (3) and (4), we can then see that firms with bad projects are better off by not disclosing specific information as long as $\delta > 0$. Assuming that some firms with good projects will be ambiguous due to various strategic reasons, the market is likely to reflect $\delta > 0$, hence we expect these issuers to disclose more vague statements on the intended use of proceeds.

Although this is a simplified illustration, it provides us with a theoretical fundament when analysing stock price reactions to the announcement of seasoned equity offerings in Section 7.2. In practice, most firms reveal some information on the intended use of proceeds, hence it is much about how compelling the managers are in its strategic communication with the market. However, we still argue that this theoretical concept suits well when distinguishing between issuers revealing specifics about its investment plans and issuers that disclose more vague investment reasons for the capital raise. In these cases, the market participants need to evaluate the probability of whether these investment projects take place, as well as how profitable the projects are likely to be.

4. Literature review and hypothesis development

In this paper, we intend to examine the link between ex ante stated use of proceeds and stock price dynamics around issuances of seasoned equity. While there exists extensive research on SEOs, the existing literature on the effect of the stated intended use of proceeds is more limited. A reason for this might be explained by a general perception that prospectus disclosures in many cases are somewhat ambiguous, which in turn would make it hard to draw any interference. In this section we review some of the existing literature related to our topics as well as presenting the expectations for the empirical results in Section 7 and 8.

4.1 Intended use of proceeds and stock price reaction to SEO announcements

The general market reaction to SEO announcements has been widely studied by academics, where most of the existing literature documents negative abnormal returns around the announcement date. Eckbo and Masulis (1992) find evidence of an average announcement effect of -3.1% for industrial firms issuing seasoned common stock, consistent with most findings of negative abnormal announcement returns of 2-3%. Masulis and Korwar (1986) document a significant decline in prices of common stock at the announcement of primary and combination stock offerings. The study emphasises the strong stock price runup prior to the announcement, suggesting that managers are timing the offerings. Moreover, they find that announcement returns are negatively associated with changes in managers' holdings in connection to an offering. Their findings are supported by Asquith and Mulling (1986) and are generally consistent with the agency theory and the signalling model. Furthermore, Jung et al. (1996) support the agency model in explaining the negative market reaction to equity offering announcements. They provide evidence that firms without valuable investment opportunities experience more negative stock price reactions, and that some firms issue equity to benefit management at the expense of shareholders. Denis (1994) provide results consistent with the findings of a positive relationship between ex ante measures on profitable growth opportunities and announcement returns. However, they suggest that investment opportunities play a minor role in explaining the market reaction, as their results appear to be driven by a small subset of young, high growth firms. Moreover, Gao and Ritter (2010) and Autore et al. (2009) document that accelerated offers suffer from lower announcement returns relative to fully marketed offers. Autore et al. (2009) find abnormal announcement returns of -2.6% and

-1.7% for accelerated offers and fully marketed offers, respectively. Also, when controlling for various proxies on asymmetric information, they find that accelerated offers on average achieve significantly lower announcement returns relative to fully marketed offers. They suggest that the market discrimination upon the announcment may be related to the signalling effect of equity offerings. In the presence of asymmetric information between the management and the market, they argue that managers have incentives to choose an accelerated offer in order to avoid disclosing unfavourable information during the due diligence process. Conversely, Bortolotti et al. (2008) find that accelerated offers on average experience higher SEO announcement returns relative to public offerings. Hertzel and Lemmon (2002) find positive announcement effects for private placements, despite large offer price discounts. Also, using an aggregated sample of several studies across various countries, Eckbo (2007) find that the average market reaction to private placements is consistently positive, suggesting that the market expects these firms to benefit from targeting certain large investors through higher ownership concentration, increased monitoring services and/or expert advice.

A study by Walker and Yost (2008), which is closely related to our study on disclosed information on the intended use of proceeds and announcement returns, find that the market reacts more favourably to firms revealing specifics for the use of capital soon-to-be raised. Using a sample of 438 SEOs in the US, the mean two-day cumulative abnormal return around the announcement of the offering is -2.8%. When dividing the offering firms into subgroups of investment, general and refinancing motives, they find that firms stating investment motives experience on average abnormal announcement returns of -2.2%, while issuers stating general or refinancing exhibit abnormal returns of -3.2% and -3.3%, respectively. Controlling for other ex ante factors, they find large and positive coefficients for investment firms, while refinancing firms have large and negative coefficients. They also find that announcement returns for firms revealing specific investment plans are positively related to the anticipated size of the investment, supporting that agency issues are important factors in SEOs. A more recent study is conducted by Silva and Bilinski (2015) on 1,546 seasoned equity offerings in the UK. Although primarily focusing on long-term post-issue performance, they find that issuers stating specific investment motives experience cumulative abnormal announcement returns of 2.7% when using a five-day event window surrounding the announcement date. Moreover, they find that issuers stating general and recapitalisation purposes on average experience announcement returns of 0.0% and -2.6%, respectively. They conclude that prospectus information on the intended use of proceeds can help investors in determining better SEO

prospects. Also, a closely related study on announcement returns and offer price discounts for SEOs on the Oslo Stock Exchange is conducted by Width and Årseth (2018). They find that firms revealing specific investment motives upon the announcement exhibit lower offer price discounts and accordingly more favourable market reactions relative to ambiguous issuers. Additionally, they find that firms raising equity for refinancing reasons suffer the most from poor announcement returns. They suggest that ambiguous issuers, or those with a pure capital structure motive, are more likely to take advantage of asymmetric information to transfer wealth from new to existing shareholders.

Based on previous evidence, we expect the disclosure of the intended use of proceeds to have a significant impact on the market reaction to the announcement of seasoned equity offerings. Specifically, we hypothesise firms revealing specific investment motives to credibly signal that proceeds are to be raised for a value-increasing manner. As a result, we anticipate these issuers to exhibit more favourable market reactions relative to that of ambiguous issuers. We further expect the market to be somewhat cautious when the primary motivation of the equity issue is left vague, indicating that these issuers may be more likely to mask less favourable firm conditions or take advantage of periods of temporary overvaluation. Finally, due to usually distressed conditions, we expect issuers with refinancing motives to suffer from large offer price discounts to ensure successfully completions of the offerings, and consequently poor announcement returns relative to the other sub-categories of intended use of proceeds.

4.2 Intended use of proceeds and long-run post-issue market performance

Consistent with the more well-known long-run stock underperformance following initial public offerings, shares of follow-on offerings have later been widely documented to underperform in the subsequent years as well, referred to as “the new issue puzzle”. Studying large samples of seasoned equity offerings in the US, Spiess and Affleck-Graves (1995) and Loughran and Ritter (1997) document that issuing firms perform poorly relative to non-issuing firms following an equity issue. They find that issuing firms underperform non-issuers by 20-30% over a three-to five-year period when matched on size and book-to-market ratio. They suggest that managers announce offerings of seasoned equity when the stock is overvalued and that the market does not reveal the stock appropriately, hence the stock is still overvalued when issued. Supportive evidence is provided by Eberhart and Siddique (2002) and Burch et

al. (2004). However, Eckbo et al. (2000) argue that equity issuers lower the systematic risk exposure relative to matched non-issuers, not captured by the matched-firm technique which has been commonly applied to measure long-run abnormal returns following equity offerings. Additionally, they argue that issuing firms exhibit higher post-issue stock liquidity and reduces bankruptcy risk, hence lowering the expected returns. Using factor-models on a large US sample, they find insignificantly negative abnormal returns for firms conducting seasoned equity offerings. Consequently, they conclude that the "new issues puzzle" may be explained by a failure of the matched-firm technique to adequately adjust for differences in systematic risk between the SEO firms and the non-issuing control firms. Another rationale explanation of the observed stock price dynamics around seasoned equity offerings, is that expected returns are time-varying when proceeds are raised for investments. As the execution of a specific investment may be flexible in time, the investment can be viewed as a real option, hence upon exercise the required return would decrease as options on assets are riskier than the assets itself. Given that such growth options only will be exercised when moving sufficiently in-the-money, the model explains both the pre-issue price runup and the subsequent long-run underperformance (Carlson et al., 2006).

In a paper more closely related to that of our, Autore et al. (2009) study the relationship between ex ante stated use of proceeds and post-issue stock performance of seasoned equity offerings in the US, using both the matched-firm technique with buy-and-hold abnormal returns and factor-models. Regardless of the stated use of proceeds, they find evidence of poor long-run market performance for SEO firms, with a mean buy-and-hold abnormal return of -14% over a three-year period subsequent to the offerings. Further, consistent with the rationale that firms revealing specifics are more credibly signalling that proceeds will be used for a value-increasing manner, they do not find any subsequent abnormal stock performance for issuers disclosing specific investment motives. In contrast, they find evidence of poor long-run post-issue stock returns for issuers stating that proceeds are raised for general or refinancing purposes, with buy-and-hold abnormal returns of -12% and -21%, respectively. Moreover, when using time-series regressions, they do not find any significant underperformance for issuers stating investment or general motives. However, the poor post-issue performance for refinancing firms is still severe, with an annualised abnormal return of -8.9% over the subsequent three-year period. They suggest that issuers revealing vague prospectus disclosures, or those who intend to alter the capital structure, are more likely to be opportunistic market-timers. Silva and Bilinski (2015) find relatively similar results when

studying seasoned equity offerings in the UK. Using a three-year horizon, they provide evidence of no abnormal post-issue performance for firms disclosing investment purposes as the main motive for the capital raise, while general and recapitalisation firms on average exhibit negative ex post abnormal stock returns, suggesting that investors can use prospectus disclosure on the intended use of proceeds to identify firms with better post-offering prospects. Conversely, Jeanneret (2005) documents that French SEO firms revealing specifics about its investment plans underperform significantly over a three-year period following an issuance of seasoned equity, while issuers intending to modify the capital structure do not exhibit any ex post abnormal stock performance. He argues that pure recapitalisation offerings are subject to the capital structure irrelevancy theory, while investment firms are more likely to take advantage of overly optimistic market expectations.

Based on the previous literature on long-run post-issue market performance, we expect that firms disclosing specific investment motives are more likely to issue equity in response of arising growth opportunities and subsequently exhibit no abnormal stock returns. Moreover, we hypothesise that more ambiguous managers to a greater extent have a timing motive or intend to engage in agency spending, resulting in initial overpricing and a subsequent long-run underperformance when investors correct this initial mispricing over time. For issuers stating refinancing motives, we expect the long-run post-issue performance to be more a binary case as many of these issuers are in severe financial distress.

4.3 Intended use of proceeds and post-issue operating performance

Consistent with the poor stock performance following seasoned equity offerings, the existing literature also finds that firms conducting SEOs tend to experience a subsequent deterioration in the operating performance. Studying a sample of 1,338 SEOs in the US, Loughran and Ritter (1997) find that the median return on assets for issuing firms declines from 6.3% to 3.2% over a four-year period. They also find that the pre-issue operating performance for issuing firms is better than that of a control group, and that the performance peaks around the time of the equity offering, suggesting that the poor post-issue stock returns reflect overextrapolation by investors of the pre-issue trend in operating performance. These findings are generally consistent with the timing theory as well as the arguments made by Jung et al. (1996), who suggest that overconfident managers, or managers suffering from “empire-

building" biases, are investing heavily in a value-decreasing manner. A notable exception from poor operating performance following seasoned equity offerings in the existing literature is Walker and Yost (2008). In line with previous research, they find that issuers experience a decline in the unadjusted operating performance. However, they argue that industry-effects play an important role as they find evidence that the industry-adjusted operating performance either improves or remains unchanged over a three-year period following the offering. Also Hertzel and Lemmon (2002) find that the operating performance does not change significantly over the post-issue period, but rather remains weak from poor pre-issue levels, suggesting that investors might be overly optimistic about a turnaround in the performance of the existing assets in place.

Moreover, Autore et al. (2009) conduct a similar study as our, investigating the relationship between post-issue operating performance and disclosed information on the intended use of proceeds. The study provides evidence of a post-issue decline in operating performance for firms stating recapitalisation or general corporate purposes as the main motive for the equity offering. However, they do not find evidence of long-run underperformance for issuers stating specific investment motives. Moreover, Walker and Yost (2008) also divide the operating performance into use of proceeds classifications. They document that, regardless of the ex ante stated intentions, firms engage in large investment programs financed by both debt and equity. They also find that providing the investors with sufficient information matters, as firms that are more specific about its investment plans generally perform better than firms that are more ambiguous, supporting the view that agency issues are an important factor in SEOs.

Consistent with previous literature and our hypothesis on long-run post-issue stock performance, we expect the operating performance for firms revealing specific investment motives to either improve or remain unchanged, as these are considered more likely to credibly reveal its intention to issue equity to take on profitable investments. For issuers stating vague investment or general purposes, we hypothesise relatively poor post-issue operating performance, reflecting that some issuers may mask unfavourable firm prospects or are over-investing in a value-decreasing manner. Lastly, since many of the issuers stating refinancing needs are concerned about meeting its debt commitments in distressed conditions, we expect the ex post operating performance to improve for the surviving firms, but still remain relatively weak as a turnaround of the existing assets may take time to materialise in improved earnings.

5. Data, sample selection and use of proceeds classification

5.1 Data and sample selection criteria

The initial data on equity issuances are obtained from Dealogic Equity Capital Markets, consisting of deal-specific characteristics for all equity transactions in the Norwegian capital market during the period 2000-2018. We favour Dealogic due to more accurate data relative to alternative databases (Geo and Ritter, 2010). This data also includes detailed descriptions of the stated intended use of proceeds. For accounting data and stock prices, we use the Datastream database. Moreover, to validate and collect further information on the intended use of proceeds, issue and announcement dates, and other deal-specific data, we manually examine all the relevant transactions in Newsweb[7]. Our original dataset includes 1,392 equity transactions. Further, we exclude offerings based on the following criteria:

1) *Listings on Merkur Market and Oslo Axess* – We exclude all listings on Merkur Market and Oslo Axess, hence our dataset only includes equity offerings on the Oslo Stock Exchange main market. This is primarily due to insufficient transaction data on many of these offerings. We further argue that the low trading volume in many of these issuers' stocks may disturb our data, hence potentially leading to misinterpretations. A total of 192 equity transactions are removed from the initial sample.
2) *Convertible bonds and IPOs* – Our paper is exclusively focusing on seasoned equity offerings, hence we exclude all offerings of convertible bonds as well as initial public offerings. Another 204 offerings are excluded from the dataset.
3) *Secondary offerings* – As described in Section 2.1, secondary offerings are already outstanding shares sold to the public by existing shareholders, hence these do not raise any proceeds for the issuing firm. Due to our focus on seasoned equity offerings in relation to the stated intended use of proceeds, these offerings are not meaningful to include. We therefore restrict our data to offerings of primary shares or issuances that have at least some primary component (a combination of primary- and secondary shares). This further reduces our dataset by 211 equity offerings.

[7] Newsweb is the official market channel for public announcements for companies listed on the Oslo Stock Exchange.

4) *Repair offerings* - In connection with a private placement, companies can choose to issue a subsequent repair offering to non-participating investors in order to minimise the dilution of existing shareholders. These repair offerings are often of relatively small sizes and announced together with the initial equity issue announcement. Consequently, the inclusion of such offerings may potentially lead to biased statistical inference. We exclude a total of 130 repair offerings.
5) *Deal size* – Following Corwin (2003) and Mola and Loughran (2004), we restrict our dataset to a minimum deal size. Studying a US sample, they set the minimum limit to USD 20-25 million. However, considering the relatively smaller deal sizes in the Norwegian market, we exclude all offerings below NOK 25 million, further reducing our dataset by 125 offerings.
6) *Inadequate data* - Finally, we remove all offerings for which the price data was not available on Datastream or where we do not have sufficient stock price data before the equity issue. We require at least 126 trading days of observable stock prices prior to the announcement of the offering, removing another 67 offerings.

Our main sample consists of 463 seasoned equity offerings. However, as we intend to analyse both SEO announcement returns and long-run post-issue performance, we make additional data adjustments for the specific analyses in the respective sections.

5.2 Intended use of proceeds classification

Following existing literature, we separate our sample offerings into different classifications of prospectus disclosure on the intended use of proceeds (see Walker and Yost, 2008; Autore et al., 2009; Silva and Bilinski, 2015). Most of the previous research uses three classifications: *Investment, General* and *Refinancing.* However, we find it interesting to test whether issuers stating specific investments differ significantly from issuers disclosing more vague investment motives or not. We argue that specific investment motives are more informative hence easier for investors to evaluate. Thus, we further divide *Investment* into *Investment* and *Capex*, leaving us with four different categories. Issuers in the first classification, *Investment*, are those that prominently state that the proceeds will be used for specific investment purposes. This typically relates to acquisitions of companies or operational assets. However, we require that the investment is specified, and that the issuer contemplates to invest shortly after the announcement. We have also manually cross-checked all these announced transactions,

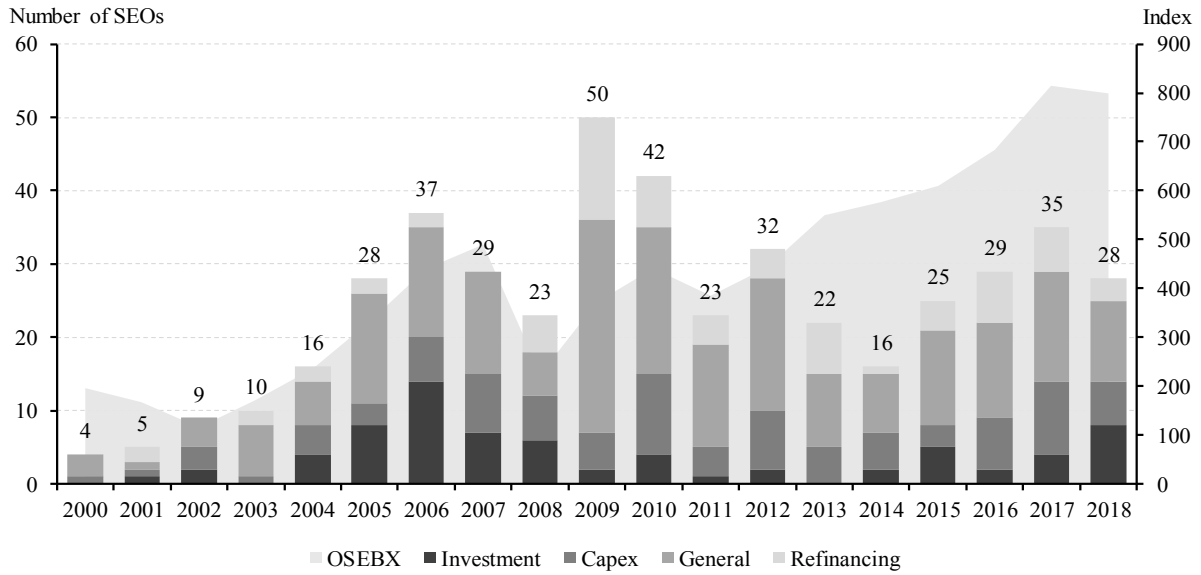
confirming that these actually take place in a relatively short time following the announcement. Issuers in the second classification, *Capex*, are those that disclose more vague investment motives for the equity offerings. This includes statements such as future acquisitions (unspecified), project financing, capital expenditures, R&D etc. The third classification, *General*, refers to issuers stating that proceeds will be used for general corporate purposes, strengthening of the balance sheet, or to increase working capital. We also here include issuers that do not disclose any particular reason for the equity offering. The final classification, *Refinancing*, includes issuers intending to do a restructuring or repayment of outstanding debt. Due to relatively vague prospectus disclosures for many of the offerings that we have classified as refinancing, we did some further research outside Newsweb and Dealogic (using company websites and news articles) on the specific issuers. We find that a large proportion of these firms were clearly in financial distress at the time of the issue, hence to a greater extent considered as "involuntary" equity issuances. This seems to differ our dataset slightly from some of the related studies on larger markets, where the refinancing classification includes more firms seeking to optimise the capital structure. In Appendix B, we provide specific examples for each of the use of proceeds categories.

5.3 Sample data

In Figure 1, we present the number of sample SEOs over the period 2000-2018 on the Oslo Stock Exchange, divided into the four categories by stated intended use of proceeds. The figure also shows the development of the OSEBX[8] over the same period. Issuers raising external equity capital for *Capex* or *General* purposes dominant our sample. In total, we have 222 SEOs where the intended use of proceeds is *General*, while 97 of the sample firms are classified as *Capex*. For the categories *Investment* and *Refinancing,* we have 72 observations within each classification. However, the composition of the different classifications has been fluctuating over time. Not surprisingly, issuances motivated by *Investment* reasons experienced a relative issuance peak prior to the financial crisis, with some volume coming back in the last years. On the contrary, the number of issuers with *Refinancing* motives increased significantly in the aftermath of the financial crisis. Also, better illustrated in Table 1, there has been a substantial

[8] OSEBX is a value-weighted benchmark index that comprises the most traded shares listed on the Oslo Stock Exchange (Oslobors.no, 2019).

Figure 1 – Number of sample SEOs split by the intended use of proceeds (2000-2018)



Note: The chart presents the total number of SEOs in our sample split by the intended use of proceeds categories (lhs) and the OSEBX-index (rhs). We only include issuers listed on Oslo Stock Exchange over the period 2000-2018.

Table 1 - Number of sample SEOs: Oil vs. Non-Oil

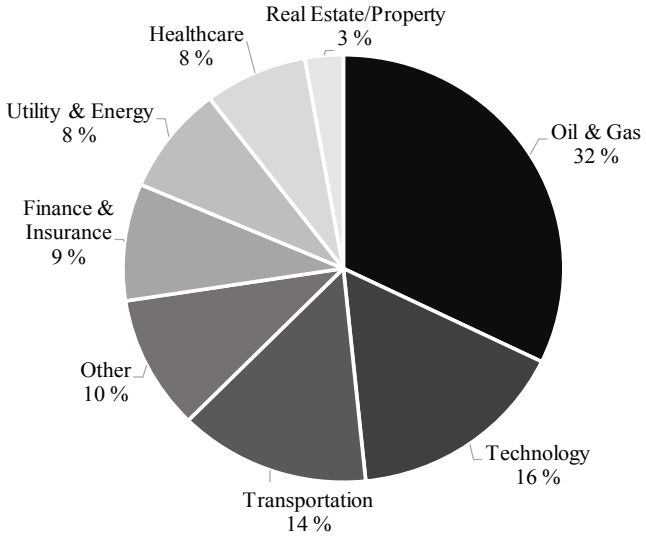
	Investment		**Capex**		**General**		**Refinancing**		**All issuers**	
Time period	Oil	Non-oil	Oil	Non-oil	Oil	Non-oil	Oil	Non-oil	Oil	Non-oil
Panel A: Number of SEOs per time period										
2017-18	6	6	4	12	6	20	4	5	**20**	**43**
2015-16	0	7	0	10	6	20	7	4	**13**	**41**
2013-14	1	1	3	7	4	14	5	3	**13**	**25**
2011-12	0	3	3	9	9	23	2	6	**14**	**41**
2009-10	2	4	5	11	18	31	3	18	**28**	**64**
2007-08	7	6	7	7	6	14	1	4	**21**	**31**
2005-06	9	13	7	2	11	19	2	2	**29**	**36**
2003-04	1	3	2	3	6	7	0	4	**9**	**17**
2000-02	0	3	0	5	2	6	0	2	**2**	**16**
Total	26	46	31	66	68	154	24	48	**149**	**314**
Panel B: Percent of total number of SEOs within each time period										
2017-18	10 %	10 %	6 %	19 %	10 %	32 %	6 %	8 %	**32 %**	**68 %**
2015-16	0 %	13 %	0 %	19 %	11 %	37 %	13 %	7 %	**24 %**	**76 %**
2013-14	3 %	3 %	8 %	18 %	11 %	37 %	13 %	8 %	**34 %**	**66 %**
2011-12	0 %	5 %	5 %	16 %	16 %	42 %	4 %	11 %	**25 %**	**75 %**
2009-10	2 %	4 %	5 %	12 %	20 %	34 %	3 %	20 %	**30 %**	**70 %**
2007-08	13 %	12 %	13 %	13 %	12 %	27 %	2 %	8 %	**40 %**	**60 %**
2005-06	14 %	20 %	11 %	3 %	17 %	29 %	3 %	3 %	**45 %**	**55 %**
2003-04	4 %	12 %	8 %	12 %	23 %	27 %	0 %	15 %	**35 %**	**65 %**
2000-02	0 %	17 %	0 %	28 %	11 %	33 %	0 %	11 %	**11 %**	**89 %**
Total	6%	10%	7%	14%	15%	33%	5%	10%	**32%**	**68%**

Note: In Panel A, we present total number of SEOs per time period of two years (three years for the period 2000-02) split by the intended use of proceeds. We further divide the use of proceeds classifications into oil- and non-oil related equity offerings. In Panel B, we report the percentage of total number of SEOs within the same time period for each defined category.

number of refinancing cases in the years following the plunge in oil prices in 2014. The relative share of oil-related firms raising equity for *Refinancing* reasons is considerably higher in the periods 2013-14 and 2015-16. Consistently, we find relatively modest investment activity with equity financing (*Investment* and *Capex*) for oil-related firms over the entire period 2009-2016. For non-oil related SEO firms, the proportion of the different use of proceeds classifications has been relatively stable, except in the years surrounding the financial crisis. These issuers raised more frequently equity for specific *Investment* motives during the pre-crisis period. However, in the years following the financial crisis, more equity offerings by non-oil related firms have been conducted with the stated intention of strengthening the balance sheet, increase liquidity or repay debt (*General* and *Refinancing*).

In Figure 2, we present the industry-composition of our sample firms. The industry-classification is based on the first digits in the GICS-code[9], where we further divide the largest industry-classes into smaller sub-categories. The industry-composition for our sample is generally consistent with the composition on the Oslo Stock Exchange. We note that the sample is highly skewed towards cyclical sectors such as *Oil & Gas* and *Transportation*, holding 32% and 14% of the total number of SEOs, respectively. Also, *Technology* firms account for a significant proportion of the number of equity offerings in our sample.

Figure 2 – Industry-composition of sample firms

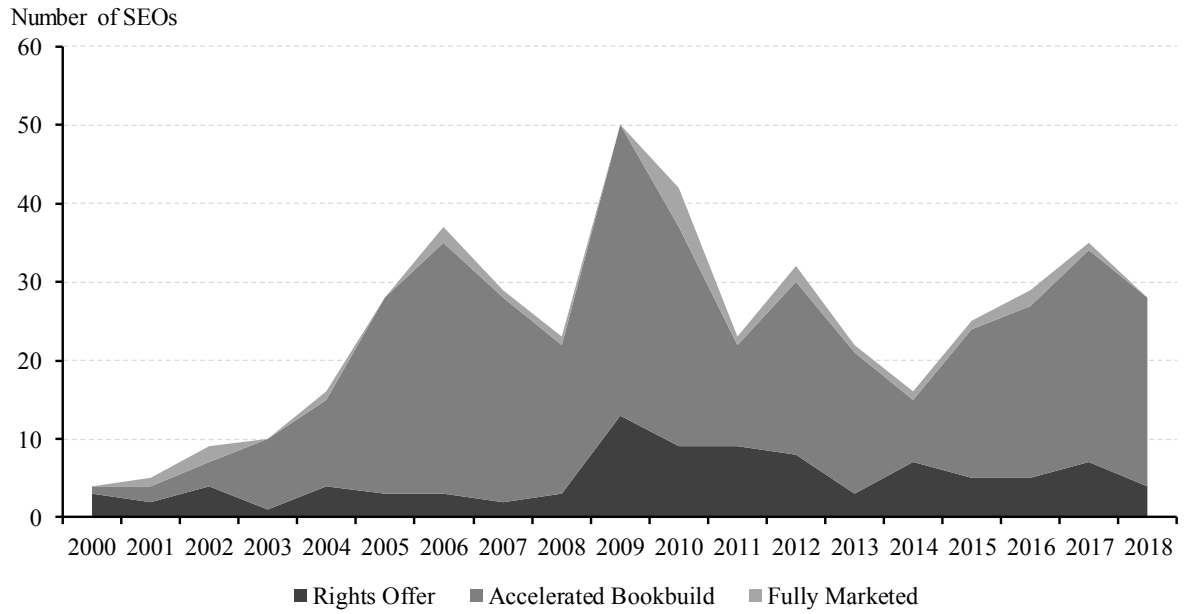


Note: The figure presents the industry-composition of the sample firms based on the first digits in the GICS-code. See Appendix C for industry-composition within each category of intended use of proceeds.

[9] The Global Industry Classification Standard (GICS) is a global standard developed by MSCI and S&P Global, where listed firms are categorised on four levels and 11 sectors based on its most important business activity (Oslobors.no, 2019).

In Figure 3, we present the development in the choice of flotation method. As described in Section 2.4, accelerated bookbuild (or private placement) has been the preferred method of flotation in Norway over the entire sample period. More than 75% of the equity offerings are done through an accelerated process, while rights offers account for approximately 20%. Only a small number of the SEOs in our sample are fully marketed offers.

Figure 3 – Number of sample SEOs per flotation method



Note: The figure presents the development in number of SEOs per flotation method at OSE over the period 2000-2018.

6. Methodology

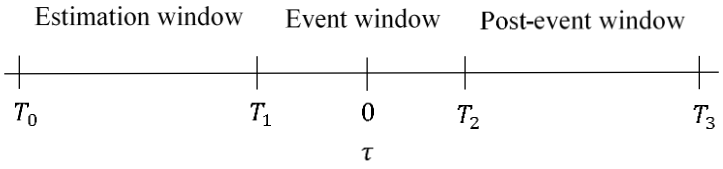
In this section, we describe the different methodologies that we apply to examine the relationship between ex ante stated use of proceeds and SEO announcement returns as well as long-run post-issue stock and operating performance in Section 7 and 8. Using standard event methodology for analysing equity issue announcement returns, we start by defining the relevant windows before we explain how we derive abnormal returns over the event window. Additionally, we explain the intuition behind the control variables in the multivariate regression analysis on abnormal announcement returns. Moreover, we present two different methodologies for estimating long-run post-issue stock returns. Finally, we define an appropriate measure of the ex post operating performance and present our regression models to examine the relation between prospectus disclosure and change in operating performance. We also add a section of possible limitations to our methodologies.

6.1 Abnormal SEO announcement returns

6.1.1 Estimation of abnormal announcement returns

We examine the market reaction to the announcement of seasoned equity offerings, using standard event study methodology. Event studies are commonly used in the literature to measure effects of specific corporate events. First, we start by defining the event date ($t = 0$). We consider the date of the official SEO announcement as the most appropriate event date, collected from Dealogic. Additionally, we have manually cross-checked these dates with the disclosed information in Newsweb and adjusted accordingly. Moreover, to capture the potential lag between SEO announcements and the market reaction, we use an event window somewhat wider than the exact event date. In line with Silva and Bilinski (2015), we use a five-day event window, starting two days prior to the announcement and ending two days after (-2, 2). Further, following MacKinley (1997), we use an estimation window of 251 trading days to estimate "normal returns", where we require a minimum of 126 trading days with observable stock prices before the announcement date. Also, to avoid event-driven effects from interfering with the calculation of normal returns, our estimation window ends 10 days prior to the announcement date. The time sequence is illustrated below, where τ represents a multiple period event window.

Figure 4 – Event study



We measure abnormal announcement returns as the cumulative abnormal return (CAR) over the event window, calculated as the cumulative difference between actual returns and estimated normal returns. To estimate normal returns, we use the one-factor market model as Kothari and Warner (2008) argue that event studies are largely immune to misspecifications in estimating expected returns, hence the abnormal announcement returns cannot be largely attributed to the "bad model" problem. The one-factor market model is also the preferred model in related studies by Walker and Yost (2008) and Corwin (2003), as well as being considered to be the most accurate model to calculate normal returns in a meta-study by Holler (2012). Specifically, using Ordinary Least Square regressions (OLS), we regress excess returns for each stock of the issuing firms on excess returns from the value-weighted OSE All-share index (OSEAX)[10]. All returns are collected from the Datastream database. We apply the following steps to estimate cumulative abnormal announcement returns:

(i) Normal performance return model

The linear specifications in the one-factor market model follow from the assumed joint normality of stock returns. For any security *i*, the model is specified:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \qquad \text{Eq. (5)}$$

$$E(\varepsilon_{it}) = 0 \qquad var(\varepsilon_{it}) = \sigma_{\varepsilon_i}^2$$

where R_{it} and R_{mt} are returns in excess of the risk-free rate in period t on security i and the market portfolio m, respectively, while ε_{it} is the zero mean error term. α_i, β_i and $\sigma_{\varepsilon i}^2$ are the parameters in the one-factor market model.

[10] The OSE All-share index (OSEAX) is a value-weighted stock index including all shares listed at Oslo Stock Exchange. The index is adjusted for dividends and other corporate-specific events.

(ii) Abnormal returns

The estimated α_i and β_i from Equation (5) are further used to calculate daily abnormal returns for each security i over the event window τ of five days surrounding the announcement date.

$$AR_{i\tau} = R_{i\tau} - \widehat{\alpha_i} - \widehat{\beta_i} R_{m\tau} \qquad \text{Eq. (6)}$$

$AR_{i\tau}$ is the sample abnormal returns, while $R_{i\tau}$ and $R_{m\tau}$ are the actual returns in excess of the risk-free rate for each sample security and the market portfolio.

(iii) Aggregation of abnormal returns

Eventually, to estimate cumulative abnormal returns we aggregate the estimated daily abnormal returns from Equation (6) over the defined event window τ for each security i. We thus accommodate a multiple period event window from τ_1 to τ_2.

$$CAR_i(\tau_1\tau_2), = \sum_{\tau=\tau_1}^{\tau_2} \widehat{AR_{i\tau}} \qquad \text{Eq. (7)}$$

Given the null distribution of abnormal returns and cumulative abnormal returns, tests of the null hypothesis can be conducted. In Appendix A, we provide a description of statistical tests used to evaluate the statistical significance of the CARs.

6.1.2 Cross-sectional regression analysis

To further examine the impact of the stated intended use of proceeds on stock price reaction to seasoned equity offering announcements, we run multiple cross-sectional regression models on abnormal announcement returns. The rationale is to test whether the potential signal effect of the prospectus disclosure on the intended use of proceeds persists when controlling for other ex ante factors. We apply the standard OLS methodology using the five-day cumulative abnormal return surrounding the announcement date as the dependent variable. Specifically, we estimate the following:

$$CAR(-2,2)_{it} = \alpha + \beta_1\, Capex_{it} + \beta_2\, General_{it} + \beta_3 Refinancing_{it} + \gamma\,' X_{it} + \varepsilon_{it} \qquad \text{Eq. (7)}$$

$Capex_{it}$, $General_{it}$ and $Refinancing_{it}$ are dummy variables equal to 1 if the issuer states the specific intention of the offering, and 0 otherwise, using $Investment_{it}$ as the reference group. Vector X_{it} is the set of control variables, including various deal- and issuer-specific

characteristics. In Section 7.1, we provide descriptive statistics for all the explanatory variables. All accounting data are measured at the end of the last fiscal year prior to the announcement of the offering.

The first deal-specific control variables of interest are the binary indicators for the choice of flotation method (*Fully Marketed*$_{it}$, *Accelerated*$_{it}$ and *Rights*$_{it}$), as the choice of flotation method may signal the quality of the issue as well as being an important cost component (both directly and indirectly). The literature is somewhat inconsistent in its findings on how the market reacts to the various deal types. For instance, Loughran and Ritter (2008) find evidence of more favourable market reactions to fully marketed offers, while Bortolotti et al. (2008) suggest that accelerated offers on average experience higher SEO announcement returns. Also, using an aggregated sample of several studies across various countries, Eckbo (2007) finds that the average market reaction to private placements (accelerated offers) is consistently positive. Second, often related to the choice of flotation method, we control for the potential offer price discount (*Offer Discount*$_{it}$), measured as the offer price relative to the closing price one trading day prior to the announcement. New shares are often issued at a substantial discount relative to the pre-issue stock price, hence the price discount should have a significantly negative impact on the market reaction. However, we only consider this relevant for accelerated offers as the offer price then typically is disclosed in the initial offering announcement or shortly after. We therefore include an interaction term between the offer price discount variable and the binary indicator for whether the issue is conducted through an accelerated offer (*Accelerated*$_{it}$**Relative Deal Size*$_{it}$). Third, we control for the relative size of the offering (Relative Deal Size$_{it}$). According to the adverse selection model, larger relative offerings imply less favourable market reactions as the increase in the number of shares outstanding reduces insiders' fractional ownership of shares (if no change in actual shareholdings). However, we also suggest that firms managing to raise more capital relative to its current market value may indicate better growth prospects, in particular for those intending to raise capital swiftly to grasp arising growth opportunities. Another important element is the expected shareholder takeup in rights offerings. Although, the relative deal size is not directly measuring the expected shareholder takeup, it might still proxy the proportion of existing shareholders that will sell their rights to outside investors due to wealth and portfolio constraints. As a resolution to the rights offer paradox, Eckbo and Masulis (1992) argue that the adverse selection risk increases with lower expected shareholder takeup, hence it may be more optimal to add quality certification through underwriting. To partly control for

some of these mentioned factors, we include an interaction term between the relative deal size variable and the binary variable for accelerated offer ($Accelerated_{it}$*$Relative\ Deal\ Size_{it}$).

Further, we add variables for various issuer-/stock-specific characteristics. First, we control for firm size ($Market\ Value_{it}$), measured as the market value one day prior to the SEO announcement. The rational is to control for potential adverse selection as larger firms are more closely followed by investors and analysts (Kim and Purnanandam, 2006). Second, we include a variable for book-to-market ratio (BM_{it}), measured as the book equity in the fiscal year prior to announcement scaled by pre-announcement market value. Jung et al. (1996) find evidence that SEO announcement returns are positively related to "growth", using the book-to-market ratio a proxy for growth opportunities. The variable may also proxy the under- or overvaluation, hence it should have a cautious interpretation. Similarly, we include the pre-announcement stock run-up ($Runup_{it}$), measured as the two-months abnormal return prior to the equity issue announcement, controlling for potential stock overvaluation, consistent with the market timing literature. Moreover, we include stock volatility prior to the SEO announcement ($Volatility_{it}$), measured over 62 trading days prior to the announcement, as higher volatility in the pre-issue period may suggest greater uncertainty around the intrinsic value of the issuer's stock. Another potentially important control variable is stock turnover ($Stock\ Turnover_{it}$), measured as the average stock turnover over the six months prior to the SEO announcement. Dierkens (1991) argue that higher trading intensity is associated with lower asymmetric information, suggesting that more liquid stocks should suffer less from negative market reactions to such announcements. Lastly, we add a binary variable for whether the firm has issued equity within the last 365 days prior the offering ($Recent\ Issue_{it}$). The rationale is to control for that issuers may be willing to leave money on the table in earlier issuances to raise demand for equity offerings at a later stage when additional funding is needed (Jegadeesh et al., 1993).

Eventually, we add explanatory variables for issuer-specific financial characteristics. Firstly, we control for the pre-issue return on assets ratio (ROA_{it}), measured as net income scaled by total assets in the last fiscal year prior to the announcement of the offering. We use this variable as a proxy of the marginal benefit of new investments. Additionally, the variable measures the pre-issue operating performance, which may further help investors in considering the validity of the disclosed information on intended use of proceeds. Moreover, we control for potentially inflated earnings in the pre-issue period. We measure this as the relative amount of reported discretionary accruals ($Accruals_{it}$), defined as net income minus operating cash flow scaled by

total assets. The rationale follows from Teoh et al. (1998), who find that cash flows from operations on average decline prior to seasoned equity offerings, while reported discretionary accruals cause earnings to peak around the offering dates, consistent with the timing and overconfidence hypothesis. Finally, we control for pre-issue leverage ($Leverage_{it}$) and the relative amount of working capital (WC/TA_{it}). These variables are used as proxies for financial slack, whereof high leverage and low working capital may restrict management's discretion and reduce agency spending (Kim and Purnanandam, 2006). However, we also argue that firms with high leverage and/or low working capital level when deciding to raise equity may indicate less favourable firm prospects or an immediate need of liquidity where external equity capital may be the only viable alternative.

6.2 Long-run post-issue abnormal stock returns

Further, we provide a description of the methodologies that we use to examine the relation between prospectus disclosure on the intended use of proceeds and subsequent long-run stock performance. Both time-series regressions and the matched-firm technique are commonly applied by academics when investigating long-run post-issue abnormal returns. Loughran and Ritter (2000) argue that time-series regressions generally have low power to detect abnormal returns because it averages over periods with high and low event activity. However, time-series regressions alleviate some concerns around the matched-firm techniques. Firstly, the approach avoids the autocorrelation problems related to the cross-correlation among returns across clustered events (Kothari and Warner, 2006). The method is therefore preferred when return-calculations involve overlapping events. Furthermore, Eckbo et al. (2000) and Brav et al. (2000) argue that the matched-firm technique does not properly control for differences in risk between the sample issuer and the control firm. They particularly emphasise how the methodology fails to adjust for the change in expected returns for the issuing firms as raising equity lower the exposure towards unexpected inflation and reduces bankruptcy risk. Additionally, they argue that issuers often experience increased stock liquidity which may further reduce the expected returns. However, for robustness, we measure the long-run abnormal market performance using both the matched-firm technique and time-series regressions. To avoid the problem of overlapping event windows, we follow Eckbo et al. (2000) and include only the first equity offering in an overlapping event window. We measure long-run abnormal returns using a period of 36 months subsequent to the equity offering, hence we exclude all firms that have issued equity after 2015. Furthermore, due to only a small

number of sample SEOs in 2000 and 2001, we limit our data to SEOs conducted in the period 2002-2015. The higher data requirements reduce our sample to 278 SEOs.

6.2.1 Matched-firm technique

The first approach we use to measure long-run post-issue returns, is the matched-firm technique. The method measures abnormal returns by adjusting sample returns for returns of matched firms that are not subject to the event. To do so, we create a pool of matching candidates, consisting of all firms that have been listed on Oslo Stock Exchange since 2002[11]. Note that we also include the sample firms as these may be used as matching firms outside its respective post-event windows. Following Eckbo et al. (2000), we match firms on book-to-market ratio and firm size. Other studies also restrict the matched firms to be within the same industry as the issuers in order to capture potential industry effects (see Jeanneret, 2005; Autore et al., 2009). Since our sample is highly skewed towards cyclical industries, we argue that the industry-restriction is important to select matching firms with similar systematic risk. Though, we are aware that the relatively small market size of the Norwegian equity market reduces the matching power. We use the first two digits in the GICS-code to divide the firms into different industry classifications. However, for the largest categories, such as *Energy*, we use the first four digits in the GICS-code. The selection of the matching firms is thus based on three criteria: (i) the matching firm does not issue equity within the issuer's post-event window of 36 months; (ii) the matching firm is within the same industry-class as the issuer; and (iii) the matching firm minimises the distance to the issuing firm based on book-to-market ratio and market value. If the matching firm is delisted during the post-event window, we use the next closest non-event firm from the pool. To avoid weighing one variable more than the other, we follow Jeanneret (2005) and apply the following formula for criteria (iii):

$$d_{i,0} = \sqrt{\frac{(MV_{i,0} - MV_{c,0})^2}{\sigma^2{}_{MV}} + \frac{(BM_{i,0} - BM_{c,0})^2}{\sigma^2{}_{BM}}} \qquad \text{Eq. (9)}$$

where $d_{i,0}$ is the distance measure between the issuing firm *i* and the non-issuing firm *c*. MV is the market value at the end of the month prior to the equity issue. BM is the book-to-market

[11] Our pool of matching candidates consists of 490 different firms that have been listed on Oslo Stock Exchange during the period 2002-2018.

ratio measured as book value at the end of the fiscal year prior to the offering divided by the market value at the end of the month prior to the offering. σ^2_{MV} and σ^2_{BM} are the variances of the series of the variables MV and BM for relevant non-issuers in the pool of matching firms.

Once all issuing firms are matched on the mentioned criteria, we measure long-run abnormal post-issue performance using buy-and-hold abnormal returns (BHARs). Kothari and Warner (2006) argue that the method better measures investor experience as it uses geometric returns rather than unrealistic rebalancing assumptions. They further argue that the use of cumulative abnormal returns (CARs) leads to positively biased results. As we focus on long-run post-issue performance in relation to prospectus disclosure, we compute the average BHAR for each defined class of intended use of proceeds. The formula is as follows:

$$BHAR_T = \sum_{i=1}^{n_T} w_i \left[\prod_{t=1}^{T} (1 + R_{SEO,it}) - \prod_{t=1}^{T} (1 + R_{c,it}) \right] \qquad \text{Eq. (10)}$$

where $R_{SEO,it}$ is the stock return for the issuing firm i at time t, while $R_{c,it}$ is the stock return for the matching firm c. n_T is the number of issuing firms at month T. Since the market value for our sample of SEO firms is highly skewed to the right (see descriptive statistics in Section 7.1), we only measure average BHARs on an equally-weighted basis as the value-weighted portfolio returns are driven by a very limited number of larger issuers. Loughran and Ritter (2000) also argue that value-weighted portfolio returns have low power to detect abnormal returns following managerial actions.

For statistical inference, we report conventional t-statistics and non-parametric Wilcoxon sign test statistics. We provide a mathematical description of these statistical tests in Appendix A.

6.2.2 Time-series regressions

As an alternative approach to measure long-run abnormal stock performance, we use time-series regressions. Starting in January 2002, each calendar month we construct portfolios of firms conducting equity offerings based on the ex ante stated use of proceeds. The firms enter the portfolios in the month subsequent to the equity offerings and exit after 36 months or if delisted[12] (if sooner). The portfolios are rebalanced monthly as firms enter and exit. Again, we

[12] Following Silva and Bilinski (2015), we include delisted companies to avoid survivorship bias.

only consider equal-weighted portfolios due to the right-skewed distribution of firm size for our sample. The beta pricing model of primary interest is the one-factor market model in Equation (11), where we regress excess portfolio returns on excess returns on the market portfolio. However, for robustness, we include two additional factors in Equation (12), similar to the Fama-French three-factor model (Fama and French, 1998). All factors are obtained from Ødegaard's website for asset pricing data on Oslo Stock Exchange[13].

$$R_{pt} = \alpha_p + \beta_p[MKT_t] + \varepsilon_{pt} \quad \text{Eq. (11)}$$

$$R_{pt} = \alpha_p + \beta_p[MKT_t] + s_p[SMB_t] + h_p[HML_t] + \varepsilon_{pt} \quad \text{Eq. (12)}$$

R_{pt} is monthly portfolio returns in excess of the risk-free rate. MKT_t is excess returns on the OSE All-share Index, SMB_t is the average return on a portfolio long small stocks and short big stocks, and HML_t is the average return on a portfolio long high book-to-market stocks and short low book-to-market stocks. Our main focus is the estimated intercepts (α_{it}), which present the monthly abnormal post-issue stock returns.

Furthermore, Eckbo et al. (2000) find that the widely documented long-run post-issue abnormal performance is due to incomplete correction for standard benchmark adjustments when using the matched-firm technique. The matched-firm technique assumes that the non-issuing control firms capture the true risk characteristics of SEO firms. To test this, they suggest creating a zero-investment portfolio that is long the stocks of SEO firms and short the stocks of matched non-issuing firms, hence effectively combining the asset pricing and matched-firm techniques. We follow this and create zero-investment portfolios for each sub-category of the intended use of proceeds. The regression models follow the same specifications as in Equation (11) and (12). Thus, if the estimated intercepts are significantly different from zero, the abnormal performance from the matched-firm technique cannot be fully attributed to incomplete adjustments for differences in systematic risk between the issuing firms and the control firms.

[13] Bernt Arne Ødegaard - OSE asset pricing data. Retrieved from: http://finance.bi.no/~bernt/financial_data/ose_asset_pricing_data/index.html

6.3 Cross-sectional analysis of ex post operating performance

To provide corroborating evidence that prospectus disclosure may help investors in distinguishing SEOs with better post-offering prospects, we also examine the relationship between ex ante stated use of proceeds and ex post operating performance. Following Walker and Yost (2008) and Autore et al. (2009), we report both unadjusted and adjusted performance measures. We analyse the median values rather than mean values due to potentially extreme outliers and the very skewed distribution of the accounting data. Barber and Lyon (1996) also find that the use of nonparametric tests consistently provides more powerful results when analysing operating firm performance.

Specifically, we focus on return on assets (ROA), measured as net income scaled by total assets. We use two techniques to more properly control for important factors affecting the operating performance. The first approach follows from Autore et al. (2009), where we compute industry-adjusted return on assets ratios. From the issuer's ROA, we subtract the median industry ROA in each particular year. The median industry levels are based on the first two digits in the GICS-code (four first digits for the largest industry classifications), similar to what we did in Section 6.2.1. Consequently, we control for important industry effects that are likely to have a meaningful impact on the post-issue operating performance. The second approach follows from Barber and Lyon (1996), who use a matching scheme based on both industry and operating performance. The intuition is to control for potential mean reversion in operating performance at industry level, in which the operating performance eventually may revert to the long-run mean of the industry. This may also effectively control for differences in firm strategies, investment opportunities and/or managerial skills (Holler, 2012). We thus match the issuing firms with control firms within the same industry with relatively similar operating performance around the equity offering. Again, we use the first digits in the GICS-code to match on industry. Moreover, from the pool of non-event firms that meet the industry requirement, we select the firm with the closest return on assets ratio to that of the issuing firm in the offering year. If the return on assets ratio of the closest match deviates with more than 10% from that of the issuer's, we assign a missing value. We focus on changes in operating performance using different windows over a three-year period following the issue year. To select an appropriate test statistic, we follow (Holler, 2012) and use the median-based Wilcoxon-test, which he finds to be superior due to the occurrence of extreme outliers in

measures of abnormal operating performance. We provide a mathematical description of this test statistic in Appendix A.

Finally, we use cross-sectional regression analysis to determine the impact of ex ante stated intended use of proceeds on post-issue operating performance. In line with the reasoning of that nonparametric tests are more powerful when analysing operating performance, we estimate quantile regressions rather than conventional OLS regressions. Quantile regressions extend the regression model to conditional quantiles, where the regression estimator minimizes the weighted sum of absolute residuals, making the model is thus less sensitive to outliers (Liu and Xiao, 2016). Following Autore et al. (2009) we employ the median (50th percentile) and test the significance of the coefficients using bootstrapped standard errors based on 1000 replications. Our dependent variable in the cross-sectional regression analysis is the absolute change in industry- and performance adjusted ROA described above. We estimate the change using two different test windows: from the issue year to two years following the issue, and from the issue year to three years after the issue. Specifically, we estimate:

$$\Delta Ind./Perform.adj.ROA_{it} = \alpha + \beta_1 Capex_{it} + \beta_2 General_{it} + \beta_3 Refinancing_{it} + \gamma' X_{it} + \varepsilon_{it} \quad \text{Eq. (8)}$$

As for the cross-sectional analysis on abnormal announcement returns in Section 6.1.2, our explanatory variables of interest are binary indicators for the stated intended use of proceeds classifications, $Capex_{it}$, $General_{it}$ and $Refinancing_{it}$, where $Investment_{it}$ is the omitted variable. Furthermore, we include variables to control for deal- and issuer-specific characteristics. Following Autore et al. (2009), we include market value ($Market\ Value_{it}$), as firm size may proxy the volatility in operating performance. For instance, larger firms tend to have more stable earnings, hence the change in operating performance should be controlled for the degree the firms are able to affect future earnings following the capital raise. Furthermore, we argue that the change in operating performance should be considered in light of the market expectations rather than on a stand-alone basis. Therefore, we add a variable for relative issue proceeds ($Relative\ Deal\ Size_{it}$) as firms managing to raise large amounts of equity relative to its current market value may be considered to have better prospects for significant improvements in the operating performance. Eventually, we include the pre-issue return on assets ratio ($Pre\text{-}Issue\ ROA_{it}$), measured as net income scaled by assets in the fiscal year prior to the equity offering. We argue that the change in operating performance should be considered

relative to the pre-issue level, as this may indicate the firms' ability to improve their future operating performance. Although the industry-and performance-adjusted operating performance measures to some degree controls for potential mean reversion in the operating performance, Autore et al. (2009) suggest that the pre-issue operating performance may further alleviate concerns around this issue. Additionally, this variable may be considered as a proxy of the marginal benefit of new investments.

6.4 Methodology limitations

An event study allows for simple interpretation when measuring the effect of specific events. Although the method is commonly used by researches and is useful in several ways, there are some limitations. Below, we briefly describe some of the potential limitations and which assumptions we make to minimise the impact on the inference.

Firstly, in order to interpret the reaction to the specific event as casual, we need to assume that the market is efficient, in which stock prices consistently reflect all available information. As previously addressed, existing literature however suggests that this assumption is not likely to hold for all securities at any time. Moreover, specific events may be foreseen or coexisting, which in turn could lead to biased estimates. Consequently, the observed reaction following an event may be wrongly attributed to the specific event given the existence of such conditions. In relation to SEO announcement returns, we use an event window of several days surrounding the announcement date to minimise the impact of market inefficiency. However, this makes our estimates more vulnerable to other confounding effects.

Secondly, the choice of model to estimate the abnormal performance is likely to have a bearing impact on the magnitude and significance of our results. Additionally, various benchmarks are likely to show differences in performance, particularly over long test periods. The most proper estimation model may also be subject to variations over time. To make our analysis more robust to these concerns, we consider the results using several estimation models.

Thirdly, our results may suffer from thin trading over the estimation and test period, in which some stocks have intervals with no or little trading volume. Dimson (1979) argues that thin trading induces bias in the OLS beta as it leads to errors in both the dependent and independent variables. Furthermore, when using daily stock prices, the closing price might not be recorded at the same time each day if the trading liquidity is low, referred to as non-synchronous trading.

Although the literature is somewhat inconsistent, MacKinlay et al. (1997) argue that non-synchronous trading could lead to biased OLS estimates.

Lastly, when analysing aggregated abnormal returns, we need to assume that the abnormal return of each security is uncorrelated in the cross-section. If the test periods or event dates of sample stocks overlap, a problem of cross-sectional dependence (i.e. clustering) may exist. Clustered standard errors can potentially lead to smaller standard errors compared to OLS standard errors, which in turn may increase the risk of falsely rejecting the null hypothesis. However, for the analysis of abnormal SEO announcement returns, we include a gap between the estimation window and the event window, thus the clustering is less likely to be interfering with the results (Campbell et al., 1997). Furthermore, to avoid the problem of overlapping events over time when analysing long-run post-issue performance, we exclude subsequent offerings that occur within an issuer's post-event window for the preceding offering.

7. Empirical results: Short-term effects

In this section, we present the empirical results from our analysis of short-term stock price dynamics around seasoned equity offerings. Specifically, we present and discuss the results from univariate tests on SEO announcement returns and offer price discounts. Additionally, we discuss the results from the cross-sectional regression analysis on abnormal announcement returns when controlling for other ex ante deal-and issuer-specific characteristics.

7.1 Intended use of proceeds and abnormal announcement returns

7.1.1 Descriptive sample statistics

In Table 2, we present descriptive sample statistics for 463 issuers of seasoned equity on the Oslo Stock Exchange in the period 2000-2018, divided into each category of the intended use of proceeds. In Panel A, we present data on deal-and general issuer-specific characteristics, while we in Panel B present data about the issuers' financial structure.

The median sample firm has a market value of NOK ~1.0bn and offers 18% of the pre-issue shares outstanding. The distribution of market value is highly skewed to the right, indicating that our sample is more exposed towards smaller firms. We also note that issuers stating *Refinancing* motives appear to raise more equity relative to its market value. Furthermore, the average sample SEO firm offers a price discount of 15%, where the discount seems to be substantially larger for *Refinancing* issuers, reflecting large indirect costs of placing distressed shares. Consistent with the previous literature of strong pre-issue stock price runups (see Loughran and Ritter, 2000; Silva and Bilinski, 2015), the sample firms experience on average an abnormal return of 9% over the 2 months prior to the SEO announcement. However, we note that the runup is substantially larger for issuers stating *Capex* motives, while there seems to be little or no runup for *Refinancing* firms. Moreover, the distribution of the book-to-market ratios (BM) is highly right-skewed, particularly for issuers stating *General* or *Refinancing* motives. The median BM ratio is 0.55, while the mean is 2.29. A typical SEO firm also has a negative ROA of -2.2%, and accruals and working capital scaled by total assets of -0.05 and 0.11, respectively. The median sample leverage is 0.57. We note that the financial position for issuers disclosing *Capex, General* or *Refinancing* motives seems to be substantially weaker relative to that of issuers raising equity for specific *Investment* purposes. In particular,

Refinancing firms appear to suffer from both high leverage and low liquidity, reflecting that many of these issuances can be classified as distressed equity offerings.

Table 2 – Descriptive sample statistics

	Investment		**Capex**		**General**		**Refinancing**		**All issuers**	
	N=72		*N=97*		*N=222*		*N=72*		***N=463***	
Variables	Mean	Median	Mean	Median	Mean	Median	Mean	Median	**Mean**	**Median**
Panel A: Deal-and general issuer characteristics										
Market Value (NOKm)	8,285	2,032	4,410	1,359	2,356	761	1,593	459	**3,590**	**1,016**
Relative Deal Value	0.69	0.18	0.24	0.10	0.47	0.16	1.32	0.51	**0.59**	**0.18**
Recent Issue (days)	578	280	514	331	687	459	914	604	**665**	**413**
BM*	0.88	0.40	0.76	0.38	2.59	0.59	5.15	1.99	**2.29**	**0.55**
Volatility	0.10	0.06	0.18	0.05	0.17	0.08	0.59	0.18	**0.23**	**0.08**
Turnover (NOKm)*	971	164	416	143	291	62	263	53	**426**	**72**
Runup	0.09	0.04	0.20	0.08	0.08	0.03	0.02	-0.06	**0.09**	**0.03**
Offer Discount	0.06	0.02	0.09	0.05	0.16	0.08	0.31	0.22	**0.15**	**0.06**
Panel B: Financial structure data										
Leverage*	0.53	0.57	0.45	0.49	0.53	0.57	0.76	0.68	**0.56**	**0.57**
ROA*	-0.06	0.01	-0.16	-0.03	-0.16	-0.02	-0.24	-0.08	**-0.16**	**-0.02**
Accruals*	-0.07	-0.02	-0.08	-0.05	-0.06	-0.04	-0.23	-0.01	**-0.09**	**-0.05**
WC/TA*	0.13	0.15	0.22	0.18	0.17	0.11	-0.09	0.00	**0.14**	**0.11**

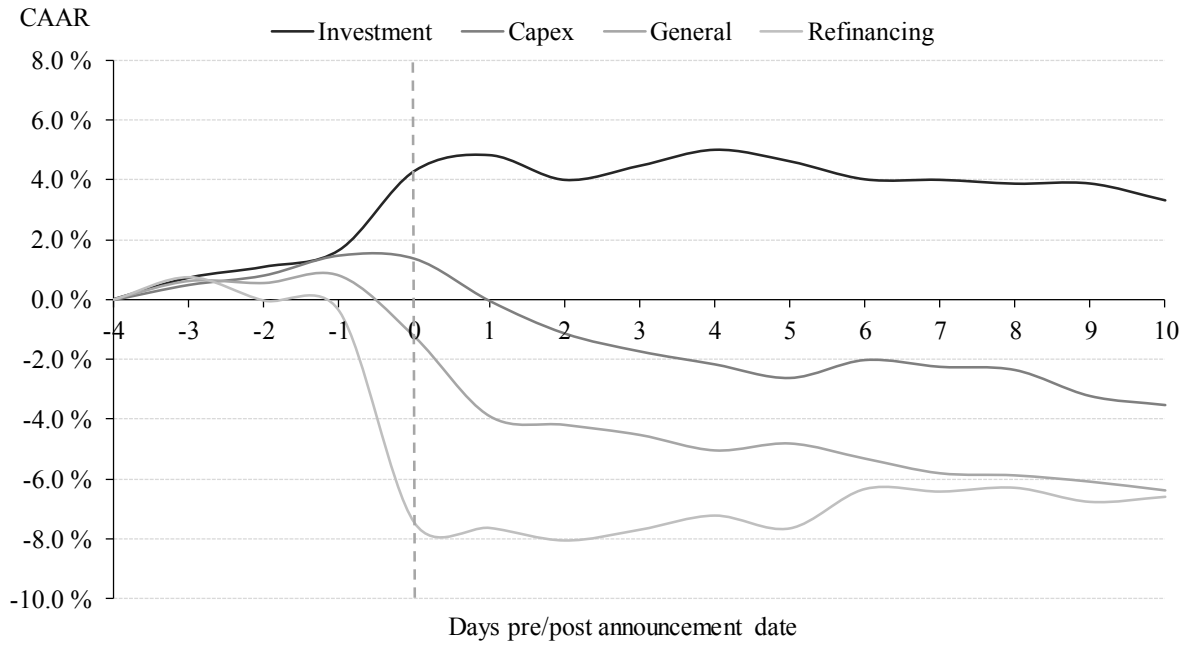
*Missing data on some issuers within each category of intended use of proceeds.
Note: The table presents descriptive statistics for 463 sample SEO issuers over the period 2000-2018 at Oslo Stock Exchange. *Market Value* is the observed market value on the day prior to SEO announcement. *Relative Deal Value* equals the number of shares offered relative to number of shares outstanding on the day prior to the announcement. *Days Since Issue* is number of days since previous SEO conducted by the same firm. *BM* is the book.to-market ratio, using market value one day prior to the announcement and book equity in the end of the fiscal year prior to the announcement. *Leverage* is total liabilities divided by total assets. *ROA* is net income scaled by total asset. *Accruals* is the difference between net income and operating cash flow scaled by total assets. *WC/TA* is working capital divided by total assets. All the accounting figures are measured at the end of the fiscal year prior to the SEO announcement. *Runup* is the aggregated abnormal return over a period of 42 trading days prior to the announcement date. *Volatility* is stock volatility measured over 63 trading days prior to the announcement. *Stock Turnover* is average monthly stock turnover over the last six months prior to the announcement date. *Offer Discount* is computed by dividing the pre-issue share price (one day prior to the SEO announcement) on the offer price minus one.

7.1.2 Market reaction to SEO announcements

Our conjecture is that firms stating potential valuable investment projects as the main motive for the equity issue, receive more favourable market reactions when publicly announced. This reasoning implies that these issuers are more credibly signalling potential accretive investments compared to more ambiguous issuers, which might either have less valuable projects or are intending to engage in agency spending or a wealth transfer from new to existing shareholders. Additionally, while we view refinancing as a specific issue motive, a substantial proportion of these issuers are firms in financial distress, typically offering shares at large discount to ensure that sufficient funds are raised. As a consequence, the market reaction is expected to suffer accordingly.

In Figure 5, we present average cumulative abnormal returns (CAARs)[14] for each class of ex ante stated use of proceeds from day -4 to day +10 relative to the announcement date. Note that these returns are not adjusted for the potentially disclosed offer price discount. Most issuers seem to experience negative abnormal returns around the SEO announcement date, consistent with the existing literature of asymmetric information and agency issues (see Myers and Majluf, 1984; Loughran and Ritter 2000;Walker and Yost, 2008; Silva and Bilisnki, 2015). Moreover, we find a clear distinction between the different classifications of ex ante stated use of proceeds, where issuers stating specific *Investment* motives exhibit positive abnormal returns on average. Issuers stating that issue proceeds will be used for *Capex* experience more favourable price reactions relative to both *General* and *Refinancing*, whereof *Refinancing* firms on average exhibit the largest decline in stock prices around the announcement date. We also note that most of the abnormal stock price reaction occurs at the announcement day, consistent with the hypothesis of semi-strong market efficiency.

Figure 5 – CAAR around SEO announcement



Note: The chart shows the average cumulative abnormal return per classification of intended use of proceeds starting 4 days prior to the announcement date and ending 10 days post announcement date. The abnormal returns are estimated using the one-factor market model, where we estimate betas over a period of 251 trading days prior to the announcement. Stock prices are collected from Datastream using adjusted prices (adjusted for dividends, splits and other corporate events).

[14] We estimate CAAR as the sum of the average abnormal returns for all SEO firms (AR_{it}) over each of the days around the announcement

In Table 3, we present mean and median CARs with corresponding t-and z-statistics using three different event windows. Over a five-day event window surrounding the announcement date (-2, 2), the mean sample CAR is -4.0% and significantly different from zero, generally consistent with previous findings on SEO announcement returns[15]. This suggests that the announcements convey essential new information about firm prospects. However, an important impact on the observed announcement effect is that many of these equity offerings suffer from large offer price discounts. As presented in Section 5.3, the majority of our sample equity offerings are conducted through an accelerated offer (private placement), where new shares are primarily directed towards certain new and/or existing investors, often offered a substantial discount to the pre-announcement market price. Due to the accelerated underwriting process, the offer price is typically disclosed in the initial announcement or shortly after, hence the discount is likely to explain much of the negative announcement effect. We discuss offer price discounts in more detail in the next subsection.

Moreover, the results from Table 3 also suggest that information asymmetry, agency costs and/or offer price discounts differ significantly between the subgroups of intended use of proceeds. Using a five-day event-window, the mean abnormal announcement return for issuers stating specific *Investment* motives is 2.9%. However, the estimate is not statistically significant at conventional confidence levels, hence we do not find evidence of any abnormal performance for these issuers in the days surrounding the announcement date. In contrast, we find evidence that issuers revealing more vague investment motives (*Capex*) on average experience negative abnormal announcement returns. The mean CAR is -1.7% and significantly different from zero at 10% level. Moreover, the results indicate that the magnitude of the negative abnormal performance is larger for firms stating *General* or *Refinancing* purposes. The mean CAR for *General* firms is -4.7%, while *Refinancing* firms on average experience abnormal announcement returns of -11.5%. For both subgroups of intended use of proceeds, the estimated means are statistically significant at 1% level. We further note that the evidence from the median abnormal returns does not influence the inference, and the statistical evidence is even stronger. We also note that the results are generally robust to the choice event window.

[15] See Denis (1994), Jung et al. (1996), Walker and Yost (2008), and Silva and Bilinski (2015)

Table 3 – CARs around SEO announcement split by the intended use of proceeds

Intended Use of Proceeds	N	CAR(-3, 3)	CAR(-2, 2)	CAR(-1, 1)
Investment				
Mean	72	0.0420	0.0290	0.0350
Median		-0.0030	-0.0060	0.0100
t-stat		(1.6050)	(1.2780)	(1.5130)
Sign test z-stat		[0.6060]	[-0.0220]	[0.9090]
Capex				
Mean	97	-0.0190	-0.0170	-0.0090
Median		-0.0280	-0.0300	-0.0180
t-stat		(-1.7250)*	(-1.7010)*	(-0.8680)
Sign test z-stat		[-2.8550]***	[-2.4270]**	[-2.0740]**
General				
Mean	222	-0.0460	-0.0470	-0.0460
Median		-0.0380	-0.0330	-0.0290
t-statistic		(-3.9580)***	(-4.2570)***	(-4.8620)***
Sign test z-stat		[-5.8200]***	[-5.8130]***	[-6.0510]***
Refinancing				
Mean	72	-0.1110	-0.1150	-0.0940
Median		-0.0610	-0.0570	-0.0460
t-stat		(-3.5630)***	(-3.9910)***	(-3.2300)***
Sign test z-stat		[-3.8550]***	[-3.5070]***	[-3.1930]***
All issuers				
Mean	463	-0.0370	-0.0400	-0.0330
Median		-0.0330	-0.0280	-0.0220
t-stat		(-4.1190)***	(-4.7810)***	(-4.2140)***
Sign test z-stat		[-6.8020]***	[-6.6890]***	[-6.2470]***

Note: The table presents the stock price reaction to SEO announcements split by intended use of proceeds measured by cumulative abnormal returns (CAR) over the event window. We report both mean and median returns using three different event windows. In curve brackets, we report two-sided t-statistics, while we in square brackets report Wilcoxon sign test z-statistics. N is the number of observations per use of proceeds classification. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

To provide further evidence of differences in announcement returns between the sub-categories of the intended use of proceeds, we present test statistics from the two-sample Wilcoxon rank-sum test and the two-sample Welch-adjusted t-test in Table 4. The Wilcoxon rank-sum test is a nonparametric test used to examine whether the medians of two samples differ significantly, while the Welch-adjusted t-test is used to test for differences in means between two samples with unequal variances. In line with Silva and Bilinski (2015), we use an event window of four days surrounding the SEO announcement (-2, 2), which also seems to capture most of the abnormal price movement around the announcement date (see Figure 5). The test-statistics in Table 4 are consistent with the results presented in Table 3. The *Investment* category differs significantly from all other subgroups of the intended use of proceeds at 10% level in both tests. Furthermore, we find evidence that issuers citing *Capex* motives exhibit more favourable market reactions around the announcement date relative to *General* and *Refinancing* firms, considering both mean and median abnormal returns.

However, for *General* versus *Refinancing* firms, only the two-sample t-test provides evidence of differences in the abnormal announcement returns, significant at 5% level. The positive test-statistic implies that the mean abnormal return for issuers stating *General* purposes is less negative relative to that of firms stating *Refinancing* reasons. Nevertheless, at conventional confidence levels, we do not find evidence that the median abnormal market reaction for these sub-categories differs significantly.

Table 4 – Two-sample t-test and Wilcoxon rank-sum test on CARs

Use of Proceeds	Two-Sample Wilcoxon Rank-Sum Test	Two-Sample Welch's t-test for Unequal Variances
Investment vs. Capex		
Test-statistics	1.8920*	1.8790*
P-value	(0.0590)	(0.0620)
Investment vs. General		
Test-statistics	3.4060***	3.2360***
P-value	(0.0010)	(0.0010)
Investment vs. Refinancing		
Test-statistics	2.9050***	3.8480***
P-value	(0.0040)	(0.0000)
Capex vs. General		
Test-statistics	1.7260*	1.8130**
P-value	(0.0840)	(0.0487)
Capex vs. Refinancing		
Test-statistics	2.0280**	3.5620***
P-value	(0.0430)	(0.0000)
General vs. Refinancing		
Test-statistics	1.1040	2.5640**
P-value	(0.2300)	(0.0110)

Note: The table presents two different tests to test whether the CARs differ significantly when grouped by intended use of proceeds using an event window of 5 days (-2,2). The left column presents the z-statistics from non-parametric two-sample Wilcoxon rank-sum tests, while the right column presents Welch-adjusted t-statistics from two-sample t-tests. P-values are reported in parenthesis. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

7.1.3 Offer price discount in accelerated offers

As previously mentioned, an important effect on the observed negative announcement returns is the offer price discounts, reflecting the indirect cost of issuing equity. In Table 5, we present the mean and median offer price discounts for the different use of proceeds classifications as well as two-sample test-statistics to test for differences in means and medians between the sub-categories. However, in contrast to what we presented in the table of descriptive statistics, we here only include accelerated offers, or more commonly referred to as private placements. We focus on this flotation method as the offer price is typically disclosed in the initial announcement or shortly after. The results from Panel A illustrate, as we would expect, that

larger offer price discounts are associated with less favourable market reactions. Regardless of the stated intended use of proceeds, the mean offer price discount is 9.25% and significantly different from zero. For issuers stating specific *Investment* reasons, the mean offer price discount is 2.71%, statistically significant at conventional confidence levels. For *Capex* and *General* firms, the offer price is on average 7.46% and 9.08% below the pre-announcement market price, respectively, both significant at 1% level. For issuers intending to use the issue proceeds for *Refinancing* purposes, the offer price discount is substantially larger relative to the other sub-categories, with a mean of 23.41%, significantly different from zero at 1% level. We further note that the median discounts are consistently smaller in magnitude, suggesting that some issuers suffer from substantially larger discounts relative to the typical issuer. However, the inference does not change when considering the medians. The results from Panel B are also generally consistent with the sign and magnitude of the means and medians in Panel A, whereof *Capex* and *General* are the only sub-categories that differ insignificantly from each other.

Table 5 – Mean and median offer price discounts in accelerated offers

Offer price discount – Accelerated Offers	**N**	**Mean**	**Median**
Panel A: Offer price discount			
Investment			
Mean/Median	58	2.71%	1.53%
Test-statistic		(2.054)**	[3.482]***
Capex			
Mean/Median	86	7.46%	4.25%
Test-statistic		(7.250)***	[7.671]***
General			
Mean/Median	157	9.08%	5.00%
Test-statistic		(8.607)***	[10.012]***
Refinancing			
Mean/Median	45	23.41%	13.74%
Test-statistic		(5.128)***	[4.557]***
All issuers			
Mean/Median	346	9.25%	4.48%
Test-statistic		(10.975)***	[13.757]***
Panel B: Two sample Welch adjusted t-test and Wilcoxon rank-sum test			
Investment vs. Capex		t = -2.8385***	z = -3.436***
Investment vs. General		t = -3.7678***	z = -4.086***
Investment vs. Refinancing		t = -4.3554***	z = -4.288***
Capex vs. General		t = -1.0957	z = -0.847
Capex vs. Refinancing		t = -3.4074***	z = -3.090***
General vs. Refinancing		t = -3.0586***	z = -3.019***

Note: In Panel A, we present mean and median offer price discounts in the sample of accelerated offers split by the intended use of proceeds. In curve brackets, we report two-sided t-statistics, while we in square brackets report Wilcoxon sign test z-statistics. In Panel B, we report statistics from two-sample Welch-adjusted t-tests and two-sample Wilcoxon rank-sum tests. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

As the results in Table 5 suggest, accelerated offers may be considered controversial in the sense that only certain new and/or existing investors are targeted and offered shares at a substantial discount to the market price. Assuming no subsequent repair offering, this leads to a wealth transfer from existing shareholders to certain selected new and/or existing shareholders. If the issuer however chooses to conduct a subsequent repair offering, the non-targeted existing shareholders are likely to still suffer from value dilution, as these offerings tend to be relatively small. Mola and Loughran (2004) offer an underwriter power explanation of the observed large offer price discounts, of which increasingly influences from the investment banks lead to higher offer price discounts as more money is left on the table for their clients rather than the issuing firm. They find that both influence from the underwriters and offer price discounts have increased over time, consistent with their argument. Another explanation for the issuance of largely discounted shares in accelerated offers may be that the issuer directly compensates the investor for the rapid execution process, hence avoiding costs of due diligence and quality inspection (Eckbo, 2007). Moreover, the issuer may seek to attract certain investors to benefit from increased monitoring services and expert advice in the long-run. Additionally, the discount may be used as compensation to "friendly" investors for allowing management to maintain private benefits of control. We also suggest a related explanation, of which targeted investors may demand a discount to further increase its already "optimal" exposure towards the firm. This is consistent with the findings of Wang and Hu (2014), who find that the proportion of new shares subscribed by larger existing shareholders in private placements is positively associated with the price discount. The expected benefits of targeting the specific investors should thus overcome the costs of issuing discounted equity.

Overall, we find evidence in line with our expectations that issuers revealing specific *Investment* plans on average do not experience any abnormal price reaction to the announcement of the equity offering. We also find that these issuers on average bear an indirect cost through the issuance of discounted equity, but considerably lower than for the other sub-categories. This suggests that the market considers the issue proceeds to be used to fund positive NPV projects that at least offset the observed offer price discounts. For more ambiguous issuers, *Capex* and *General,* we find evidence of relatively large discounts, whereof the market reaction upon announcement suffers accordingly. Particularly firms disclosing *Refinancing* motives are hurt extensively. A large proportion of these issuers are in financial distress, hence to ensure a successful placement of new shares, the offer price is often set well below the pre-announcement market price.

7.1.4 Multivariate regression analysis

Below, we present the results from the cross-sectional regression analysis on abnormal announcement returns, determining whether the differences in announcement returns between the subgroups of the intended use of proceeds persist when controlling for the disclosed offer price discount in accelerated offers as well as other ex ante factors. However, it should be noted that the explanatory power of these regression types is uniformly low. According to Eckbo (2007), this is almost always less than 10%, as reported in the literature.

In Table 6, we present the coefficient estimates from Equation (8) with corresponding t-statistics. The dependent variable is the cumulative abnormal announcement return for each SEO firm in the cross-section, measured over four days surrounding the event window. Following Silva and Bilinski (2015), the estimated t-statistics are based on standard errors adjusted for heteroscedasticity and clustering across firms and years as the residuals may be correlated across firm and over time[16]. All models include year and industry fixed effects. In Model (1), we only include binary indicators for the stated intended use of proceeds classifications, where *Investment* is the omitted variable. In Model (2), we also control for binary variables for the choice of flotation method, using rights offers as the reference group. In Model (3) and (4), we add other deal-specific characteristics, controlling for offer price discount and relative deal size. Moreover, in Model (5), we add various variables for issuer-/stock-specific characteristics such as market value, book-to-market ratio, pre-issue stock run-up, stock turnover and volatility. Finally, in Model (6), we include issuer-specific financial characteristics, controlling for the pre-issue operating performance, earnings quality, leverage and liquidity. The rationale for the inclusion of the various control variables is explained in Section 6.1.2. For robustness, in unreported results, we estimate CARs based on the Fama-French three-factor model (FF3M). Consistent with the argument by Kothari and Warner (2008), that short-term event studies are largely immune to misspecifications in estimating expected returns, this does not substantively influence our results. Additionally, in Appendix E, we rerun the regression models using a two-day event window surrounding the announcement date, nor does this change our results significantly[17].

[16] Petersen (2009) argues that, in presence of time-series dependence and cross-sectional dependence, clustering across year and firm yields unbiased test-statistics given that there are sufficient number of clusters for both dimensions.

[17] The magnitude of the negative coefficients on *Refinancing* are somewhat smaller, but does not change the inference.

Table 6 – Cross-sectional regression analysis on abnormal announcement returns

Dependent variable: CAR(-2,2)	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**
Capex	-0.026	-0.038	-0.035	-0.017	-0.009	-0.009
	(-1.03)	(-1.47)	(-1.46)	(-1.00)	(-0.47)	(-0.46)
General	-0.060**	-0.058**	-0.049**	-0.032*	-0.023	-0.018
	(-2.34)	(-2.28)	(-2.17)	(-1.77)	(-1.24)	(-0.88)
Refinancing	-0.125***	-0.110***	-0.076**	-0.075**	-0.026	-0.023
	(-3.39)	(-3.20)	(-2.56)	(-2.52)	(-0.94)	(-0.79)
Fully Marketed		-0.104**	-0.105*	-0.111**	-0.049	-0.037
		(-1.99)	(-1.93)	(-2.20)	(-0.97)	(-0.62)
Accelerated		0.074***	0.105***	0.064***	0.065**	0.067**
		(3.51)	(4.25)	(2.93)	(2.37)	(2.12)
Accelerated*Offer Discount			-0.259***	-0.297***	-0.257**	-0.267**
			(-2.61)	(-3.61)	(-2.22)	(-2.23)
Relative Deal Size				-0.033***	-0.024*	-0.023*
				(-2.90)	(-1.69)	(-1.71)
Accelerated*Relative Deal Size				0.060***	0.053***	0.052***
				(4.67)	(3.64)	(3.70)
Ln(Market Value)					0.019*	0.024**
					(1.81)	(2.02)
Ln(BM)					-0.010	-0.013
					(-0.95)	(-1.07)
Runup					0.002	-0.006
					(0.06)	(-0.17)
Volatility					-0.007	-0.005
					(-0.20)	(-0.14)
Ln(Stock Turnover)					-0.015**	-0.018**
					(-1.98)	(-2.19)
Recent Issue					0.046**	0.042**
					(2.57)	(2.17)
ROA						-0.025
						(-0.75)
Accruals						-0.036
						(-0.66)
Leverage						-0.071*
						(-1.68)
WC/TA						-0.055*
						(-1.66)
Constant	-0.006	-0.029	-0.039	-0.028	0.042	0.168*
	(-0.12)	(-0.58)	(-0.83)	(-0.62)	(0.44)	(1.75)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.057	0.113	0.150	0.244	0.243	0.251
N	463	463	463	463	404	376

Note: The table presents the results from the cross-sectional analysis on SEO announcement returns using OLS regressions. The dependent variable is the cumulative abnormal return measured over a five-day event window around the SEO announcement date i.e. CAR (-2, 2). The explanatory variables are defined in Section 6.1.3. T-statistics are reported in parenthesis and are based on standard errors adjusted for heteroscedasticity and firm clustering. All models include year and industry fixed-effects. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

In Model (1) – (4), the results uniformly provide evidence that issuers stating *General* and *Refinancing* purposes experience less favourable market reactions relative to issuers stating specific *Investment* motives, supporting our hypothesis that the market reacts differently to various disclosed information on the intended use of proceeds. However, in contrast to the results from the univariate tests in the previous subsection, none of the estimated coefficients on *Capex* are statistically significant at conventional confidence levels, hence we cannot conclude that the market favours issuers stating specific investment motives relative to those that are more ambiguous about its investment plans. The sign and magnitude of the estimated coefficients on *Capex* do not vary substantially between the model specifications, suggesting that much of the negative market reaction to the SEO announcement for these issuers may be attributed to year and industry fixed effects.

Further, in Model (3) and (4), when including various offer-specific characteristics, we note that the magnitude of the negative coefficients on *Refinancing* and *General* is substantially smaller. We particularly emphasise the importance of the offer price discount as most of the sample offerings are accelerated offers, hence the offer price is typically disclosed within the event window. As shown in Table 5, both *General* and *Refinancing* firms suffer on average from large offer price discounts, hence the results from Model (3) and (4) suggest that much of the negative market reaction upon the announcement can be explained by larger discounts rather than firms capitalising on overvalued equity.

Moreover, from Model (5) and (6), where we control for various issuer-specific characteristics, the estimated coefficients on the binary variables for *General* and *Refinancing* are no longer statistically significant at traditional confidence levels. Nor do we find any evidence of differences between the estimated coefficients, suggesting that the market on average does not discriminate between the revealed information on the intended use of proceeds. We further note that the magnitude of the negative coefficients on *Capex*, *General* and *Refinancing* in Model (5) and (6) is consistently smaller than in Model (1) – (4).

Most noteworthy is the results from Model (5), indicating that issuer-/stock-specific characteristics explain much of the negative price reaction after controlling for deal-specific characteristics. The observed reduction in the magnitude of the coefficients on the use of proceeds variables is particularly present for issuers disclosing *Refinancing* reasons. We note that factors such as *market value*, *stock turnover* and *recent issue* have a significant effect on the abnormal announcement returns. The most interesting feature is however when we rerun

Model (5) and exclude market value and book-to-market ratio (unreported). The coefficients on both *General* and *Refinancing* are statistically significant at 5% level. As shown in the descriptive statistics, these firms tend to be both smaller and have higher book-to-market ratios than the other subgroups. Although we only provide evidence that announcement returns are negatively associated with firm size at conventional confidence levels, the combination of high book-to-market ratio and low market value seems to capture a large proportion of the negative effect from disclosing that issue proceeds are intended to be raised for *General* and *Refinancing* purposes. Fama and French (1992) simply argue that high book-to-market stocks carry higher risk due to the usual financial distress of these firms. The market value thus suffers accordingly. As previously described, many of the sample firms within the *Refinancing* category are in financial distress upon the announcement. Thus, some of the observed negative price reaction, not explained by the offer price discount, may be attributed to factors capturing greater uncertainty around future earnings as a consequence of distressed conditions.

Flotation method

Further, our results suggest that the market reacts more favourably to certain flotation methods. Due to a small number of public offerings in our sample, we focus on accelerated offers and rights issues. In Model (2), the coefficient on the binary variable *Accelerated* is significantly positive, indicating that the announcement effect in an accelerated offer is less negative relative to rights offers. A possible explanation is that the flotation method provides opportunities and incentives for communication between the management and the targeted investors, thus alleviate some concerns around the possibility that the offering is overpriced (Eckbo, 2007).

However, as previously discussed, an important implication is that targeted investors often are offered shares at a substantial discount to the current market price. In Model (3) – (6), we have controlled for this effect by including an interaction term between the offer price discount and the indicator for accelerated offer. The coefficient on *Accelerated* is still significantly positive in all model specifications, hence in the presence of no offer price discount, the indirect announcement costs for accelerated offers are considerably lower relative to rights offerings. However, as the coefficient on the interaction term is significantly negative, the relative benefit of this flotation method decreases by the size of the discount. Considering the large observed offer price discounts in many of these transactions, the market discrimination between rights and accelerated offerings is not as pronounced as indicated in Model (2).

Relative issue size

In Model (4) – (6), we add a variable for the relative size of the offering as well as an interaction term between relative deal size and the binary indicator for accelerated offer. The estimated coefficient on *Relative Deal Size* is significantly negative in all the model specifications, indicating that abnormal announcement returns are negatively associated with the relative size of the offerings when shares are issued through rights. This is consistent with the resolution of the rights offer paradox by Eckbo and Masulis (1992), in which lower expected shareholder takeup increases the adverse selection risk. Although the relative deal size is not a direct measure of the expected shareholder takeup, it might still proxy the expected subscription rate in rights issues due to shareholders' wealth and portfolio constraints. Conversely, for accelerated offers, the estimated coefficient on the interaction term is significantly positive, indicating that investors react more favourably when large equity proceeds are raised through an accelerated offer. Although this is contrary to the rationale of adverse selection, we suggest that issuers with the intention of raising a significant proportion of its current market value through an accelerated process may signal better growth prospects.

Issuer-and stock-specific characteristics

We find evidence that some of the issuer-/stock-specific characteristics in Model (5) and (6) significantly impact the market reaction to the announcement of a seasoned equity offering. First, in line with the reasoning that there exists less asymmetric information between the market and managers of larger firms, our results indicate that abnormal announcement returns are positively related to firm size. Second, the results suggest that firms with higher stock turnover tend to experience more negative price reactions upon the announcement of the offering. This is contrary to the argument of Dierkens (1991), that firms with higher stock turnover have lower degree of information asymmetry. However, we suggest an explanation in line with observed strong stock price runups for issuers intending to raise equity. Although we do not attribute this to a pure timing-motive, we argue that managers are not likely to be passive price takers, hence they may engage in a variety of practices after internally deciding to raise equity to increase the likelihood of a successful stock placement. This is expected to increase both the stock price and share turnover in the pre-announcement period, hence upon the announcement, the market may become aware of the strategic actions taken.

Issuer-specific financial characteristics

Considering the explanatory variables for issuer-specific financial characteristics in Model (6), we find evidence that announcement returns are associated with the relative amount of

working capital. The coefficient on *WC/TA* is significantly negative, consistent with the argument of Myers and Majluf (1984), that issuers with high liquidity when raising equity capital may subsequently invest in a value-decreasing manner.

Moreover, we find that more levered firms exhibit poorer announcement returns, with the negative coefficient on *Leverage* significantly different from zero. This is inconsistent with the free cash flow theory, in which more levered firms do not have the financial slack to take on value-decreasing projects. However, given that the issuer is highly levered, we suggest that the equity announcement may be an indirect (or direct) confirmation that the issuer is in financial distress or need to de-lever to adapt to less favourable firm prospects, whereof raising external equity is the only viable alternative. Given that there exists some degree of asymmetric information between the managers and the market, the negative "new" information will then immediately be reflected upon announcement.

Summing up the regression results

Overall, the results from the cross-sectional regression analysis indicate that the market discrimination of the ex ante stated use of proceeds does not persist when controlling for other deal-and issuer-specific characteristics. The findings are partly inconsistent with those of Walker and Yost (2008) and Silva and Bilinski (2015), who find evidence of superior announcement returns for issuers stating specific investment motives. However, none of these studies control for the apparently large offer price discounts, hence they may be falsely concluding given that the purpose of the capital raise does not fully explain the differences in issue discounts. Our results indicate that much of the negative price reactions can be attributed to the large offer price discounts. Though, it is plausible to believe that the intended use of proceeds has a direct impact on the offer price and thus indirectly affect the market reaction.

We further find that there exists some degree of asymmetric information in which issuers that appear to be in financial distress experience poor announcement returns that are not fully explained by the offer price discounts. We suggest that the market may raise additional concerns around issuers' future earnings when the intention of issuing equity is publicly announced. We also provide partly evidence that issuers' stocks may be considered overvalued at the time of the SEO announcement. Although we do not attribute this to a pure-timing motive, we argue that managers have incentives to take strategic actions to increase the likelihood of a successful placement after internally deciding to raise capital through the equity market, hence increasing both stock liquidity and prices.

8. Empirical results: Long-term effects

In this section, we examine long-term stock price dynamics following seasoned equity offerings. Specifically, we present and discuss the results from the analysis of prospectus disclosure and long-run post-issue stock returns. Moreover, to better understand the link between the disclosed information on the intended use of proceeds and post-issue market performance, we also examine ex post firm characteristics and change in operating performance using both univariate and multivariate tests.

8.1 Intended use of proceeds and long-run post-issue stock performance

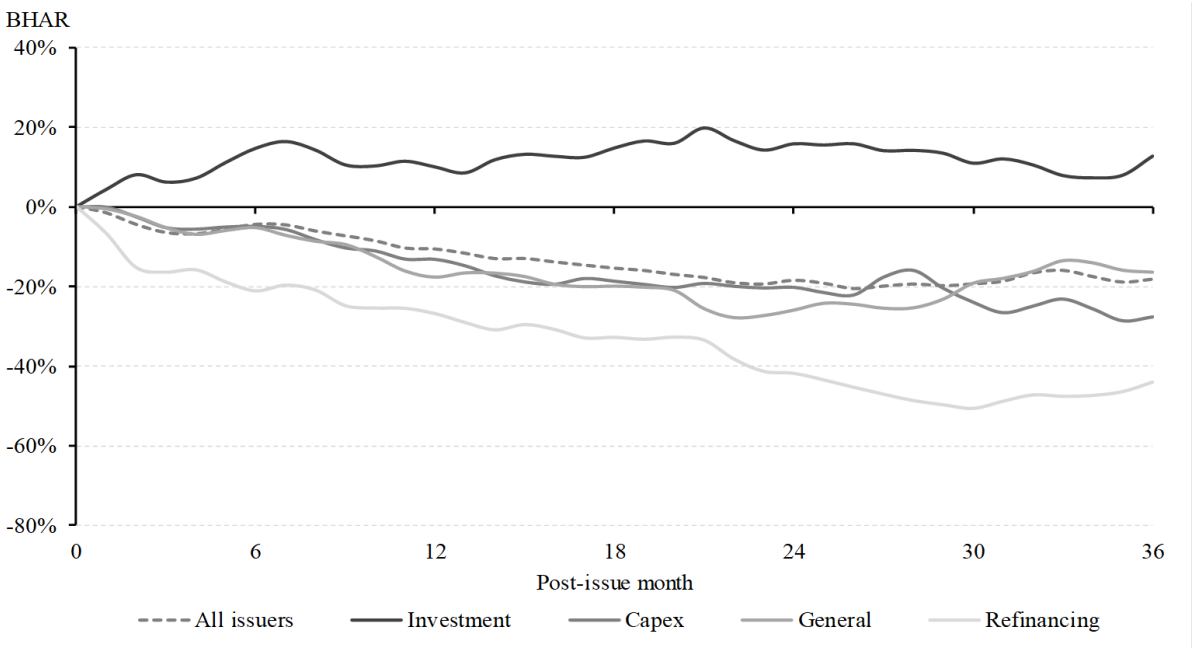
In the following, we present the results of our analysis of long-run post-issue market performance using both the matched-firm technique and time-series regressions. As described in Section 6, we only include firms that have issued equity over the period 2002-2015 on the Oslo Stock Exchange. Furthermore, to avoid overlapping events, we only consider the first equity issue in an overlapping period, thus our dataset includes 278 issuers of seasoned equity from the initial sample. Specifically, we expect that issuers stating specific investment motives do not exhibit abnormal returns in the subsequent period. In contrast, we expect more ambiguous issuers to suffer from poor post-issue performance as we consider these issuers to be more likely to be opportunistic market-timers or engage in agency spending.

8.1.1 Matched-firm technique

Below, we present the results from the long-run post-issue stock performance according to the matched-firm technique described in Section 6.1, where all the sample SEO firms are matched by non-issuing firms on industry, size and book-to-market ratio. Figure 6 shows the 36-month development in mean buy-and-hold abnormal returns per category of intended use of proceeds. We note that the mean buy-and-hold abnormal return (BHAR) for the sample in total is consistently negative, hence the SEO firms on average underperform its matched non-issuing firms over a period of 36 months subsequent to the offering. Further, we note that firms disclosing specific *Investment* motives on average differ distinctively from the other sub-categories of the intended use of proceeds. These issuers experience on average slightly positive buy-and-hold abnormal returns, while the rest of the sample underperform its matched non-issuing firms over the entire period, with the most severe underperformance for issuers

disclosing *Refinancing* needs. We also note that the long-run post-issue performance for the different use of proceeds categories generally is consistent with the sign and relative magnitude of the offer price discounts and announcement returns from the previous subsection, suggesting that the market underreacts upon the announcement of the offerings.

Figure 6 – 36-month development in ex post mean buy-and-hold abnormal returns



Note: The figure presents the 36-month development in mean BHARs split by intended use of proceeds. The sample includes 278 SEOs conducted on the Oslo Stock Exchange during the period 2002-2015.

In Table 7, we present mean and median buy-and-hold abnormal returns for the SEO firms split by the intended use of proceeds with corresponding test-statistics. We present the results using three different post-event windows, 12-, 24- and 36-months. The table only entails the results of the equally-weighted scheme as the value-weighted scheme is highly dependent on a limited number of SEO firms due to the right-skewed distribution of firm size in our sample.

From Panel A, we show that the average abnormal return for the sample is negative and statistically significant, independent of the post-event window. Over a post-issue period of 36 months, we estimate a mean BHAR of -16.5%. However, the magnitude of the abnormal negative return is larger when using a 24-month horizon, with a mean BHAR of -20.8%. These findings are generally consistent with previous studies on other markets when applying the same methodology, supporting the widely documented SEO underperformance (see Loughran and Ritter, 1995; Spiess and Affleck-Graves, 1995; Jegadeesh, 2000; Jeanneret, 2005).

Table 7 - Post-issue BHARs split by intended use of proceeds

Intended Use of Proceeds	N	BHAR 12m	BHAR 24m	BHAR 36m
Panel A: BHAR (%) matched on size and book-to-market				
Investment				
Mean	36	0.1070	0.1710	0.1840
Median		0.0310	0.1590	0.1130
t-stat		(1.0030)	(1.3360)	(1.3810)
Sign test z-stat		[1.0470]	[1.2000]	[1.2000]
Capex				
Mean	59	-0.1200	-0.2700	-0.3250
Median		-0.1800	-0.2490	-0.2500
t-stat		(-1.4210)	(-2.1880)**	(-2.8330)***
Sign test z-stat		[-1.8280]*	[-2.5080]**	[-3.0800]***
General				
Mean	137	-0.1810	-0.2410	-0.1480
Median		-0.1670	-0.2450	-0.2940
t-stat		(-3.0990)***	(-3.2630)***	(-1.8490)*
Sign test z-stat		[-3.5380]***	[-3.5740]***	[-2.0960]**
Refinancing				
Mean	46	-0.2030	-0.4050	-0.3660
Median		-0.2560	-0.3770	-0.3990
t-stat		(-1.9590)*	(-3.5990)***	(-3.0260)***
Sign test z-stat		[-2.7640]***	[-3.7260]***	[-3.3300]***
All issuers				
Mean	278	-0.1270	-0.2080	-0.1650
Median		-0.1440	-0.2180	-0.2320
t-stat		(-3.1250)***	(-4.0120)***	(-3.0530)***
Sign test z-stat		[-4.0180]***	[-4.6410]***	[-3.7130]***
Panel B: Differences in mean BHARs matched on size and book-to-market				
Investment vs. Capex		t=1.701*	t=2.578***	t=3.073***
Investment vs. General		t=2.545**	t=3.032***	t=2.285**
Investment vs. Refinancing		t=2.137**	t=3.595***	t=3.238***
Capex vs. General		t=0.667	t=0.139	t=-0.984
Capex vs. Refinancing		t=0.658	t=1.213	t=0.639
General vs. Refinancing		t=0.212	t=1.211	t=1.498

Note: Panel A presents mean and median BHARs for each category of intended use of proceeds measured over 12, 24 and 36 months following the equity offerings. In curve brackets, we report two-sided t-statistics, while we in square brackets report Wilcoxon sign test z-statistics. Panel B presents Welch-adjusted t-tests for differences in mean BHARs between the sub-categories of intended use of proceeds. N is the number of SEOs per use of proceeds classification. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Investment use of proceeds

From Panel A, we do not find evidence that issuers stating specific *Investment* motives exhibit abnormal post-issue stock performance. The mean BHAR for this subgroup over the 36-month horizon is positive at 18.4%, but insignificantly different from zero. The magnitude of the estimated means is somewhat smaller when using shorter time horizons (10.7% for 12 months and 17.1% for 24 months), neither these are statistically significant at traditional confidence levels. This supports our hypothesis that issuers choosing to reveal specific information about its investment plans are more credibly signalling that the issue proceeds will be used for a

value-increasing manner. This is also generally consistent with the findings of Silva and Bilinski (2015) and Autore et al. (2009).

Capex use of proceeds

For issuers stating *Capex* motives, we find evidence of a significant underperformance over a period of 36 months following the equity offerings. Both the mean and median BHARs are significantly negative (mean BHAR of -32.5% and median BHAR of -25.0%). The same holds for the 24-month horizon with a mean BHAR of -27.0% (median BHAR of -24.9%). The 12-month horizon shows the least cases of significance, where only the median BHAR is significantly negative at 10% level. The observed underperformance is in line with our expectations that issuers being more ambiguous about its investment plans are more likely to have a timing-motive or have managers that plan to engage in agency spending. Myers and Majluf (1984) suggest that managers have incentives to raise equity and invest in negative NPV projects if they consider the equity overvalued and expect the loss from the unprofitable investment to be offset by the gain from issuing overvalued equity. This is consistent with what we presented in the descriptive statistics in Section 7.1, where *Capex* firms on average experience strong price run-ups prior to the offering. Furthermore, these issuers generally hold more liquid assets relative to the other sub-categories, supporting the theory that issuers with financial slack may be more likely to take on value-decreasing investments. We will investigate this further in Section 8.2 when analysing ex post firm characteristics.

General use of proceeds

For issuers with the primary motivation of raising equity for *General* purposes, we find evidence of poor post-issue stock performance. These firms on average underperform its matched non-issuing firms by 14.8% over a 36-month horizon. For the median firm, the underperformance is even more severe with a BHAR of -29.4%. Both the mean and median are significantly different from zero. Moreover, the magnitude of the average underperformance is larger when using 12- and 24-month horizons, with mean BHARs of -18.1% and -24.1%, respectively, both significant at 1% level. Our results are generally consistent with the findings of Autore et al. (2009). However, they contradict the findings of Jeanneret (2005) on rights offerings in France, who find that issuers stating pure capital structure purposes do not exhibit abnormal post-issue stock performance. He suggests that offerings with the purpose of preserving financial flexibility or strengthening the part of equity are subject to the capital irrelevance theory. However, as for the *Capex* firms, we argue that these issuers may be more likely to be opportunistic market timers, aiming to benefit existing

shareholders at the expense of new shareholders. Furthermore, corporate managers not revealing any or little information on the intended use of proceeds may seek to mask bad information about the firm prospects. We note that the median earnings accruals for issuers stating *Capex* or *General* are substantially higher than for the other subgroups (see descriptive statistics in Section 7.1), supporting both a timing motive and that managers seek to not fully disclose information on the true conditions of the company if they consider the market to be overly optimistic.

Refinancing use of proceeds

For the last sub-category of the intended use of proceeds, *Refinancing*, we find evidence of a significant underperformance over all the post-event windows. The 36-month mean BHAR is -36.6% and significant at 1% level. The magnitude of the 24-month abnormal negative return is somewhat larger, with a BHAR of -40.5%, while we estimate a 12-month mean BHAR of -20.3%. The statistical evidence is even stronger when considering the medians. Our findings are in line with those of Silva and Bilinski (2015), who find that issuers in the UK stating recapitalisation motives underperform non-issuers matched on size and book-to-market by 45.4% over a three-year post-issue period. The findings are also consistent with Autore et al. (2009) and Hertzel and Li (2010), who find that the underperformance is most severe for issuers stating recapitalisation purposes. They argue that these issuers are more likely to take advantage of periods of temporary overvaluation to benefit existing shareholders.

Even though there is an apparent motive for issuing overvalued equity when the intention is to repay debt, we note that many of these sample issuers are firms in financial distress, hence we do not fully attribute the underperformance to a timing-motive. In Section 7.1, we showed that the average pre-issue stock run-up is only slightly positive, while the median is negative for these SEO firms, possibly reflecting distressed conditions prior to the announcement. We further note that this sub-category is highly skewed towards cyclical industries, such as Oil & Gas and Shipping (see Appendix C), often raising equity during prolonged market downturns. Consequently, the post-issue performance has, to a greater extent, a binary outcome in which a substantial share of the issuers is going bankrupt or undergo financial restructurings during the post-event window. We further argue that one explanation for the underperformance may be that the matched-firm technique fails to properly match non-issuing firms with similar systematic risk in a small, cyclical market such as the Norwegian equity market. For instance, firms that acquire assets may be matched with firms holding less capital-intensive business models, whereof firms owning assets are more likely to suffer from prolonged market

downturns and consequently are forced to raise equity to meet its debt commitments. Given that these equity offerings are conducted during downcycles, a holding period of 36 months may be too short to capture the full cycle, hence the apparently riskier equities are likely to suffer extensively.

Summing up ex post stock performance

Overall, the results from Table 7 are consistent with our hypothesis that issuers revealing specifics about its investment plans do not exhibit abnormal post-issue performance. For all other subgroups of the intended use of proceeds, we find evidence of negative abnormal ex post performance that is robust to the choice of post-event window. Furthermore, in Panel B, we do not find significant differences in the mean BHARs between the intended use of proceeds classifications. The results thus suggest that only *Investment* differs significantly from the other subgroups, further supporting the argument that these issuers are more credibly signalling that the proceeds will be used in a value-increasing manner. The findings are generally in line with theories on market-timing and agency issues. We look further into these explanations in Section 8.2.

8.1.2 Time-series regressions

As an alternative methodology to examine long-run post-issue stock performance, we estimate various time-series regression models. In Table 8, we present the results from the time-series regressions on post-issue stock returns using a 36-month horizon. As explained in the methodology section, we create portfolios of firms conducting seasoned equity offerings based on the stated intended use of proceeds. The firms enter the portfolios in the month subsequent to the offering and exit after 36 months or when delisted (if sooner). The sample size is the same as for the matched-firm technique. For robustness, we present the results using both the one-factor market model and the Fama-French three-factor model. Although a debated subject, the risk-factors beyond the market factor seem to be somewhat arbitrary for the Norwegian stock market, hence we leave the inference on the results from the three-factor model unreported. Our primary focus is the estimated alphas (regression intercepts), reflecting annualised monthly abnormal returns over the three-year post-issue period. Although the regression intercepts cannot be directly compared to the abnormal returns from the matched-

firm technique in the previous section, we can estimate mean buy-and-hold returns from earning the intercept return every year over the corresponding holding period[18].

In Panel A, we report the estimated alphas for the sample SEO firms, while we in Panel B present estimated alphas for portfolios of matched non-issuing firms, similar to those we used when estimating BHARs with the matched-firm technique. Panel C contains the results from the zero-investment portfolios that are long issuing firms and short matched non-issuing firms. We present factor loadings for all the portfolios in Appendix F.

Table 8 – Time-series regressions on 36-month long-run post-issue stock returns

	Investment	**Capex**	**General**	**Refinancing**	**All issuers**
	N=36	*N=59*	*N=137*	*N=46*	*N=278*
Panel A: Regression intercepts – SEO firms					
CAPM alpha (%)	0.52	-9.07*	-9.78**	-21.54**	-10.84***
	(0.10)	(-1.66)	(-2.07)	(-2.58)	(-2.72)
FF3M alpha (%)	-2.80	-12.65**	-16.49***	-30.67***	-17.10***
	(-0.52)	(-2.33)	(-3.75)	(-3.78)	(-4.74)
Panel B: Regression intercepts – Matched SEO firms					
CAPM alpha (%)	0.85	-3.17	0.22	-4.04	-0.94
	(0.15)	(-0.89)	(0.06)	(-0.46)	(-0.28)
FF3M alpha (%)	-5.18	-7.78**	-4.68	-11.80	-6.29**
	(-0.92)	(-2.30)	(-1.40)	(-1.36)	(-2.08)
Panel C: Regression intercepts – Zero-investment portfolios					
CAPM alpha (%)	-3.53	-8.62	-12.72***	-20.22*	-9.91***
	(-0.49)	(-1.61)	(-3.20)	(-1.79)	(-3.20)
FF3M alpha (%)	-0.97	-7.62	-14.56***	-21.61*	-10.79***
	(-0.13)	(-1.40)	(-3.59)	(-1.86)	(-3.39)

Note: Panels A and B report annualised monthly alpha estimates for the sample SEO firms and non-issuing matched firms using the calendar-time portfolio models in Equation (11) and (12). Panel C contains estimated alphas from the zero-investment portfolios which are long in the event firms and short in the matched non-event firms. The intercepts are estimated using a 36-month horizon, where firms enter the month subsequent to the equity issue and exit after 36 months or if delisted. The portfolios are divided into stated intended use of proceeds. We use equal-weighted portfolios with monthly rebalancing. t-statistics are reported in parenthesis. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Consistent with the matched-firm technique, we provide evidence of poor long-run market performance following seasoned equity offerings when using different beta pricing models. From the one-factor market model in Panel A, the estimated annualised alpha for the portfolio of all sample issuers is -10.84% and significant at 1% level. The implied 36-month abnormal return is thus -29.1%, well below the mean BHAR of -16.5%.

[18] The implied buy-and-hold return over n years using regression intercepts is: $[(1 + \alpha_p)^n - 1]$

Moreover, we still find that investors can differentiate the issuers based on disclosed information on the intended use of proceeds. The sign and relative magnitude of the estimated coefficients are fairly consistent with the findings in the previous section when using buy-and-hold abnormal returns. From Panel A, the annualised monthly alpha for issuers stating specific *Investment* motives is 0.52% and insignificantly different from zero, suggesting that these issuers do not exhibit abnormal post-issue returns. The statistical evidence is stronger for *Capex* and *General* firms, whereof the annualised regression intercepts are -9.07% and -9.78%, respectively, both statistically significant at conventional confidence levels. Moreover, as for the matched-firm technique, issuers raising equity for *Refinancing* reasons exhibit the poorest ex post abnormal performance. Over the 36-month post-issue period, the annualised monthly alpha is -21.54% and significant at 5% level.

The results from Table 8 are generally consistent with the findings of Jegadeesh (2000) and Jeanneret (2005), who find that the anomaly still exists when using the time-series regressions. However, Eckbo et al. (2000), find that factor-models eliminate the abnormal post-issue performance, attributing the underperformance to the incomplete adjustment for risk with standard benchmark methodologies. They specifically focus on zero-investment portfolios that are long in stocks of SEO firms and short in stocks of non-issuing control firms. For robustness, we also follow this approach, where the regression intercepts are reported in Panel C.

Our results are still contrary to the findings of Eckbo et al. (2000). Regardless of the stated intended use of proceeds, the annualised monthly alpha is -9.91%. Even though the magnitude of the abnormal performance is slightly lower compared to the results in Panel A, the regression intercept is still significant at 1%. For issuers stating *Investment* motives, the estimated alpha turns to negative when using zero-investment portfolios. However, the intercept is not significantly different from zero, hence we still do not find evidence that these issuers underperform over a 36-month horizon. Moreover, we do not find clear evidence that issuers citing *Capex* motives exhibit abnormal post-issue returns. Although the magnitude is almost similar to the estimate in Panel A, the statistical evidence is weak. For the portfolios of firms raising equity for *General* and *Refinancing* reasons, the annualised monthly alphas are -8.62% and -12.72%, respectively. The regression intercepts are also statistically significant, hence our results suggest that the anomaly at least exists within these categories.

8.1.3 Seasoned equity offerings and market timing

To better explain the documented poor ex post stock performance, we extend the analysis in the previous subsections and estimate time-series regressions using a 48-month horizon, starting 12-months prior to the offering and ending 36-months after. In line with the existing literature, we suggest that more ambiguous issuers, such as those disclosing vague investment motives or general corporate purposes, are more likely to take advantage of asymmetric information and issue equity when overvalued. The timing theory suggests that investors underreact to the announcement of the offering when the equity is overvalued, hence the underperformance persists in the long-run. As presented in the descriptive statistics in Section 7.1, the average SEO firm exhibits positive abnormal returns over a two-month period prior to the issue announcement. This is also extensively documented across various markets in the existing literature, and the apparently poor long-run subsequent stock returns seem to indicate that managers are timing these issues around periods of temporary overvaluation. However, various theories have been developed to explain managers' timing ability of seasoned equity offerings, whereof some studies suggest that managers take advantage of asymmetric information to issue overvalued equity, while others have more rationale explanations where the ability to time the market can be extended to a business cycle environment or understood as a form of aggregated pseudo market timing.

To analyse whether this apparent timing ability exists on Oslo Stock Exchange, we include the 12-month pre-issue period in our analysis. If the managers take advantage of superior information to time the equity offerings, there should follow a long-term reversal in the abnormal performance. Thus, given that the pre-issue period captures the timing-effect, the abnormal performance should no longer exist. The results are presented in Table 9, where Panel A concerns annualised monthly regression intercepts for the SEO firms using calendar-time portfolio regressions, while Panel B addresses the same results using zero-investment portfolios long in the SEO firms and short in the matched non-issuing firms. In Panel C, we report mean buy-and-hold abnormal returns using the matched-firm technique. Again, we leave the inference of the results from the three-factor model unreported.

Table 9 – Time-series regressions on long-run stock returns around SEOs

	Investment *N=36*	**Capex** *N=59*	**General** *N=137*	**Refinancing** *N=46*	**All issuers** *N=278*
Panel A: Regression intercepts - SEO firms (-12m, +36m)					
CAPM alpha (%)	8.16	0.58	-7.22	-22.69***	-5.26
FF3M alpha (%)	3.34	-4.70	-14.93***	-33.43***	-13.50***
Panel B: Regression intercepts - zero-investment portfolios (-12m, +36m)					
CAPM alpha (%)	7.58	-0.23	-5.92	-16.16**	-3.58
FF3M alpha (%)	5.76	-0.88	-7.18*	-19.81***	-5.88**
Panel C: Buy-and-hold abnormal returns					
BHAR (-12m, +12m) (%)	31.32*	1.02	-3.12	-38.12***	-2.25
BHAR (-12m, +24m) (%)	20.20	-10.05	-6.66	-49.08***	-9.90*
BHAR (-12m, +36m) (%)	10.11	-22.10	-5.32	-49.10***	-13.58**

Note: The table presents long-run stock returns around equity offerings. In Panel A and B, we report results from 48-month calendar-time portfolio regressions, where the regression intercepts are annualised monthly abnormal returns. In Panel C, we report BHARs using three different test periods. *, ** and *** denote statistical significance at 10%, 5% and 1% level, respectively.

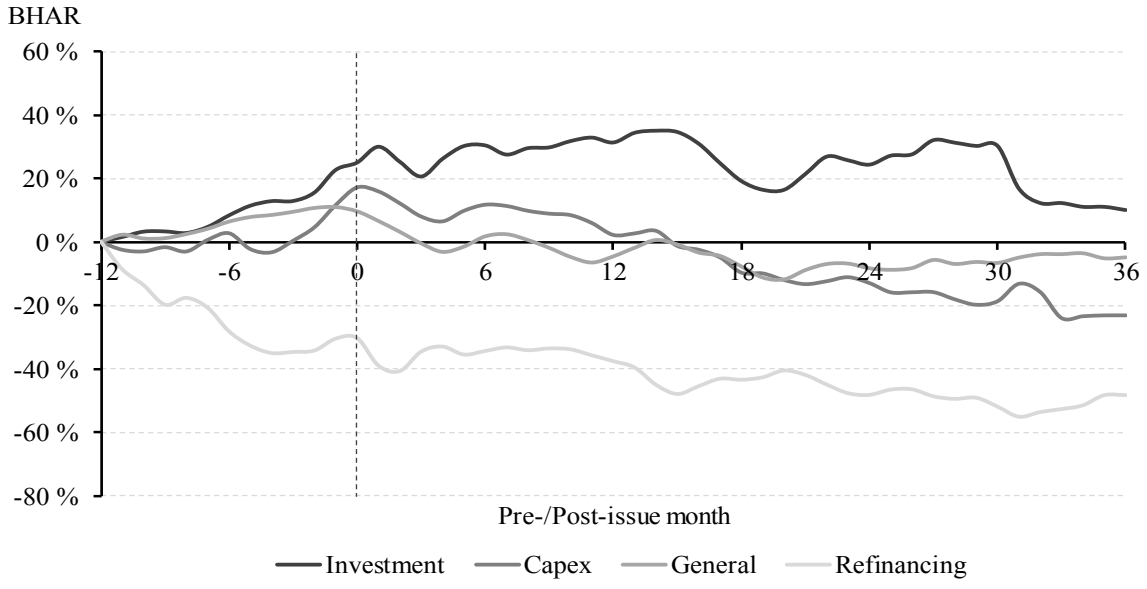
From Panel A, the annualised monthly regression intercept for the portfolio of all issuers is reduced from -10.84% (in Table 8) to -5.26% after including the 12-month pre-issue period and is no longer significant at traditional confidence levels. The same holds for the zero-investment portfolio in Panel B. Albeit the regression intercepts are negative, we find no evidence that SEO firms on average significantly underperform over a 48-month period starting 12 months prior to the offering. However, from the matched-firm technique in Panel C, we still find evidence of poor stock performance for SEO firms in the years surrounding the equity offerings. Even though the sign and magnitude of the mean 48-month BHAR of -13.58% is relatively consistent with the estimated regression intercepts in Panel A and B, it is statistically significant at 5% level. Still, the underperformance is less severe compared to the results in Table 7.

More importantly, we provide evidence that the underperformance is restricted to issuers stating *Refinancing* purposes when including the pre-issue period. In Panel A and B, none of the regression intercepts for the portfolios of *Investment, Capex* and *General* firms are statistically significant. Conversely, we still find evidence of abnormal stock returns for the portfolio of *Refinancing* firms, where the regression intercepts are significantly negative. Supportive evidence is provided in Panel C, using the matched-firm technique.

Figure 7 better illustrates our findings, showing the development in long-run buy-and-hold abnormal returns when starting 12 months prior to the offering. *Refinancing* issuers experience on average negative abnormal returns during the pre-issue period and continue to

underperform in the subsequent months. For all other sub-categories, the abnormal stock performance increases until the month of the equity offering. We particularly note that the pre-issue performance is strong for issuers stating *Investment* reasons, followed by no or little abnormal performance over the subsequent 36-month period. This may suggest that these issuers reduce the asymmetric information when firm prospects are improving and subsequently raise equity to take on arising growth opportunities. In contrast, *Capex* and *General* firms tend to peak around the month of the offering and exhibit a reversal in the abnormal returns during the post-issue period, suggesting that the timing-motive generally is restricted to these issuers. Moreover, we note that most of the weak post-issue performance for issuers stating *General* motives seem to occur within the first 12 months after the offering. This could mean that the market is aware of the managers' timing ability, and the price correction is done completely within a 12-month period. Conversely, SEO firms stating vague investment motives (*Capex*) on average exhibit lower returns relative to its matched non-issuing firms over the entire post-issue period of 36 months. Thus, we suggest that the poor post-issue performance for these issuers cannot be fully explained by managers utilising the opportunity window, but rather in combination with an overinvestment problem in which managers invest heavily at a lower rate of return than the market assess as the marginal benefit of new investments. It is thus challenging for investors to correctly incorporate the new information revealed, and the market underreacts upon the announcement.

Figure 7 – Development in 48-month mean buy-and-hold abnormal returns around SEOs



Note: The figure shows the development in average BHARs for the various classifications of intended use of proceeds over a period starting 12 months prior to the equity offering to 36 months after.

Summing up long-term stock price dynamics around SEOs

Overall, the results from Section 8.1 suggest that firms experience abnormally low stock returns over a three-year period following seasoned equity offerings. However, much of this underperformance is reverted when including the pre-issue period, hence our findings are generally consistent with the timing theory in which managers appear to issue equity around periods that are followed by poor stock performance. Although we do not provide evidence for an underlying explanation of the observed timing-ability, the characteristical performance of the various intended use of proceeds categories helps to differentiate issuers that may have a timing-motive to those that are in swift need of liquidity or credibly intend to take on profitable investments. Another interesting feature is that the relative market reactions upon announcement for the various use of proceeds categories are generally consistent with the long-run abnormal stock performance. This suggests that investors systemically underestimate, but correctly show the direction of, valuation effects upon the announcement of equity offerings when proceeds are not intended for specific investment reasons. This implies that investors are overly optimistic about these firms' prospects at the time of the announcement, which again may be attributed to some form of timing ability. Also, a more rational cause of the observed stock price dynamics may be related to the investment-based explanation by Carlson et al. (2006), suggesting that investment projects can be viewed as real options, hence upon exercise the required return would decrease. Given that such growth options only will be exercised when moving sufficiently in-the-money, the model also explains the pre-issue price runup. We consider these possible explanations more closely in the Section 8.2, where we analyse ex post firm characteristics.

Although the literature is inconclusive in explaining the causes for the apparent timing ability, we admit that managers generally have incentives to issue equity during periods where the investor sentiment is especially strong, both to take advantage of overly optimistic market expectations, as well increasing the likelihood of a successful placement of new shares. However, the characteristics of the Norwegian market provide some interesting perceptions as most of the equity offerings are conducted through private placements. Most firms appear to prefer issuing discounted equity to certain "friendly" new and/or existing shareholders, possibly with the rationale of benefitting from increased monitoring services and expert advice or to maintain private benefits of control. Consequently, to avoid issuing undervalued equity to attract these targeted investors, managers may be willing to postpone investment opportunities until, or instinctively raise equity in, periods of temporary overvaluation.

8.2 Ex post use of proceeds and operating performance

In order to further explain the findings from the previous sections, we turn our attention to ex post firm characteristics. To be consistent with the analysis of long-run post-issue stock performance, we only consider the same sample of 278 issuers of seasoned equity as in Section 8.1, excluding all overlapping events within a three-year period. Firstly, we analyse the ex post use of funds through various financial ratios over the years following the equity offerings. Moreover, we examine the post-issue operating performance using univariate nonparametric tests. Finally, we test whether the prospectus disclosure can help in differentiate firms with better post-offering prospects when controlling for other ex ante factors.

8.2.1 Ex post use of proceeds and firm characteristics

In Table 10, we follow Walker and Yost (2008) and present median firm characteristics from the end of the fiscal year prior to the offering to three years after. All statistics are denominated by total assets in the pre-issue year, hence the rationale is to evaluate the ex post use of funds.

Table 10 – Ex post use of funds

Variable (yr. n)/Assets (yr. -1)	yr. -1	yr. 0	yr. +1	yr. +2	yr. +3
Total Assets					
Investment	1.0000	1.6700***	2.2040***	2.5480***	2.5980***
Capex	1.0000	1.4950***	1.6810***	2.2990***	2.5510***
General	1.0000	1.1290***	1.1940***	1.3340***	1.3070***
Refinancing	1.0000	0.8860*	0.8370	0.8840	0.7440
All issuers	1.0000	1.1640***	1.3080***	1.4490***	1.4320***
Capital Expenditures					
Investment	0.0550	0.0870***	0.1600***	0.1440***	0.1150***
Capex	0.0740	0.1260***	0.1160***	0.1650***	0.1420***
General	0.0390	0.0460*	0.0380	0.0480	0.0460
Refinancing	0.0490	0.0310***	0.0240***	0.0230***	0.0270***
All issuers	0.0470	0.0510***	0.0490***	0.0540***	0.0560***
Total LT Debt					
Investment	0.3910	0.5830***	0.7930***	0.8140***	0.8340***
Capex	0.4060	0.4980***	0.5480***	0.4860***	0.6600***
General	0.3670	0.3730	0.4060***	0.4370***	0.4410***
Refinancing	0.4970	0.3850***	0.3360***	0.3650*	0.3080**
All issuers	0.3910	0.4040***	0.4330***	0.4480***	0.4630***
Working Capital					
Investment	0.1670	0.0540*	0.1450**	0.1190	0.0800
Capex	0.1820	0.1870***	0.1570**	0.2000	0.1700
General	0.1190	0.1790***	0.1610***	0.1660***	0.1490***
Refinancing	0.0120	0.0390***	0.0370***	0.0620***	0.0290***
All issuers	0.1260	0.1310***	0.1290***	0.1340***	0.1200***

Note: The table presents post-issue firm characteristics standardised by total book assets in the year preceding the SEO. Only median values are reported. Two-population Wilcoxon rank-sum (Mann-Whitney) tests are used to test the differences in medians. ***, **, and * denote significant differences between the statistic for year 0, +1, +2 and +3 relative to year −1, at the 1%, 5%, and 10% confidence levels.

In the first category, we report the growth in total assets. The results provide some interesting features, whereof the median issuer stating *Investment* or *Capex* motives more than double its asset base over a three year period subsequent to the year preceding the offering. The absolute increase in total assets for *General* firms is more moderate, where the median firm increases assets by 30% over the post-issue period of three years. For issuers where the stated primary motivation for the equity issue is to refinance debt, the median firm exhibits a decline in total assets over the subsequent period, but not significantly different from the year preceding the offering. Another interesting feature is that we find no significant change in working capital in absolute terms in two and three years following the equity offering for issuers stating *Investment* or *Capex* motives. However, the median *General* and *Refinancing* firms significantly increase their level of working capital in the SEO year, with no or little subsequent change from the issue year and throughout the post-issue period.

Moreover, we find that the median *Investment* and *Capex* firms significantly increase their long-term debt in the offering year and continue to take on more debt throughout the post-issue period. We also note that the median *General* firm increases its long-term debt, but more modestly. These findings are generally consistent with those of Walker and Yost (2008), who find that SEO firms are not making a choice between equity and debt to finance future growth initiatives, but rather use both sources of financing. However, for firms intending to raise equity for *Refinancing* purposes, we find a significant decline in the absolute debt level over the entire post-issue period, consistent with the stated intention in the prospectus disclosure.

In Table 11, we present univariate tests on change in leverage and liquidity ratios. In contrast to Table 10, where all statistics are denominated by total assets in the pre-issue year (year -1), we here document leverage and liquidity ratios as they change over the years following the equity offerings. We measure leverage as total debt scaled by total assets, while the firm liquidity is proxied by working capital relative to total assets. Again, we only consider median statistics.

We do not find evidence that the typical SEO firm changes its capital structure significantly. The results suggest that the leverage is somewhat reduced during the issue year, but we find no significant changes over the next three years relative to the pre-issue leverage. These findings are consistent with what we presented in Table 10, where investment programs are funded through both equity and debt, hence the capital structure remains unchanged.

Table 11 – Ex post change in leverage and liquidity ratio

Variable (yr. n)/Assets (yr. n)		Changes			
	yr.-1	**yr. -1 to 0**	**yr. -1 to +1**	**yr. -1 to +2**	**yr. -1 to +3**
LT Debt/TA					
Investment	0.3910	-0.0137	-0.0047	0.0132	-0.0042
Capex	0.4060	-0.0219	-0.0059	-0.0039	-0.0236
General	0.3670	-0.0064	0.0142*	0.0096	0.0100
Refinancing	0.4970	-0.0114*	-0.0621***	-0.0204*	-0.0621*
All issuers	0.3910	-0.0097*	-0.0045	-0.0024	-0.0061
WC/TA					
Investment	0.1670	-0.0168*	-0.0709***	-0.0631**	-0.0640
Capex	0.1820	-0.0085	-0.0412**	-0.1112***	-0.0755***
General	0.1190	0.0075	0.0047	-0.0095	-0.0397*
Refinancing	0.0120	0.0349	0.0734**	0.0444*	0.0498*
All issuers	0.1260	0.0004	-0.0168	-0.0224**	-0.0390**

Note: The table presents changes in median long-term debt and working capital scaled by total assets. In the left column, we report the variables in the year prior to the equity offering, while the other columns report the change in the respective variables for year 0, +1, +2 and +3 relative to year -1. For changes, we use Wilcoxon signed rank test to examine whether the change is significantly different from zero. *, ** and *** denote statistical significance at 10%, 5% and 1% level, respectively.

Although we do not find evidence of any change in the ex post capital structure for the median SEO firm, the results from Table 11 indicate that these findings are partly restricted to issuers stating *Investment, Capex* and *General* purposes for the capital raise. Conversely, for issuers in financial distress, or those that generally intend to alter the debt structure, the leverage is significantly lower in the post-issue period relative to the year preceding the offering of seasoned equity. This confirms that these issuers credibly signal the proceeds are raised with the purpose of de-lever their balance sheets.

Considering ex post firm liquidity, we find evidence that the relative liquidity levels for the median *Investment* and *Capex* firms decline significantly during the post-issue period, consistent with that these firms appear to use financing proceeds to invest in fixed assets. Moreover, for issuers stating *General* motives, the relative liquidity level remains largely unchanged. The median firm tends to increase the post-issue working capital level somewhat, hence investment in fixed assets increases at the similar rate as the level of working capital. Finally, we provide evidence of increasingly ex post liquidity for firms stating *Refinancing* motives. The median firm exhibits an absolute increase in working capital, while the change in assets is negative or unchanged over the post-issue period, which is reasonable due to the usually distressed conditions.

Summing up ex post firm characteristics

Overall, the results from Table 10 and Table 11 suggest that SEO firms disclosing *Investment* or *Capex* motives are credibly signalling that the issue proceeds will be deployed to grow its asset base. The results also suggest that these firms are not making a choice of equity versus

debt, but rather are raising capital through both sources. Without considering the post-issue operating performance, these findings generally support our argument in Section 8.1, that the long-run stock underperformance for firms disclosing vague investment motives may be partly attributed to an overinvestment problem. The findings are also be partly consistent with time-variant expected returns from the real option-based explanation by Carlson et al. (2006).

Moreover, for *General* firms, the results suggest that these issuers are using proceeds to invest relatively modestly. This subgroup also tends to add on some more debt in the subsequent years, hence the capital structure remains largely unchanged. We argue that this further supports our argument of a timing-motive, where the issue proceeds are not, at large, used to optimise the capital structure or grow the business, but rather to some extent take advantage of overvalued equity. This is also consistent with the observed increase in working capital, in which these issuers may be temporarily parking the funds as liquid assets until the firm is revalued by the market.

Finally, for issuers stating *Refinancing* motives, the results provide evidence that these firms credibly signal that the proceeds will be used to de-lever the balance sheet. As previously explained, the majority of these issuers are to a various degree in financial distress, hence forced to raise equity to meet its debt commitments. Although these issuers significantly increase the relative level of working capital, we note that the increase is not substantial, and the absolute change in working capital indicates that these firms continue to have relatively poor liquidity over the post-issue period.

8.2.2 Ex post operating performance

Here, we examine ex post operating performance using both univariate and multivariate tests. We measure operating performance as return on assets, presenting both unadjusted and adjusted measures. We strict our analysis to nonparametric tests. The objective is to test whether the operating performance changes significantly over the post-issue period, and to what degree the operating performance is consistent with the observed stock price returns. Due to missing accounting data and delisted firms during the period, our sample includes 273 SEOs in the year prior to the offering and declines to 211 issuers three years after the offering.

In Table 12, we present the results from the univariate tests on post-issue operating performance. We report median return on assets ratios for each classification of the intended use of proceeds, starting one year prior to the offering and ending three years after.

Additionally, as described in Section 6.3, we include two adjusted performance measures: *industry-adjusted ROA* and *industry-and performance-adjusted ROA*, where we adjust the return on assets ratio for the median industry level and a matched non-event firm, respectively. A caveat before proceeding with the results is that the change in return on assets ratios may be very misleading in the way that issuers exhibiting a decline in earnings while increasing total assets relatively more will actually improve the operating performance ratio, given that the earnings initially are negative. However, there do not seem to be a common method to deal with such issues in the literature, hence we stick to the conventional method with a cautious interpretation.

Table 12 – Operating performance around seasoned equity offerings

Net income (yr. n)/Assets (yr. n)							
	yr.-1	**yr.0**	**yr.1**	**yr.2**	**yr.3**	**Rank-sum tests**	
	N= 273	*N=270*	*N=255*	*N=237*	*N=211*	yr.2 vs. yr.0	yr.3 vs. yr.0
Investment							
ROA	2.84%	2.33%	2.58%	0.25%	1.48%	z = -1.99**	z = -0.54
Industry-adjusted ROA	0.32%	0.17%	1.37%	-1.09%	0.39%	z = -1.23	z = 0.65
Ind./Perform. adj. ROA	-1.06%	-0.01%	-1.04%	-1.78%	-0.07%	z = -0.58	z = 0.54
Capex							
ROA	-3.32%	-3.45%	-4.06%	-4.40%	-2.45%	z = -1.55	z = -0.39
Industry-adjusted ROA	-5.22%	-4.15%	-4.05%	-4.91%	-3.81%	z = -1.12	z = -0.10
Ind./Perform. adj. ROA	-3.23%	0.01%	-1.39%	-4.25%	-3.42%	z = -2.47**	z = -1.03
General							
ROA	-2.72%	-2.66%	-2.66%	-1.57%	-3.39%	z = -0.74	z = -0.63
Industry-adjusted ROA	-4.31%	-2.89%	-3.59%	-2.45%	-3.25%	z = -0.99	z = -1.06
Ind./Perform. adj. ROA	-1.06%	0.01%	-0.98%	-2.70%	-2.25%	z = -1.76*	z = -1.67*
Refinancing							
ROA	-9.06%	-9.06%	-5.57%	-4.79%	-2.51%	z = 0.74	z = 2.03**
Industry-adjusted ROA	-11.5%	-9.76%	-5.21%	-3.73%	-4.91%	z = 0.53	z = 1.89*
Ind./Perform. adj. ROA	-4.02%	0.00%	-0.40%	-0.77%	0.81%	z = -0.48	z = 0.49
All issuers							
ROA	-2.27%	-2.42%	-1.72%	-1.56%	-1.91%	z = -1.49	z = -0.21
Industry-adjusted ROA	-3.95%	-2.89%	-3.22%	-2.64%	-2.53%	z = -1.35	z = -0.32
Ind./Perform. adj. ROA	-1.62%	0.01%	-1.04%	-3.14%	-2.70%	z = -2.82***	z = -1.66*

Note: The table presents the median return on assets for each category of intended use of proceeds from the year prior to the equity offering (yr. -1) to three years following the offering (yr. 3). ROA is estimated as net income in year n divided by total assets in year n. Industry adjusted ROA is estimated by subtracting the median industry level of ROA (based on the first two/four digits in the GICS-code) from the issuer's level in each particular year. Ind./Perform. adj. ROA refers to industry-/performance adjusted ROA, and is estimated by subtracting the ROA of a control firm that is within the same industry and has the closest ROA ratio in the issue year. In the right columns, we report z-statistics from two-sample Wilcoxon rank-sum tests for differences in medians between the post-issue years and the issue year.

Considering the unadjusted return on assets ratios in Table 12, we find little or no evidence of any significant changes in the operating performance in the post-issue years relative to the offering year. However, at sub-levels, our results show that *Investment* firms tend to experience a decline in the operating performance over a two-year period, while *Refinancing* firms increase return on assets over a three-year horizon.

These results are in contrast the what we would expect from the long-run post-issue stock performance. Additionally, they contradict some of the existing literature which finds that the operating performance tends to deteriorate in the years subsequent to the equity offering (see Loughran and Ritter, 1997; Autore et al., 2009). Nevertheless, our results are more consistent with Hertzel et al. (2002) who find that the operating performance does not deteriorate, but rather remains weak over the years following the offering, suggesting that the issuers fail to meet market expectations as investors are anticipating an improvement in operating performance. However, in line with the findings of Walker and Yost (2008), we argue that industry effects are important to control for when examining operating performance, particularly in the presence of cyclical industry-characteristics.

To more properly control for important industry effects, we adjust the operating performance measure for the median industry level, as explained in Section 6.4. However, the results in Table 12 from the industry-adjusted performance measure do not contribute much to the unadjusted return on assets ratios. We do not find evidence that the operating performance changes significantly in the post-issue period for the median sample firm. The results indicate that only issuers stating *Refinancing* motives experience an improvement in the industry-adjusted operating performance, while none of the other subgroups exhibit any significant change. The results are somewhat surprising given the weak post-issue market performance for *Refinancing* firms. However, an important notion when examining ex post change in operating performance in light of ex post stock returns, is the market expectation. We note that ROA for the median issuer within each use of proceeds classification is substantially lower than the corresponding industry medians in the year preceding the offering (except the *Investment* category). Although the median firms slightly narrow the gap to the industry medians over the post-issue period, they continue to perform considerably weaker, suggesting that the market may be overly optimistic that the operating performance will improve following the offerings.

However, we argue that the industry-adjusted performance measure also fails to properly capture important industry effects. Due to the cyclical characteristics of the sample firms, the industry-classification based on the first two(four) digits in the GICS-code does not control for the unique cyclicality within the sub-industry segments. To more properly deal with this, we measure the ex post operating performance of each SEO firm against a control firm not

subject to the event. The control firm is required to be within the same industry-classification as the issuer and to have relatively similar operating performance in the issue year[19].

The post-issue industry-and performance-adjusted ROA is consistent with the argument that the market is overly optimistic about that the operating performance will improve in the future. From Table 12, our results provide evidence that SEO firms tend to perform significantly weaker in the post-issue period relative to the issue year. The median SEO firm exhibits a significant decline in the industry-and performance-adjusted ROA over both two-and three-year horizons. We also note that the performance appears to peak in the year of the equity offering, consistent with the findings of Loughran and Ritter (1997) and Autore et al. (2009).

Moreover, we do not find evidence that firms citing specific *Investment* motives exhibit any changes in the post-issue operating performance. However, for issuers stating *Capex* or *General* purposes, the median industry-and performance-adjusted ROA is significantly lower two years after the offering relative to the issue year. With a three-year horizon, the median performance measure is also lower for both subgroups, but only significantly different from the issue year for issuers stating *General* purposes. For issuers disclosing *Refinancing* reasons, we do not find evidence of abnormal ex post operating performance. Although this is in contrast to the observed poor post-issue stock performance, we argue that the analysis of operating performance measures yields positively biased estimates when firms are delisted for bankruptcy reasons. As we only have annual accounting data, there would be an interval between the delisting date and last reported financials of up to one year. Given that a firm is running towards bankruptcy, the operating performance is likely to suffer even more in the last fiscal year of operations, not reflected in our analysis. Consequently, we argue that the analysis suffers to some degree of survivorship bias, in particular for the subgroup of *Refinancing* firms, as a relatively larger proportion of these issuers are delisted for bankruptcy reasons.

Finally, in Table 13, we report the estimated coefficients from the quantile regressions. The model specifications follow from Equation (13), using change in industry-and performance-adjusted ROA as the dependent variable. Following Autore et al. (2009), we use median quantiles and report t-statistics based on bootstrapped standard errors. All models include year

[19] See Section 6.4 for a detailed description of how we compute industry-and performance-adjusted ROA

fixed effects. In Panel A, we measure the change in the operating performance measure over a two-year horizon starting from the issue year, while we in Panel B measure the change from the issue year to three years following the issue. In both panels, we add potential control variables to the specific models. In Model (1), our explanatory variables include binary indicators for the use of proceeds classifications, using *Investment* firms as control group. In Model (2), we add control variables for pre-issue market value and relative deal value, while we in Model (3) control for the pre-issue operating performance.

Table 13 – Quantile regressions on change in ex post operating performance

	Panel A:			**Panel B:**		
	ΔInd./Perform. adj. ROA (0, +2)			ΔInd./Perform. adj. ROA (0, +3)		
	Model (1)	**Model (2)**	**Model (3)**	**Model (1)**	**Model (2)**	**Model (3)**
Capex	-0.075**	-0.075*	-0.075*	-0.069*	-0.047	-0.066
	(-2.44)	(-1.68)	(-1.82)	(-1.69)	(-0.88)	(-1.46)
General	-0.060*	-0.062	-0.052	-0.102**	-0.097**	-0.095**
	(-1.76)	(-1.38)	(-1.24)	(-2.23)	(-2.11)	(-2.11)
Refinancing	-0.031	-0.022	-0.019	-0.052	-0.028	-0.038
	(-0.43)	(-0.27)	(-0.22)	(-0.91)	(-0.35)	(-0.58)
Ln(Market Value)		0.003	0.003		0.012	0.013
		(0.21)	(0.19)		(0.92)	(0.85)
Ln(Relative Deal Size)		0.006	0.006		0.012	0.016
		(0.36)	(0.35)		(0.61)	(0.79)
Pre-Issue ROA			0.007			-0.060
			(0.11)			(-0.80)
Constant	0.041	0.034	0.034	-0.045	-0.106	-0.099
	(0.36)	(0.26)	(0.23)	(-0.43)	(-0.57)	(-0.66)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.0321	0.0331	0.0314	0.0511	0.0541	0.0618
N	237	237	237	211	211	211

Note: The table presents three different models using both median quantile regressions where the dependent variable is the change in industry- and performance adjusted ROA from year 0 to year +2 (Panel A) and +3 (Panel B). Investment, General and Refinancing are dummy variables of stated intended use of proceeds where *Investment* is the omitted variable. In Model (2), we also include the natural log of the market value, calculated as the stock price times number of shares outstanding one day prior to the offering, and the natural log of the relative deal value, equalling issue proceeds divided by pre issue market value. Additionally, in Model (3), we add ROA for the fiscal year ending 1 year prior to the offering. All regression models are adjusted for year fixed effects. Bootstrapped standard errors based on 1000 replications are reported in parentheses. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

From Panel A, in all model specifications, the coefficient on the binary indicator for *Capex* motives enters significantly negative at 10% level, indicating that there are greater declines in the operating performance when the intended use of proceeds is for capital expenditures as opposed to specific *Investment* reasons. Moreover, the estimated coefficient on *General* is significantly negative in Model (1), but insignificantly negative in Model (2) and (3), only providing partly evidence that issuers disclosing general issue motives experience a relatively weaker post-issue operating performance to that of *Investment* firms. Although the coefficient

on *Refinancing* is negative in all the models, we do not find evidence of significantly weaker relative performance for these issuers over the two-year post-issue window.

The results from Panel B are relatively consistent with the findings in Panel A. However, we find weaker evidence that *Capex* firms experience larger declines in the post-issue operating performance relative to *Investment* firms, as the estimated coefficient is only significantly negative in Model (1). The opposite is true for the estimated coefficients on the binary variable *General,* where the coefficients are negative and significant at 5% level in all model specifications. We further note that none of the other control variables are significantly different from zero at conventional confidence levels in any of the regression models, hence we do not find evidence that ex post abnormal operating performance can be explained by firm size, relative deal size or pre-issue operating performance.

Summing up ex post operating performance

Overall, we find evidence that seasoned equity offerings tend to follow periods of relatively poor operating performance, where the median sample firm has negative earnings in the year preceding the equity offering. We further find that the operating performance generally is weaker than for the median industry firms around the offering year and remains weaker also in the subsequent years. Although the operating performance does not change significantly over the post-issue period, these firms do not seem to meet market expectations as investors may be too optimistic about the potential that the ex post operating performance will improve. The documented poor post-issue stock-price performance may thus reflect investor disappointment about the failure to reverse the poor operating performance prior to the issue. This explanation is consistent with our findings when we adjust the operating performance measure for non-issuers matched on industry and ROA in the offering year, where we find that the SEO firms exhibit significantly weaker operating performance in the post-issue years.

Considering the different use of proceeds classifications, we find that the relatively poor ex post operating performance can be largely attributed to SEO firms disclosing *Capex* and *General* motives for the equity issue. We find that the median industry-and performance-adjusted ROA for these issuers tend to peak in the offering year, consistent with the apparent timing-ability documented in Section 8.1.3. Additionally, as previously suggested, the relatively weak operating performance for *Capex* firms may be attributed to an overinvestment problem, as we find that these issuers invest significantly during the post-issue period. This is also consistent with the observed gradually decline in the abnormal stock returns over the

three-year post-issue period. For issuers stating specific *Investment* motives, we do not find any abnormal operating performance in the years following the equity offerings, in line with no evidence of long-run post-issue abnormal stock returns.

The same holds for *Refinancing* firms, where we argue that the analysis suffers to some degree from survivorship bias as many of these firms are going bankrupt during the post-event window. Additionally, given the relatively weak pre-issue operating performance, we suggest that investors are anticipating a reversal in the performance of the firms' existing assets in place. Even though the median firm improves the operating performance during the post-issue period, it still performs weak following the issue, consistent with the idea that the poor stock performance reflects investor disappointment about the failure to reverse the operating performance.

9. Conclusion

This paper examines the market reaction to the announcement of seasoned equity offerings and subsequent long-run stock and operating performance using a sample of 463 SEOs made on the Oslo Stock Exchange between 2000 and 2018. We introduce the ex ante stated use of proceeds as a differentiating variable to test various branches of the capital structure theory applying to equity raising. Specifically, we differentiate between firms that raise equity for specific *Investment* motives or *Refinancing* reasons to those that choose to be more ambiguous about the use of capital inflow. We further divide ambiguous issuers into *Capex* and *General* motives according to the disclosed information upon announcement of the offering.

Our main findings suggest that prospectus disclosure on the intended use of proceeds helps to differentiate issuers that take advantage of "windows" where the market is overly optimistic about future firm prospects to those that are in immediate need of liquidity or credibly intend to take on profitable investments. Firstly, we document that firms revealing specific investment motives on average exhibit positive abnormal returns upon the announcement of the offerings. They also experience strong price runups prior to the announcement and no abnormal post-issue stock performance. The findings suggest that these firms lower the asymmetric information when firm prospects are improving, and subsequently raise equity to take on arising growth opportunities. These firms also appear to credibly signal that the proceeds are raised for a value-increasing manner, as they exhibit strong growth in fixed assets with no subsequent deterioration in the operating performance. Second, we find that more ambiguous issuers, stating either vague investment motives or general corporate purposes, suffer from relatively large offer price discounts and accordingly negative market reactions upon the announcement of the offerings. These issuers also exhibit strong pre-issue stock returns and subsequently poor stock and operating performance. Specifically, we suggest that firms disclosing that proceeds are raised for general corporate purposes are more likely to take advantage of asymmetric information and issue equity in periods of temporary overvaluation. Our results indicate that these issuers park the proceeds in liquid assets, hence given that the market underreacts to the issue announcement, the firms manage to transfer wealth from new to existing shareholders. Also, a related explanation may be that managers intend to mask bad information about the future firm prospects, and consequently the investors are left overoptimistic at the time of the offering. The findings are supported by a relative steep correction in stock prices during the first 12 months following the equity offerings. On the

other hand, we suggest that agency problems are more pronounced for issuers revealing vague investment motives. These issuers appear to invest heavily in a value-decreasing manner during the post-issue period, which implies that investors are too optimistic about the future payoffs from the anticipated growth opportunities. We also note that these firms hold higher levels of working capital prior to the issue, in line with the theory that issuers with higher financial slack are more prone to take on unprofitable projects. Finally, the empirical results indicate that issuers stating refinancing reasons usually are in financial distress and raise equity during prolonged market downturns. The offer price is often set well below the market price to ensure a successful completion of the offering, where the announcement return suffers accordingly. These issuers also significantly underperform benchmark firms matched on size and book-to-market over a three-year period subsequent to the offering. Given the relatively weak pre-issue operating performance, we suggest that investors are anticipating a turnaround in the performance of the firms' existing assets. Albeit the median firm manage to improve the operating performance during the post-issue period, it still performs weak following the issue, consistent with the idea that investors are disappointed when the performance does not improve satisfactorily.

Although we do not provide clear evidence for an underlying explanation of the apparent timing-ability, the characteristical performance of the various intended use of proceeds categories helps to differentiate issuers with better post-offering prospects. We also conclude that investors systemically underestimate, but correctly show the direction of valuation effects upon the announcement of equity offerings when proceeds are not intended for specific investment reasons. While we do not preclude that mispricing is a partial determinant of the equity offerings, we suggest that firms choose the least costly way of financing, which includes utilising periods where the accessibility to capital is better, often associated with overly optimistic market expectations.

The findings are especially interesting considering that most of the offerings are conducted through private placements, where certain investors often are offered new shares at a substantial discount. This may suggest that managers prefer to postpone investments until a “window of opportunity” arises to incentivise targeted investors to participate through price discounts without issuing undervalued equity. However, we raise questions around the flexibility for firms to time the offerings. Given that firms raise capital when needed, and it might be debatable whether they have sufficient flexibility to wait for these attractive windows.

Finally, our findings are economically important in the sense that the disclosed information on the intended use of proceeds is available to market participants upon or prior to the offering of seasoned equity. This means that investors can use ex ante information to get valuable insights into the future stock performance of the issuing firm.

That said, *Prediction is very difficult, especially about the future* – Niels Bohr

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Appendix A: Statistical tests

Tests used for statistical significance:

One sample t-test

In order to test the different cumulative- and buy-and-hold abnormal return for the respective use of proceeds are statistically different from zero we utilised the t-test, with the following null hypothesis:

$$\overline{CAR}(\tau_1, \tau_2) = 0 \qquad \text{Eq. (1)}$$

$$\overline{BAHR_T} = 0 \qquad \text{Eq. (2)}$$

and with the corresponding test estimators:

$$\theta_1 = \frac{\overline{CAR}(\tau_1, \tau_2)}{\sqrt{var(\overline{CAR}(\tau_1, \tau_2))}} \sim N(0,1) \qquad \text{Eq. (3)}$$

$$\theta_2 = \frac{\overline{BAHR_T}}{\sqrt{var(\overline{BAHR_T})}} \sim N(0,1) \qquad \text{Eq. (4)}$$

An important notice is the assumption of no correlation between the abnormal returns and the different issues. Our test statistics are presented in Table 3, 5 and 7.

One sample Wilcoxon signed-rank test

The Wilcoxon signed-rank test is a nonparametric substitute for the conventional t-test. The observations D_i are assumed to follow a symmetric distribution, hence under the null hypothesis the median of the D_i is equal to zero.

First, subtract the hypothesized mean, $u_{W,R,}$ from each data value and rank the value according to their absolute values, and compute the sum of the positive ranks S_p and the negative ranks S_n. The test statistic W_R is then the minimum of S_n and S_p. The compute the z-value using:

$$z_W = \frac{W_R - \mu_{W_R}}{\sigma_{W_R}} \qquad \text{Eq. (5)}$$

The mean and standard deviation of W_R is computed as:

$$\mu_{W_R} = \frac{n(n+1)}{4} \qquad \text{Eq. (6)}$$

$$\sigma_{W_R} = \sqrt{\frac{n(n+1)(2n+1)}{24} - \frac{\sum t^3 - \sum t}{48}} \quad \text{Eq. (7)}$$

where *t* represents the number of times the i[th] value occurs.

We present z-statistics from the one-sample signed-rank test in Table 3, 5, 7 and 11.

Two-sample tests

In order to test for differences is the population we have utilised the Welch´s t-test and Wilcoxon ran-sum test. The distinctive difference between the two tests is that the Welch-test uses the population mean, while the Wilcoxon ran-sum test tests the median for the population.

Welch´s t-test

The Welch´s t-test is used to see if the two-sample means are significantly different from each other, thus we can formulate the following null hypothesis:

$$\mu_1 = \mu_2 \quad \text{Eq. (8)}$$

and with the corresponding test estimator:

$$t = \frac{(\overline{X_1} - \overline{X_2})}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}} \quad \text{Eq. (9)}$$

Where X_{it}, s_i^2 and n_i are the mean, sample variance and sample size for the i[th] group, respectively. We report test statistics from the Welch´s t-test in Table 4, 5 and 7.

Wilcoxon rank-sum test

Furthermore, we conduct a Wilcoxon rank-sum test, with the sample size of n_1 from X_1 and n_2 for X_2, to test for the following null hypothesis:

$$X_1 = X_2 \quad \text{Eq. (10)}$$

and with the corresponding test estimator:

$$Z = \frac{T - E(T)}{\sqrt{Var(T)}} \quad \text{Eq. (11)}$$

Wilcoxon test statistics (1945) is gathered from the sum of the ranks R_i for the observations in the first sample (n_1):

$$T = \sum_{i=1}^{n_1} R_{1i} \qquad \text{Eq. (12)}$$

moreover:

$$E(T) = \frac{n_1(n+1)}{2} \qquad \text{Eq. (13)}$$

and:

$$Var(T) = \frac{n_1 n_2 s^2}{n} \qquad \text{Eq. (14)}$$

where s is the standard deviation of the combined ranks, r_i, for both groups:

$$s^2 = \frac{1}{n-1} \sum_{i=1}^{n} (r_{i-} \bar{r})^2 \qquad \text{Eq. (15)}$$

Test statistics from the Wilcoxon rank-sum test are presented in Table 4, 5, 7, 10 and 12.

Appendix B: Use of proceeds examples

Table B.1 – Specific examples on disclosure of intended use of proceeds

Issuer	Announcment date	Use of proceeds category	Use of proceeds as reported by Newsweb
Flex LNG	10.10.2018	Investment	FLEX LNG Ltd. is contemplating to enter into a transaction for the acquisition of five 5th generation LNG newbuldings
Lerøy Seafood Group ASA	02.06.2018	Investment	Acquisition of shares in Havfisk ASA and Norway Seafoods Group AS
Axactor	17.02.2016	Capex	The net proceeds from the Private Placement will be used for acquisitions of non - performing loan portfolios and platforms as well as for general corporate purposes.
NEL ASA	27.11.2014	Capex	The net proceeds from the Private Placement will be used to fund strategic growth initiatives within the Company's business, including inorganic growth opportunities.
Petroleum Geo Services	11.11.2015	General	The proceeds from the Private Placement will be used to strengthen the Company's balance sheet and liquidity position as well as for general corporate purposes
Nordic Semiconductor ASA	24.04.2018	General	The net proceeds from the Private Placement will overall be used to maintain financial flexibility and to fund growth in working capital while securing and maximising the company's growth potential
Archer Ltd	28.02.2017	Refinancing	The Company is pleased to announce a comprehensive refinancing, including an equity issue to re-establish a robust financial platform for the Company.
Seabird Exploration PLC	29.01.2015	Refinancing	As previously announced, SeaBird is in default on its existing bonds and loans and certain other of its financial commitments and requires new sources of funds to sustain its operations.

Note: The table presents specific examples on disclosed information of the intended use for proceeds.
Source: Newsweb (2019)

Appendix C: Industry-composition

Table C.1 – Industry-composition per category of intended use of proceeds

Panel A: Number of SEOs per industry and use of proceeds category					
Sector	**Investment**	**Capex**	**General**	**Refinancing**	**All issuers**
Oil & Gas	26	31	68	24	149
Technology	7	18	38	12	75
Transportation	11	16	25	13	65
Consumer Products	12	6	17	12	47
Finance & Insurance	5	7	27	2	41
Utility & Energy	5	11	17	5	38
Healthcare	4	7	23	1	35
Real Estate/Property	2	1	7	3	13
Total	**72**	**97**	**222**	**72**	**463**
Panel B: Percentage share of total number of SEOs per industry classification					
Sector	**Investment**	**Capex**	**General**	**Refinancing**	**All issuers**
Oil & Gas	36%	32%	31%	33%	32%
Technology	10%	19%	17%	17%	16%
Shipping/Transportation	15%	16%	11%	18%	14%
Consumer Products	17%	6%	8%	17%	10%
Finance & Insurance	7%	7%	12%	3%	9%
Utility & Energy	7%	11%	8%	7%	8%
Healthcare	6%	7%	10%	1%	8%
Real Estate/Property	3%	1%	3%	4%	3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Note: In Panel A, we present total number of sample SEO per industry and intended use of proceeds category. In Panel B, we report the percentage share of total number of SEOs per intended use of proceeds category for each industry-classification.

Appendix D: Correlation matrix

Table D.1 - Correlation matrix between explanatory variables

	Investment	Capex	General	Refinancing	Rights	Fully Marketed	Accelerated	Accelerated*Discount	Relative deal size	Ln(Market Value)	Ln(BM)	Runup	Stock Volatility	Ln(Stock Turnover)	Recent Issue	ROA	Accruals	Leverage	WC/TA
Investment	1.00																		
Capex	-0.24	1.00																	
General	-0.41	-0.51	1.00																
Refinancing	-0.18	-0.22	-0.38	1.00															
Rights	-0.08	-0.13	0.05	0.18	1.00														
Fully Marketed	0.00	0.03	0.03	-0.08	-0.09	1.00													
Accelerated	0.08	0.11	-0.06	-0.13	-0.89	-0.37	1.00												
Accelerated*Discount	-0.15	-0.04	-0.02	0.24	-0.24	-0.10	0.27	1.00											
Relative Deal Size	0.03	-0.09	-0.03	0.12	0.11	0.00	-0.11	-0.02	1.00										
Ln(Market Value)	0.27	0.12	-0.18	-0.17	-0.23	-0.05	0.24	-0.26	-0.37	1.00									
Ln(BM)	-0.12	-0.15	-0.02	0.34	0.16	0.05	-0.18	0.22	0.30	-0.42	1.00								
Runup	0.00	0.15	-0.01	-0.18	-0.13	0.00	0.12	-0.07	-0.08	0.07	-0.26	1.00							
Stock Volatility	-0.09	0.03	-0.03	0.10	0.11	0.01	-0.11	0.18	0.18	-0.29	0.17	0.46	1.00						
Ln(Stock Turnover)	0.18	0.05	-0.12	-0.09	-0.25	-0.07	-0.26	-0.16	-0.21	0.71	-0.28	0.25	-0.11	1.00					
Recent Issue	0.12	0.05	-0.06	-0.11	-0.13	0.02	0.11	0.02	0.04	0.10	-0.14	-0.03	0.00	0.24	1.00				
ROA	0.12	-0.02	-0.07	0.00	-0.12	-0.01	0.12	-0.14	-0.20	0.36	0.21	-0.06	-0.14	0.19	-0.06	1.00			
Accruals	0.05	0.01	0.08	-0.18	-0.12	0.03	0.10	-0.12	-0.22	0.24	-0.14	0.04	-0.12	0.12	0.00	0.48	1.00		
Leverage	-0.01	-0.10	-0.08	0.24	0.17	0.06	-0.18	0.08	0.02	0.03	0.20	-0.13	0.04	-0.09	-0.12	0.13	-0.11	1.00	
WC/TA	0.00	0.14	0.07	-0.27	-0.14	0.01	0.13	-0.10	-0.06	0.13	-0.46	0.17	-0.07	0.11	0.03	-0.20	0.22	-0.59	1.00

Note: The table presents a correlation matrix between all the explanatory variables from the cross-sectional regression analysis on SEO announcement returns in Table 6.

Appendix E: OLS regressions on CAR(-1,1)

Table E.1 – Cross-sectional regression analysis on SEO announcement returns

Dependent variable: CAR(-1,1)	**Model (1)**	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**	**Model (6)**
Capex	-0.025	-0.035	-0.032	-0.014	-0.005	-0.003
	(-0.97)	(-1.35)	(-1.36)	(-0.97)	(-0.32)	(-0.22)
General	-0.066**	-0.063**	-0.056**	-0.038***	-0.026	-0.024
	(-2.52)	(-2.49)	(-2.53)	(-2.64)	(-1.60)	(-1.35)
Refinancing	-0.112***	-0.099***	-0.067**	-0.066**	-0.010	-0.007
	(-2.98)	(-2.75)	(-2.31)	(-2.29)	(-0.38)	(-0.25)
Fully Marketed		-0.075	-0.075	-0.081*	-0.015	-0.026
		(-1.54)	(-1.50)	(-1.74)	(-0.30)	(-0.43)
Accelerated		0.069***	0.097***	0.057***	0.069**	0.073**
		(3.70)	(4.02)	(2.90)	(2.55)	(2.39)
Accelerated*Offer Discount			-0.237**	-0.276***	-0.270*	-0.283*
			(-2.00)	(-2.77)	(-1.89)	(-1.94)
Relative Deal Size				-0.031***	-0.024**	-0.024**
				(-3.23)	(-1.98)	(-2.17)
Accelerated*Relative Deal Size				0.060***	0.054***	0.054***
				(4.35)	(3.57)	(3.81)
Ln(Market Value)					0.019**	0.025**
					(2.05)	(2.22)
Ln(BM)					-0.008	-0.006
					(-0.73)	(-0.44)
Runup					-0.001	-0.009
					(-0.02)	(-0.23)
Volatility					0.025	0.030
					(0.75)	(0.91)
Ln(Stock Turnover)					-0.014**	-0.017**
					(-2.04)	(-2.20)
Recent Issue					0.047***	0.047***
					(3.13)	(2.86)
ROA						-0.059*
						(-1.89)
Accruals						0.053
						(0.97)
Leverage						-0.051*
						(-1.66)
WC/TA						-0.017
						(-0.45)
Constant	0.050	0.029	0.020	0.030	0.118	0.189**
	(1.15)	(0.71)	(0.54)	(0.88)	(1.53)	(2.08)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.074	0.119	0.154	0.267	0.271	0.276
N	463	463	463	463	404	376

Note: The table presents the results from the cross-sectional regression analysis on SEO announcement returns using OLS regressions, similar to what we presented in Table 6. The dependent variable is the cumulative abnormal return measured over a five-day event window around the SEO announcement date i.e. CAR (-1, 1). The explanatory variables are defined in Section 6. T-statistics are reported in parenthesis and are based on standard errors adjusted for heteroscedasticity and firm clustering. All models include year and industry fixed-effects. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Appendix F: Factor loadings time-series regressions

Table F.1 – Time-series regressions on 36-month long-run post-issue stock returns - CAPM

	Investment	**Capex**	**General**	**Refinancing**	**All issuers**
	N=36	*N=59*	*N=137*	*N=46*	*N=278*
Panel A: Portfolios of issuing firms					
CAPM alpha (%)	0.043	-0.756*	-0.815**	-1.795**	-0.903***
	(0.10)	(-1.66)	(-2.07)	(-2.58)	(-2.72)
MKT	0.933***	1.073***	0.956***	1.167***	1.020***
	(13.06)	(14.17)	(14.60)	(10.12)	(18.50)
Adj. R^2	0.463	0.496	0.511	0.333	0.627
Panel B: Portfolios of matched non-issuing firms					
CAPM alpha (%)	0.071	-0.264	0.018	-0.337	-0.078
	(0.15)	(-0.89)	(0.06)	(-0.46)	(-0.28)
MKT	1.055***	0.820***	0.885***	1.058***	0.902***
	(13.11)	(16.59)	(17.89)	(8.72)	(19.43)
Adj. R^2	0.457	0.575	0.611	0.270	0.650
Panel C: Zero-investment portfolios					
CAPM alpha (%)	-0.294	-0.718	-1.060***	-1.685*	-0.826***
	(-0.49)	(-1.61)	(-3.20)	(-1.79)	(-3.20)
MKT	-0.125	0.259***	0.078	0.115	0.118***
	(-1.28)	(3.50)	(1.41)	(0.74)	(2.76)
Adj. R^2	0.003	0.052	0.005	-0.002	0.031

Note: The table is similar to that we presented in Table 8 for the one-factor market model, but we here also report the factor loadings. Note also that we only report monthly regression intercepts. Panels A and B report monthly alpha estimates for the sample SEO firms and non-issuing matched firms using the calendar-time portfolio models in Equation (11) and (12). Panel C contains estimated alphas from the zero-investment portfolios which are long in the event firms and short in the matched non-event firms. The regression intercepts are estimated using a 36-month horizon, where firms enter the month subsequent to the equity issue and exit after 36 months or if delisted. The portfolios are divided into stated intended use of proceeds. We use equal-weighted portfolios with monthly rebalancing. t-statistics are reported in parenthesis. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Table F.2 - Time-series regressions on 36-month long-run post-issue stock returns – FF3M

	Investment *N=36*	**Capex** *N=59*	**General** *N=137*	**Refinancing** *N=46*	**All issuers** *N=278*
Panel A: Portfolios of issuing firms					
FF3M alpha (%)	-0.230	-1.054**	-1.374***	-2.556***	-1.423***
	(-0.52)	(-2.33)	(-3.75)	(-3.78)	(-4.74)
MKT	1.094***	1.228***	1.266***	1.590***	1.307***
	(12.33)	(13.29)	(16.92)	(11.54)	(21.34)
SMB	0.417***	0.488***	0.820***	1.111***	0.771***
	(2.89)	(3.27)	(6.78)	(4.99)	(7.79)
HML	0.062	-0.293**	0.036	0.081	-0.016
	(0.55)	(-2.53)	(0.38)	(0.47)	(-0.21)
Adj. R^2	0.481	0.529	0.599	0.402	0.711
Panel B: Portfolios of matched non-issuing firms					
FF3M alpha (%)	-0.432	-0.648**	-0.390	-0.984	-0.524**
	(-0.92)	(-2.30)	(-1.40)	(-1.36)	(-2.08)
MKT	1.340***	1.032***	1.110***	1.417***	1.150***
	(13.92)	(17.95)	(19.53)	(9.57)	(22.40)
SMB	0.709***	0.568***	0.607***	0.951***	0.656***
	(4.56)	(6.11)	(6.61)	(3.98)	(7.91)
HML	0.211*	0.003	-0.022	0.032	0.025
	(1.74)	(0.04)	(-0.30)	(0.17)	(0.39)
Adj. R^2	0.512	0.638	0.678	0.317	0.731
Panel C: Zero-investment portfolios					
FF3M alpha (%)	-0.081	-0.635	-1.213***	-1.801*	-0.899***
	(-0.13)	(-1.40)	(-3.59)	(-1.86)	(-3.39)
MKT	-0.256**	0.203**	0.164**	0.181	0.157***
	(-2.09)	(2.19)	(2.37)	(0.92)	(2.91)
SML	-0.309	-0.075	0.217*	0.164	0.115
	(-1.55)	(-0.50)	(1.94)	(0.51)	(1.31)
HML	-0.167	-0.300**	0.054	0.046	-0.041
	(-1.07)	(-2.58)	(0.62)	(0.18)	(-0.61)
Adj. R^2	0.012	0.076	0.016	-0.011	0.032

Note: The table is similar to that we presented in Table 8 for the fama-french three-factor model, but we here also report the factor loadings. Note also that we only report monthly regression intercepts. Panels A and B report monthly alpha estimates for the sample SEO firms and non-issuing matched firms using the calendar-time portfolio models in Equation (11) and (12). Panel C contains estimated alphas from the zero-investment portfolios which are long in the event firms and short in the matched non-event firms. The regression intercepts are estimated using a 36-month horizon, where firms enter the month subsequent to the equity issue and exit after 36 months or if delisted. The portfolios are divided into stated intended use of proceeds. We use equal-weighted portfolios with monthly rebalancing. t-statistics are reported in parenthesis. *, ** and *** denote statistical significance at the 10%, 5% and 1% level, respectively.