THE EFFECTS AND COMPETITIVE EFFECTS OF SEASONED EQUITY OFFERINGS

The Impact on Stock Price Performance

“Firms conducting SEOs outperform non-issuing firms in the same industry.”

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Master Thesis Finance Program
The Effects and Competitive Effects of Seasoned Equity Offerings. The impact on stock price performance

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Management Summary

The purpose of this study is to investigate the stock price performance of publicly owned firms surrounding seasoned equity offerings (SEOs). The issuance of a large block of new shares is not only affecting the issuing firm, but is also likely to influence other market participants. So far, a relatively extensive literature analyses the stock price performance of firms conducting SEOs and found a negative stock price reaction. In contrast, the literature on the competitive effects of SEOs is relatively limited and concludes these effects are not to be found. However, in this paper several concepts and theories related to SEOs are combined and used to develop contradictory theories and assumptions regarding the effects of SEOs. In this research new equity issues are predicted to have a positive impact on the stock price performance of the issuing firms instead of a negative impact. This means stock prices are expected to increase in the long run surrounding SEOs. Besides, I expected the issuing firms to outperform the non-issuing industry competitors. This means the stock price of industry competitors will decrease surrounding an SEO within the same industry. In order to investigate these expectations quantitative data is used over the period 1999-2008.

The results indicate that SEOs have positive effects on the stock price of the issuing firms. Positive cumulative average abnormal returns are found during the sample period. In contrast negative cumulative average abnormal returns are found for competing firms in the same industry. This indicates that SEOs are able to change the competitiveness between firms and changes the competitive environment within an industry.

This thesis presents one of the first studies contrary to the growing regularity that SEOs negatively influence a firm’s performance and that SEOs are not able to change the competitive environment. This study start to make the case for more research about the effects and competitive effect of SEOs.
Preface

This master thesis is the closing chapter of my life as a student. It represents my interest in corporate actions, capital structures and long-term firm performance. When I look back on the past year, I think it was an intensive but very interesting period, in which I have learned a lot and grew as a person.

The topic of my thesis, equity offerings, caught my interest during the Advanced Corporate Finance and the Corporate Governance & Restructuring courses, because both focussed extensively on corporate actions and their effects on the stock market. After examining the topic more in depth I noticed that the literature on the competitive effect of these equity offerings was relatively limited. Besides, I disagree with a certain regularity stated in most previous papers. These reasons triggered me to challenge previous literature about equity offerings and to be one of the first to investigate the competitive effect of equity issues. First, I hope this research will inspire others, to revise what is written about this topic so far. And second, to further investigate the competitive effects of equity offerings in order to help managers, firms, or investors in their decision making process when these equity issues occur.

My gratitude goes to my supervisor dr. M.R.R. van Bremen for his positive feedback that inspired me in my writing and my line of reasoning. Besides, I would like to thank my family and friends who were very supportive and compassionate during the past year.

Enjoy reading,

Mikel Hoppenbrouwers

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1. Introduction

Previous literature about the effects of SEOs on the issuing firm is extensive relative to the previous literature analysing the competitive effects of SEOs. These studies have documented a negative market reaction to SEOs and found little or no evidence of SEOs to have competitive effects. The most common view for the negative stock price reaction is that SEOs unveil negative information about the current value of the firm. This negative information gives the signal to investors to lower their expectations about firm value when re-evaluating the firm. This market reaction is said to be due to the overvaluation effect and agency issues.

According to Myers and Majluf (1984), firm managers will only issue equity when the firm’s stock is overvalued, such to transfer wealth from new to existing shareholders. Agency theory argues the capital is used for agency spending instead of value growth opportunities. Overvaluation and agency problems are said to be firm specific, and therefore SEOs are not able to influence the competitive environment. These views are frequently expressed in further studies analysing the effects and the competitive effects of SEOs.

When I was analysing and examining the literature on SEOs, some arguments presented in papers by for example Brander and Lewis (1986), Dittmar and Thakor (2007) and Walker and Yost (2008) got my attention.

*Dittmar and Thakor (2007)* argued that managers will only issue equity when the level of agreement between managers and investors is high. Their wealth is positively correlated with firm value, so both parties will only agree if they believe the equity issue is value enhancing. *Walker and Yost (2008)* found that regardless of the stated use of the proceeds, firms increase investments at economically meaningful rates, increase their working capital, capital expenditures and research and development.

An increase in these variables possibly gives a positive signal to investors such that firm value will increase, for example:

*According to Trueman (1985) an increase in capital expenditures will be accompanied by a positive stock price reaction.*
These theoretical justifications are inconsistent with the results found so far in quantitative studies. These theories deviate from the regularity of overvaluation and agency issues. This means SEOs do not only have to reveal firm specific information. For example, when the SEO proceeds are used for a takeover, this could influence other parties as well through a change in the competitive environment.

This is consistent with the view of Brander and Lewis (1986) who argued that the firm’s rivals can be influenced by strategic changes in the amount of equity versus debt. According to this theory, SEOs are able to change the competitive environment and therefore could have competitive effects.

All these propositions however indicate that there also could be a positive effect instead of the negative effect found so far. This triggered me to re-evaluate the effects of SEOs and to examine whether SEOs could also have competitive effects. There is hardly any literature and quantitative research done to support this point of view. This study is one of the first to deviate from the current literature and therefore could be a pioneer for future research. I will first challenge the previous literature by examining the effects of SEOs on the issuing firms, and to see if other effects could be found. Thereafter, I will test the effects to see whether the competitive firm’s stock price shows the opposite effect of the issuing firm’s stock price. In other words, examine if firms conduct SEOs under- or outperform firms that do not issue equity.

1.1 Problem Indication and Relevance
SEOs negatively impact the stock price performance of the issuing firms. It is concluded that this negative market reaction is due to agency issues, which only reveals firm specific information. Therefore SEOs do not influence the stock price performance of industry competitors. However, based on other theoretical points of view it is possible to assume that the effects on the issuing firms do not have to be negative. Based on the theories described above, SEOs should be able to have a positive effect on the stock price. This would indicate that the information unveiled by SEOs is not necessarily firm specific and therefore could also have competitive effects.
The relevance of this research is that it is important for firms to know what the consequences of equity offerings could be. In other words, how firm value changes when a firm decides to conduct an SEO. If SEOs are able to change the competitive environment between firms it is crucial for firms to know and to learn how to adapt to these changes. Besides, for investors it is interesting to learn more about the effects of equity offerings on the stock market when making portfolio allocation decisions.

1.2 Problem Statement
The goal of this research is to evaluate the stock price performance of firms conducting an SEO and thereafter to examine whether the stock price of competing firms shows the opposite effect. This would indicate that issuing firms under or outperform non-issuing firms based on external market information provided by the SEO. The main research question that will be examined is:

*What are the effects of seasoned equity offerings on stock price performance and are they able to change the competitive environment within an industry?*

This research investigates the relationship between the capital structure of a company and the stock price performance of a company. In a broader view, the relationship between capital market transactions and the value of a firm.

1.3 Research Questions
In order to answer the main research question it is essential to first discuss the theoretical concepts of SEOs. This is because there are different equity offerings and different reasons for firms to issue additional equity. It is important to distinguish between different kinds and reasons of equity offerings to determine the effects of SEOs. The following sub-questions are formulated and will be discussed in section 2 and 3 using previous literature about both SEOs and Initial Public Offerings (IPOs):
1. What are seasoned equity offerings?
2. Why do firms go public and what are the reasons for firms to issue additional equity after they went public?
3. What are the effects of SEOs on the issuing firms?
4. What are the effects of SEOs on competitive companies in the same industry and does it influence the competitive environment within an industry?

The first and second research question will be answered in section 2, while the latter two questions will be discussed in section 3.

1.4 Methodology and Scope
In order to examine the stock price performance of companies after an SEO is conducted, event studies are used. This method gives me the opportunity to evaluate the long term stock price performance and gives a clear image of how the stock price reacts to the SEO. Conducting event studies, different models can be used for calculating the returns around the event date. The model used in this study is the market model, which controls for stock market trends. Testing SEOs on the stock price performance of competing firms, two additional variables are added to the market model in order to control for size and value of the firms.

This research will only focus on large SEOs. Large SEOs are equity offerings that have a value of at least 20 percent of total market value of the firm. From now on I refer to them as large or big SEOs. Small SEOs, with a value of less than 20 percent of market value, are less likely to significantly influence the stock price performance and are therefore excluded from the sample. In addition, Utilities and Financials are excluded from the sample and only firms listed on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX) and the NASDAQ are selected. I will focus on SEOs conducted during 2003 and 2004. During these years the economy was steady and enables me to exclude the financial crisis in the event window. With a steady economy I mean a period outside the economic crisis. The methodology and scope will be further discussed in section 5 of the paper.
1.5 Thesis Outline
The remainder of this research proceeds as follows. In section 2 I will provide the general concepts of SEOs and the reasons behind the issuance of new equity by firms. In section 3 a theoretical framework is created using literature on both the effects and competitive effects of SEOs. This section ends with theoretical justifications based on different views and theories. In section 4, I develop the different hypotheses for the empirical tests. Thereafter, section 5 clarifies the methodology and describes the data sources and sample construction. Section 6 provides the empirical results of the tests and in section 7 I present the conclusion together with a confrontation of the previous results found by other researchers. Afterwards, section 7 ends with recommendations for future research.
2. Seasoned Equity Offerings

Seasoned or secondary equity offerings are shares offered to investors by a firm that already completed a primary issue like an IPO. Therefore SEOs are also called follow-on offers. A firm that conducts an SEO is therefore publicly owned and listed on a stock exchange. Seasoned equity can be either dilutive or non-dilutive. Dilutive seasoned equity are new additional shares issued by a company. These shares have to be marketed to the public by an investment banker through the primary market. This implies that the firm’s shares outstanding increase and that the firm receives proceeds from selling the shares. Non-dilutive seasoned equity are shares offered by an existing shareholder, this is called secondary distribution. Trading of stocks that have already been issued occurs in the secondary market. This does not cause the number of shares outstanding to change, only the ownership of the shares changes. The proceeds from selling this equity are received by the previous shareholder (qfinance, 2014).

2.1 Reasons for Issuing New Shares

Before evaluating the reasons for a company to issue new equity, it is important to know why companies decide to issue equity to investors by going public in the first place. The most important reason for firms to go public is to attract capital. When a firm is listed on a stock exchange it has several sources of financing and it is good for the appearance of the company. In addition, the company is more reliable because they have more transparency.

There are many reasons for firms to issue new equity to the public. For example, the proceeds may be used to reduce debt, the expansion of research and development or to acquire a company.

However, it is crucial to distinguish between defensive and offensive reasons for firms to issue new equity. An SEO used to save a firm from bankruptcy has other effects on the stock price than for example an SEO used for an acquisition or net present value investment opportunity. A defensive SEO often decreases the stock price of a firm significantly. A good example for this is the SEO done by Royal Imtech, 2013. The stock price of Royal Imtech got close to zero after conducting the SEO. As already discussed, previous literature all found negative stock price reactions, regardless whether the SEO was offensive or defensive because this is unclear from the literature. I believe that offensive SEOs should not be accompanied with a negative stock price reaction.
In my research I assume that during a normal and steady economy on average more SEOs are used in an offensive manner and during a less steady economy more SEOs are used in a defensive manner (Schutte, 2012). With a less steady economy I mean a period during the crisis.

### 2.1.1 Overvaluation

Most previous literature states that the primary reason for companies to issue new equity is overvaluation of the firm’s stock. The Pecking Order Theory and Adverse Selection Model of Myers and Mailuf 1984 argue in favour of overvaluation. The Pecking Order Theory assumes a firm finances its capital needs first with internal resources, secondly with debt and finally with equity. They state that the costs of financing increase with asymmetric information, so when managers issue equity they assume that the firm is overvalued and they can benefit from this by issuing new shares. This is consistent with the Adverse Selection model that argues that managers know more about the firm than investors and therefore issue equity when they believe it is overvalued. Knowing this, it is often presumed that a firm only issues equity when the stock price is high.

However there are theories and literature that are inconsistent with this regularity of high price overvaluation describes in many studies. First of all, the Trade-off Theory argues that a firm’s capital structure moves to an optimum due to security issuance decisions. The decisions are determined by a trade-off between marginal costs and benefits of debt. Therefore, an increase in stock prices, which causes the leverage ratio to decrease, should lead to debt issuance instead of equity in order to return to the optimal capital structure (Dittmar and Thakor 2007). Secondly, according to Dittmar and Thakor 2007, there are no prior reasons found for the amount of asymmetric information to be related to the stock price level. They also provide an alternative theory that assumes that security issuance decision depends on how the choice influences the firm’s post-investment stock price. The price reaction to the firm’s investment decision depends on whether investors believe the decision is good or bad. Since management is able to anticipate to the level of agreement of the investors, he can form an idea about how the stock price will react if the investment decision will be made. Since both management and the shareholders wealth depends on the equity value of the firm, there is no divergence of goals between them, so in this case agency problems are not a factor in the decision making process. Equity provides management greater autonomy relative to debt, because debt constraints the firm’s investment flexibility. However, this level of autonomy is bounded since the manager’s
wealth is depending on the stock price. If investors disagree with the investment project the stock price would fall and both management and the investors would experience a decrease in wealth. Their model thus assumes that new equity issues are offered when there is a large level of agreement between management and investors. In this case equity issues are not anticipating on the higher stock price, but reverse causality causes higher stock prices to be a reaction on seasoned equity issues.
3. Theoretical Framework

In the previous section general concepts of SEOs were discussed and the reasons for firms to issue new shares. In this theoretical framework previous literature and economic theory is used to evaluate the effects of SEOs on issuing firms and afterwards assess whether these effects on the issuing firm could determine competitive effects within an industry.

3.1 The Effects of Seasoned Equity Offerings

According to the price-pressure hypothesis by Scholes 1972, an increase in the supply of a firm’s equity causes the stock price to decline. This is consistent with the demand-supply framework, because the supply curve is downward sloping. Literature on the effects of SEOs on the issuing firm mainly concludes in line with this hypothesis. A negative relationship was found between SEOs and firm value. For example, according to Lougran and Ritter (1997) the stock price of an issuing firm tends to decrease after an SEO and the performance deteriorates. All the articles argue this negative relationship to be due to overvaluation, which is caused by information asymmetry. As discussed in section 2.1.1., management tend to issue equity when they believe the company is overvalued. Managerial ownership dilutes after an SEO, which is interpreted as a negative signal by investors. Re-evaluation of firm value by investors therefore causes the stock price to decrease. This line of argument is consistent with Leland and Pyle’s (1977) Signalling model\(^1\) and Myers and Majluf’s (1984) Adverse Selection Model.

However, since some current literature is criticizing the statement that firms issue equity only when it is overvalued, it is reasonable to assume that there are also other effects of SEOs to be found. For example, as discussed above, when the level of agreement between managers and investors is high, a firm would only issue equity when they believe it is creating value. A firm would only issue equity for net present value investment opportunities because both the managers and investors’ wealth is correlated with firm value. Therefore it could be assumed that in the long run this will have a positive effect on stock price and firm performance.

Walker and Yost (2008) investigated the ex-post reasons for firms to raise capital and regardless of the stated reason, a large proportion of the proceeds is allocated to capital expenditures and research and development. According to Trueman (1985) an increase in capital expenditures

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\(^1\) Signalling Model: a Model by Leland and Pyle (1977) on informational differences between buyers and sellers. This model is in line with the Myers and Majluf (1984) Adverse Selection Model.
will be accompanied by positive price reaction. Besides, McConnell and Muscarella (1985) assume managers are motivated to maximize current shareholders wealth through the acceptance of positive net present value investment projects. This should indicate that the negative reaction found in previous studies is not necessarily always true. Firms that are specific about their investment plans tend to increase in value. This is consistent with the agreement theory of Ditmarr and Thakor (2007).

3.2 The competitive Effects of Seasoned Equity Offerings

Another goal of this paper is to examine whether seasoned equity issues made by firms have consequences on rival firms in the same industry. The question is if SEOs are able to make the issuing firm a tougher or weaker competitor relative to industry rivals in order to change the competitive environment within an industry. In this section literature on both the competitive effect of SEOs and IPOs are discussed, because in general they are very similar. Both IPOs and large SEOs induce a significant increase in the amount of equity of a firm. The only difference is that conducting an IPO changes the ownership structure of a firm from private to public, and when conducting an SEO the firm is already publicly owned. However, I could still use literature on IPOs by the fact that whether or not the firm is publicly owned, the competition was already there.

The literature on the competitive effects of SEOs is limited and provides little or no evidence of existing competitive effects. No significant decrease or increase in stock prices was found surrounding SEO events. Slovin, Sushka and Poloncheck (1992) for example argue that SEOs do not have effects on the competition within an industry. This would indicate that there is no close substitutability between industrial firms and that equity issues only generate firm specific information. However, Hsu, Reed and Rocholl (2010) document IPOs to have competitive effects in the same industry. They investigated the stock price reactions and the change in operating performance of firms after IPOs and found IPOs to have a negative relationship with stock prices and operating performance of rival firms. So in this case the market perceives equity issues not to contain firm specific information but information about the whole industry. Hsu, Reed and Rocholl (2010) described several determinants of competitive effects of IPOs. However, these determinants could also apply for SEOs.
First, as a direct consequence of the IPO or large SEO, the offering recapitalizes the issuing firm in a way that generally results in a low debt-to-equity ratio. Low leverage may give the issuing firms an advantage over their more highly levered competitors by allowing them more flexibility in their investments.

Second, issuing firms may have the advantage of being recently certified by investment banks. Although the market certifies firm value as shares are traded, highly regarded investment banks play an important role in certifying new issues. The certification role of investment banks affects investors’ willingness to purchase new issues as opposed to shares of other firms in the same industry.

Third, new issues may have nonfinancial advantages. These advantages may make issuing firms more attractive to investors. An example is knowledge capital developed through research and development. A nonfinancial advantage can be thought of more generally as any product, marketing scheme, or innovation that gives the issuing firm some advantage over industry competitors (Hsu, Reed & Rocholl 2010).

Besides, Brander and Lewis (1986) argued that the firm’s rivals can be influenced by strategic changes in the amount of equity versus debt. Changes in the financial capital structure of a firm influences the output market equilibrium. Therefore managers of firms, with specific views about the firm’s prospect, have incentives to use financial structure such to influence the product market in their favour. Firms that ignore the strategic effects of these financial decisions, given the behaviour of the rival firm, would experience a lower total value than a firm that uses the financial structure precisely to take advantages of the associated effects.

Secondly, theoretical literature in finance assumes the demand curve for a firm’s shares to be horizontal. This is because securities are priced according to their risk return trade-off. Close substitutes, in other words, firms with the same risk-return trade-off, can be found in the market or can be synthetically constructed using a combination of existing securities (Asquith and Mullins 1985). Thirdly, Hertzel (1991) mentioned that the information conveyed by a change in the capital structure may reflect economic conditions that affect the industry as a whole and the information may change the competitive balance within the industry.

The economic crisis highlighted how important it is for a firm to have a balanced capital structure. Too much debt can cause a restructuring or a refinancing problem by the fact that
financial institutions tightened their lending policy. So when a company is in bad weather and it is obliged to repay an amount of debt, it limits the possibility to invest in growth opportunities. In this case SEOs are used in a defensive matter rather than offensive matter and will be accompanied with lower stock prices. In general, the result is that firms that are able to optimize their equity utilization have a better competitive position relative to firms that are not able to do this.

I assume SEOs to have effects on the competitive industry, by the fact that the issuing companies are able to improve their competitive position within an industry. I assumed the proceeds of the SEO are used in an offensive manner during my sample period, for example to increase research and development and capital expenditures. This could lead to innovations and more flexibility regarding future investment opportunities. All the above should lead the issuing firm to be a better competitor in the future. Therefore, firms conducting SEOs are assumed to tighten the competitive environment within an industry. This causes competitive firms, who ignore this strategic effect, to weaken their competitive position. This again would decrease their performance in the long term. In other words, rival firms within the same industry should experience the opposite stock price reaction compared with the issuing firm within that industry.

3.3 Theoretical Justifications

Based on the theories discussed above, the issuance of new equity should theoretically have competitive effects within an industry. A change in the capital structure of the issuing firm influences the product market in such a way that it reflects economic conditions that changes the competitive balance in an industry, because close substitutability does exists. Since there are competitive effects found associated with IPOs, most important to know is what determines the advantages of firms becoming listed versus privately held, because the competition was already there.

The most important reason for firms to go public is to attract capital. When a firm becomes listed it has more diversifiable sources of financing and it able to strengthen its share capital and cash balance. Besides, being listed on a stock exchange is also good for the appearance of the company. It becomes more transparent and therefore more reliable. Being publicly traded adds to a company’s structure and institution, which enhances its competitive position.
An equity issue in general generates publicity that enhances the firm’s recognition in the marketplace. The result is a significant cash infusion into the company. I assume firms conducting large SEOs to have specific purposes for the cash raised that is disclosed to the public, since firms only issue equity when the level of agreement between managers and investors is high. More recent literature argues the cash is used to increase research and development and capital expenditures which is accompanied with a higher stock price and firm value. As a result the leverage ratio of the firm will decrease which causes the firm to become more flexible regarding net present value investment opportunities. Research and development correlates with Innovation. Innovation is a core activity of a firm and is important for its survival and can help the business remain competitive in changing markets. Besides, research and development can secure the future of an organisation. Asquith and Mullins (1986) argue that the positive price effect is consistent with favourable information effects associated with investments and a value enhancing reduction in financial leverage due to, for example a reduction in the expected costs of financial distress. I assume that this causes the issuing firm to become a tougher competitor relative to their industry peers. All this will give a positive signal to investors and other market participants when re-evaluating the firms, such that it changes the competitive balance between firms within an industry. Therefore I can assume SEOs to have competitive effects, such that they will influence the stock price performance of industry competitors. It is plausible to assume that these competitive effects are reflected by an opposite stock price reaction compared with the stock price reaction of the issuing firm. Since I expect the stock prices of the issuing firms to increase after they offered new equity, I expect the stock prices of rival firms in the same industry to decrease.
4. Hypothesis Development

The main research question in this paper deals with the effects of SEOs on the stock price performance of publicly listed firms in the same industry. I will develop multiple hypothesis that together form the basis for the empirical research and results in the following sections of this paper.

With the first hypothesis I want to challenge the previous literature that deals with the effects of SEOs on the issuing firm. This hypothesis will be important for the remainder of this paper, because the effects are likely to determine which impact SEOs will eventually have on industry rivals.

*Hypothesis 1:* Large SEOs have a positive impact on the issuing firm.

I expect large SEOs to have a positive effects on the issuing firm. Since I have been criticizing the overvaluation effect that is accompanied with decreasing stock prices and deteriorating performance, I expect the opposite will happen. I selected SEOs during a period of a steady economy and assumed that most SEOs are offensive and therefore positively affect the stock price. I argued that equity issues often causes research and development and capital expenditures to increase. The fact that managers only invest in net present value investment opportunities when the level of agreement is high it can be assumed that this will have a positive effect on the issuing firm in the long-run. In order to see if my assumptions are right, I will do the same test for firms during the years 2009 and 2010 in which the economy is less good and unsteady relative to the years 2003-2004. Now I am expecting to find the opposite effect compared with the years 2003-2004. I assumed that SEOs conducted in 2009-2010 were more defensive on average.

After evaluating the effects of large SEOs on the issuing firm, I will continue with examining the competitive effects of SEOs. The second hypothesis deals with the stock price behaviour of rival firms after a large SEO was conducted in their industry. Previous research did not find such competitive effects, because they argued overvaluation and agency issues only reflect firm specific information. My expectations are inconsistent with agency problems and overvaluation and I only use large SEOs. I expect SEOs to have impact on industry rivals.
Hypothesis 2: The stock prices of rival incumbent firms decrease after large SEOs are conducted in the same industry.

Since the previous hypothesis assumes SEOs to have a positive impact on the issuing firm I expect large SEOs during 2003 and 2004 to have a negative impact on rival firms in the long run. When the issuing firm increases research and development and their investment flexibility it is assumed the firm secures his future to stay competitive in the changing markets. According to Schumpeter’s creative destruction theory, innovation is one of the key pillars for firms to survive and stay competitive. Given that industry competitors will not change its competitive position using offensive SEOs, I expect the issuing firm to be a tougher competitor and therefore rival firms are less able to compete. This will cause the stock price of rival firms to decrease. This expectation is consistent with the results found by Hsu, Reed and Rocholl (2010), who investigated the competitive effects of IPOs.
5. Data and Methodology

Since The Center for Research in Security Prices (CRSP) does not provide clear specifics about the distribution events and I did not had access to the Securities Data Company (SDC) Global New Issue Database, I used the IPO Monitor database. This database reports all IPO and SEO data from the second quarter of 2003 till the third quarter of 2013. In this research I want to focus on the most recent years as possible. First of all, I will exclude the years 2008 till 2010 from the sample. This is because the economic crisis and its aftermath are likely to influence the sample by the fact that many companies conducted SEOs in order to save them from bankruptcy. Secondly, since I will investigate the long term effects of SEOs I will also exclude 2011 till 2013 from the sample, because I need at least three years of data after the SEO event. Therefore the research sample will consist of two years of SEO data, 2003 and 2004. Thereafter, only dilutive equity issues are selected. Non-dilutive equity issues are excluded from the sample, because only dilutive issues increase the amount of equity. Since small SEOs are less likely to have any effect on both the issuing and non-issuing firms, I will only select large SEOs. Of course large SEOs could be determined by the total amount of money raised. However, using this method would give biased results because these amounts are relative. For example, an SEO of $10 million for a billion dollar company is much smaller than for a million dollar company. Therefore in order to exclude the relatively small SEOs the amount of money raised per SEO is divided by the total market value of the firm at that point in time. SEOs that are less than 20 percent of the market value of that firm are excluded, because I assume 20 percent is high enough to significantly change the capital structure of the firm. Besides, my research only includes industrial firms and exclude financial and utility firms. After doing so, 27 SEOs are included in the sample. In addition, I will only include firms listed on the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX) and the NASDAQ from which data is available in CRSP and Compustat. The same applies to the controlling sample during the years 2009-2010. After using the same selection criteria 26 SEOs are included in the sample. I will identify rival firms in the same industry as the SEO event using three digit SIC codes with similar value and size as the issuing firms. These will be defined as the rival incumbent firms. I further restrict the incumbent firms in my sample to those that were publicly listed at

2 Standard Industrial Classification code (SIC): SIC code is used to group companies with similar products or services. The first three digits refer to an industry group.
least 4 years before the SEO event. In this case I make sure the results are not influenced by an IPO and that it clearly observes the difference in performance before and after the SEO event.

Table 1
SEO statistic 2003-2004

Summary statistics for 27 seasoned equity issues by industrial firms listed on either the New York Stock Exchange, American Stock Exchange or NASDAQ over the sample period April 2003 through December 2004.

Panel A: Number of issues

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>11</td>
</tr>
<tr>
<td>2004</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
</tr>
</tbody>
</table>

Panel B: Mean and Median values of characteristics of SEOs

<table>
<thead>
<tr>
<th>Descriptive measure</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount offered (millions)</td>
<td>$83.46</td>
<td>$41.00</td>
</tr>
<tr>
<td>Market value of the firm (millions)</td>
<td>$330.23</td>
<td>$152.90</td>
</tr>
<tr>
<td>Amount offered/Market value of the firm</td>
<td>25.27%</td>
<td>26.81%</td>
</tr>
</tbody>
</table>

5.1 Methodology

Much of the corporate finance literature is concerned with the valuation of firms and the changes in firm value resulting from, for example, changes in the capital structure. In general, the value of a firm is difficult to measure. However, if there is a significant market for the firm’s stock, the impact of decisions of this type can be measured by the change in the stock prices around the time when the decision becomes public knowledge (Jong & Goeij, 2011).

The purpose of this event study is to see whether stock prices behave differently around and, most important, after an event than in normal periods. To address this, I need to compare the holding returns around the event date and the expected return if there has been no event. This difference between the expected return and the actual return is referred to as the abnormal return. The first thing in order to conduct an event study is identifying the event of interest and the timing of the event. Secondly, I need to specify a benchmark model for the normal stock return and afterwards I am able to calculate and analyse the abnormal returns around the event date.
5.1.1 The event and the timing of the event

The events of interest in my study are seasoned equity issues. As already stated above, only dilutive equity issues are selected, which means secondary stock distributions are excluded. Even more important is the timing of the event. When evaluating the short term effects of equity issues, I believe the announcement day is most interesting. However, in my study the long-term effects of equity issues will be investigated. In previous sections I argued that the proceeds are used for specific purposes which should determine the effects. Therefore I choose the offer date as the timing in my event, in other words the moment that the shares can be bought and firms are experiencing a capital inflow. Since I use monthly data on returns I will set every event date at day is t to the end of the previous month. For example, when an SEO date is the 2\textsuperscript{nd} of December 2003, it will be set at time is 28 November 2003, the last trading day of that month.

5.1.2 Benchmark models for abnormal returns

In order to calculate abnormal returns over a specific period a benchmark return model needs to be created to estimate the normal returns. After estimating the normal returns it gives me the possibility to compare the actual returns with the normal returns.

Abnormal returns (AR) are defined as the return (R) minus the benchmark or normal return (NR).

\[ AR_{it} = R_{it} - NR_{it} \]

Where \( AR_{it} \) is the abnormal return of firm i at time is t.

To determine the normal or expected returns an estimation period for stock return is needed \([ T_1, T_2 \], which is a period before the actual event, \([ t_1, t_2 \]. The offer dates of the SEOs in the sample are indicated by \( t = 0 \). Where t is the event time or the number of periods surrounding the event and not the actual calendar time. The event window in my research will be from 1 year before the event to almost 3 years after the event.
Figure 1
Time line around an event

Testing using event studies, always need an estimation window and an event window, in order to examine the difference between the actual and the expected. The estimation window is a period prior to the event and event window \([T_1,T_2]\), and the event window \([t_1,t_2]\) is a period surrounding an event at \(t=0\). The event window can be split into a pre-event window, which is the period prior to the event and the post-event window, which is the period after the event.

Since SEOs have generally long run price reactions, often the Fama and French (1996) three factor model is used as the benchmark model to generate normal returns. This model extends the market model by including the factors size (SMB) and value (HML). In this way they try to control for the difference in size and value amongst firms in the sample. An Alternative to this three factor model is the non-parametric approach of Barber and Lyon (1997). In this model the benchmark return equals the return of a group of firms with similar size and book-to-market ratios. However, in general, the gains of employing a multifactor model for event studies are limited. The reason for the limited gains is the empirical fact that the marginal explanatory power of additional factors is small, and hence, there is little reduction in variance of abnormal returns. The variance reduction is the greatest for firms that have common characteristics, for example, they all belong to the same industry group (MacKinlay, 1997).

Therefore I could use mean-adjusted return model, that uses the average return per firm over some period between \(T_1\) and \(T_2\). However a disadvantage of the mean-adjusted method is the omission of marketwide stock price movements from the benchmark return. Since I will test in the long-run stock price reaction, the result may be biased if the whole market goes up or down in the event period. In this case it could be that abnormal returns occur, which may not be due
to the event but rather to market wide price movements. In order to control for these movements, the return on a market index, $R_{mt}$, can be chosen as the benchmark.

$$NR_{it} = R_{mt}$$

Therefore, the equation for abnormal returns becomes:

$$AR_{it} = R_{it} - R_{mt}$$

This market adjusted return model is restricted by the fact that it assumes that the beta of each stock is equal to one. This however is not always the case. In order to calculate abnormal returns it is better to account for these differences in the beta’s. Therefore the market model is the best choice in evaluating the long-run stock price performance of the issuing firms. The market model is defined as:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$$

The abnormal returns are then defined as the residuals or prediction errors of this model,

$$NR_{it} = \hat{\alpha}_i + \hat{\beta}_i R_{mt}$$

Where $\hat{\alpha}$ and $\hat{\beta}$ are Ordinary Least Squared (OLS) estimates of the regression coefficients. In my research I use an estimation period preceding the event. This estimation period will consist of market returns from three years, namely from 52 months to 16 months prior to the event.

I will use this model when investigating the stock price reactions of SEOs on the issuing firms. Those firms are randomly unrelated, so the market model will be used to control for stock trends. However, afterwards I will investigate the stock price reaction of SEOs on rival firms within the same industry. These firms are related by their SIC code, so in this case the three factor model is a better choice for calculating normal returns. This is because the variance reduction is the greatest when firms have common characteristics. In my research this common characteristic is the industry group. The Fama and French (1996) three factor model is:
\[ R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_iSMB_t + h_iHML_t + \epsilon_{it} \]

Where SMB accounts for the difference in returns between small firms and large firms, and HML is the difference between firms with low book-to-market ratio and firms with high book-to-market ratio. In other words, the difference in returns between value and growth firms (Jong & Goeij, 2011). The normal return for firm \( i \) in period \( t \) becomes:

\[ NR_{it} = R_{ft} + \hat{\beta}_i(R_{mt} - R_{ft}) + \hat{s}_iSMB_t + \hat{h}_iHML_t \]

Using this three factor model, the test is controlled for differences in size and value, and controls for cross-sectional correlation of abnormal returns.

For the market returns I could both use equally weighted or value weighted indexes. Brown and Warner (1980) compare these indexes and conclude that they give similar results.

### 5.1.3 Analysing abnormal returns

In order to analyse abnormal returns for the use of event studies it is important to label the event date as time \( t = 0 \). In this case all the 27 SEOs conducted within the two years are set to time \( = 0 \) as if they were on the same time. This indicates that from now on \( AR_{t,o} \) is the abnormal return on the day the SEOs are offered, and, for example, \( AR_{t,t} \) is the abnormal return for a firm \( t \) periods after the offering date. Since the number of issuing firms and the event window are known, I am able to construct a matrix of the abnormal returns in the following form:

\[
\begin{pmatrix}
AR_{1,t_1} & \cdots & AR_{N,t_1} \\
| & \ddots & | \\
AR_{1,-1} & \cdots & AR_{N,-1} \\
AR_{1,0} & \cdots & AR_{N,0} \\
AR_{1,1} & \cdots & AR_{N,1} \\
| & \ddots & | \\
AR_{1,t_2} & \cdots & AR_{N,t_2}
\end{pmatrix}
\]
Every column of this matrix represents a time series of abnormal return for every firm, where time \( t \) is counted from the event date. Each row is the cross section of abnormal returns per time period \( t \) (Jong & Goeij, 2011).

With this matrix I am able to investigate the stock price changes around SEOs for each firm. However, since the stock price movements can contain information unrelated to the SEOs the analysis will do better when averaging the information over the number of firms. Which means that I need to average all the abnormal return over the number of firms. This gives the cross-sectional average of the abnormal returns for every time period \( t \).

\[
AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it}
\]

In this case, large deviations of the average abnormal returns (AAR) from zero indicates there is abnormal performance. With this formula, all the other information that could determine the effects are cancelled out on average, because all the abnormal returns are centred around one event. However, since I want to study long term effects of SEO it is better to use the cumulative abnormal returns. This means the abnormal returns are combined from the beginning of the event period to the end.

\[
CAR_t = AR_{t,t_1} + \ldots + AR_{t,t_2} = \sum_{t=t_1}^{t_2} AR_{it}
\]

Afterwards, the same can be done as with the abnormal returns by cross-sectional averaging the cumulative abnormal returns for every time period.

\[
CAAR = \frac{1}{N} \sum_{i=1}^{N} CAR_i = \sum_{t=t_1}^{t_2} AAR_t
\]

When this cumulative average abnormal returns are calculated I am able to graphically report the abnormal returns surrounding the SEOs.
In order to support this event study I will conduct statistical tests. These statistical tests are used to see whether the abnormal returns after SEOs are statistically different from zero. In my study I want to test the significance of the event-surrounded cumulative abnormal returns. The null hypothesis will be that the expected cumulative returns are zero (Jong & Goeij, 2011).

\[ H_0 = E(CAR_t) = 0 \]

From this point, the only thing I need to calculate is the standard deviation. Afterwards the t-test can be conducted.

\[ \sigma = \sqrt{\frac{1}{N-1} \left( CAR_i - CAAR \right)^2} \]

\[ TS = \sqrt{N} \frac{CAAR}{s} \]

Following all these steps described above, gives me the possibility to see whether my expectations about the effects of SEOs are right, and if so, whether these results are statistically significant.
6. Empirical Results

As outlined in section 4, I first want to measure the effects of large SEOs on the issuing firms. In this first section, I will present evidence on the issuing firm’s long term price reaction after they conducted an SEO.

6.1 Long-term Price Reactions of Issuing Firms

Investigating the first hypothesis I have used 27 issuing firms, all conducted an SEO during 2003 and 2004. In order to calculate the abnormal returns I used the following event and estimation window:

Figure 2
Sample time line

Figure 2 represents the time line used to calculate the abnormal returns after SEOs. The estimation window contains 3 years of prior to the event market return data. This data is equally weighted excluding dividends, from 52 months till 16 months before the SEO event. All SEOs during the sample period are set to time = 0. Around these different dates an event window is created including the actual returns per firm, using a period from 12 months before the event and almost 36 months after the event.

Using this estimation and event window the cumulative abnormal returns from the issuing firms are calculated. As already mentioned above, I have used the market model, which controls for stock price market movements. This model is used because almost every SEO is conducted in a different industry assuming the firms are randomly unrelated. In figure 3, the average cumulative abnormal returns are plotted surrounding the SEO events.
Figure 3
Issuing firms abnormal returns around completed SEOs

The SEO sample includes 599 SEOs from the IPOMonitor database between 2003 and 2004. Sample SEOs are SEOs from firms listed on the NYSE, AMEX or NASDAQ and is at least 20% of the market capitalization of the issuing firm. Utilities and Financials are excluded from the sample. Using these selection criteria, 27 SEO event can be identified. The timeline (in months) is shown on the x-axis, where date zero indicates the date of the SEOs. The average cumulative abnormal returns on the y-axis is the equally weighted market model excess return (in %) across the issuing firms in an SEO event.

Figure 3 shows positive abnormal returns in the years surrounding the event. The increase in returns prior to the offering date (t=0), are most likely due to positive reactions after the announcement of the large SEO by the issuing firm. After the event, until the 18th month the average cumulative abnormal returns are showing a relatively flat line, which increases afterwards. These effects are consistent with the expectation that firstly, investors positively react the relative large SEOs used for specific purposes in order to increase their competitive position in the future. This is consistent with Ditmar & Thakor (2007) and their theory about the level of agreement between managers and investors. Managers would only issue additional equity when the level agreement on this investment is high. In other words, managers would only issue equity when investors positively react to the investment plans and decisions of the firm. This increase is noticeable by the cumulative abnormal returns from 12 months prior to the offering till four months after the offering. Within this period of t -12 and t 4 the CAAR is
equal to 0.46% across the issuing firms and is statistically significant at the 5% level with the p-value of 0.042 and a t-value of 2.15. Secondly, I argued the proceeds to be used for purposes such to increase their competitive position within the market. Of course, the changes made by the firm using these proceeds are not noticed on short time after the offer date. Therefore it is expected stock prices of the issuing firm to show significant changes after a longer amount of time. Using a time window starting 1.5 years after the offering date, the cumulative average abnormal returns increase with 0.22% and is almost significant at the 10% level with a p-value of 0.092.

Looking at the complete event window, the cumulative average abnormal returns are 0.633%. Testing for significance gives a t-statistic slightly under the significance level with a p-value 0.10. This indicates that over the whole period it is almost statistically significant. I assume this is due to the fact that it is impossible to control for all the agency issues. Besides I assumed that on average the SEOs included in the sample are offensive. It is possible for some SEOs to be defensive and are therefore likely to influence the result. However, my results suggest that when focussing on large SEOs and if there was the ability to fully control for agency issues and differ between offensive and defensive SEOs, SEOs should have positive significant effects on the stock price performance of the issuing firms.

All the above tests are tested for robustness. The choice of the sample was motivated by avoiding small SEOs and only select SEOs of 20 percent of market value. Just like Hsu, Reed and Rochell (2010) argued in their article, the robustness test examines whether the results are sample specific or whether they could also hold for different and more broadly selected samples.

Regardless whether the final result discussed above is just below the significance level, my results shed new light into the literature on equity issues. So far researches found negative stock price performance caused by SEs, due to agency issues. I made the assumption that selecting only large SEOs created a natural control for at least a large part of the agency issues. Besides I argued that when the economy is stable, SEOs will be more used as an offensive strategy. After controlling for stock price correlation with the market using the market model, I found SEOs to have positive effects on the stock price performance of the issuing firms. The results
provide evidence in favour of hypothesis 1 that suggests that the issuing firms experience an positive reaction around their large SEOs.

The same test is applied to SEOs conducted in the years 2009 and 2010. I assumed that during an less steady economy more SEOs are used in a defensive manner. Therefore I expect to find the opposite effect of the previous test. The market model controls for the market trend, so when the effect of SEOs on the stock price is negative it means that my assumptions are right.

Using the same estimation and event window the cumulative average abnormal returns of issuing firms during 2009-2010 is -0.45. This coefficient only includes the cumulative average abnormal returns of firms that survived the crisis. At first I selected 67 SEOs. However, eventually 26 SEOs and issuing firms could be used. This is because for the other 41 SEOs made, the issuing firm had either conduct an IPO in the past four years or filed bankruptcy during the three years after the SEO. The results is not statistically significant because the stock price decrease of bankrupt firms are not included, the sample consist only of firms that survived during the crisis. However, the market model controls for market conditions and the opposite effect is found. This means my assumptions were right. Previous research concluded always to find negative stock price reactions surrounding SEOs. With this hypothesis I proof that this is not always the case. When the economy is steady, SEOs tend to be more offensive which causes stock prices to increase and when the economy is less steady, for example during the crisis, SEOs tend to be more defensive which causes stock prices to decrease.

6.1.1 Capital expenditures and R&D

In order to see if deviating theories about SEOs that I used are right I investigated whether there is a significant change in capital expenditures for the issuing firms. The assumption I made stated that the reason for firms to issue new equity are not overvaluation benefits, but an increase in for example capital expenditures is expected. I expect the capital expenditures to be larger in the period surrounding the SEO event than in periods outside the event. Also called the benchmark period. Based on this assumption I expect capital expenditures to increase relative to an estimation period. Basically I used the same model as with the returns, except for controlling for market correlation. Abnormal capital expenditures are calculated from each issuing firm from which the data is incorporated in Compustat. Compustat only gave me the
choice using annual or quarterly data. Quarterly data is used and the first quarter is the quarter in which the event occurred.

\[ ACAPX_{it} = CAPX_{it} - NCAPX_{it} \]

The abnormal capital expenditures (ACAPX) are calculated by using the capital expenditures (CAPX) over the event window subtracted by the average capital expenditures of firm i calculated over an estimation period prior to the event. These are the normal or expected capital expenditures (NCAPX). After calculating this, the cumulative abnormal capital expenditures and the cumulative average abnormal capital expenditures are calculated.

\[ CACAPX_i = \sum_{t=r1}^{t=2} ACAPX_{it} \]

\[ CAACAPX = \frac{1}{N} \sum_{i=1}^{N} CACAPX_i \]

Eventually cumulative average abnormal capital expenditures of $2369.8 million are found. This is the sum of the cross-sectional averages of cumulative capital expenditures per firm per period. This provides evidence that during the SEO event capital expenditures show a significant increase relative to a benchmark period for the same firm. This is consistent with the assumption I made, that after an SEO a firm increases the capital expenditures on average. Remember that all this applies to the research sample of 2003 and 2004 when the economy was in a steady condition.

The same method can be applied investigating R&D expenses for the issuing firm. Again, my assumption was that large SEOs are conducted to increase R&D expenses and not for overvaluation benefits. Therefore I expect R&D expenses to increase during the event period relative to a benchmark period. Compustat did not provide R&D data for all issuing firms, so I used only the firms for which data was available. After calculating abnormal R&D expenses by subtracting normal expenses from the actual expenses, the cumulative abnormal R&D expenses per firm and per period are calculated. From this the cross-sectional average cumulative returns
can be calculated, which is $542.20 million. Noticeable is the fact that none of the firms who had positive cumulative abnormal capital expenditures had negative cumulative abnormal R&D expenses. 75% of the issuing firms experienced an increase in R&D or capital expenditures from which 44% had negative cumulative abnormal capital expenditures. 56% have both a positive increase R&D and capital expenditures during the event period relative to the benchmark period.

Table 2  
Capital Expenditures and Research and Development

In panel A the total of the average cumulative CAPX and R&D are presented. Panel B only represents the issuing firms for which was both data on CAPX and R&D was available in Compustat. The – or + indicate a positive or negative change in CAPX or R&D during the event period relative to a benchmark period. The same event and benchmark period as with the abnormal returns is used. 75% of the firms experience higher CAPX or R&D, or both. 25% of the issuing firms experienced both negative CAPX and R&D.

<table>
<thead>
<tr>
<th>Panel A: CAACAPX and CAAR&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAACAPX</td>
</tr>
<tr>
<td>CAAR&amp;D</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Panel B: Data on both CAACAPX and CAAR&D

<table>
<thead>
<tr>
<th>CAACAPX</th>
<th>CAAR&amp;D</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>25%</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>33.33%</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
<td>41.67%</td>
</tr>
</tbody>
</table>

6.1.2 Leverage Ratio

Conducting an SEO larger than 20 percent of a firm’s market capitalization causes a big instant inflow of equity. An increase in equity relative to debt will lower the leverage ratio of a firm. The leverage ratio of a firm is the amount of debt divided by the amount of equity. Walker and Yost (2008) find evidence of an increasing amount of long term debt after firms conducted SEOs. They argue that increasing debt gives a positive sign to investors, such that it constraints the managers with the obligation to pay back debt. However, I argued against the overvaluation benefits of managers, therefore I believe after large SEOs leverage ratio on average to decrease
relative to a benchmark period prior to the event. This is because managers will only issue equity if the level of agreement with investors is high, so debt is not needed to constrain the managers in this case.

In order to calculate the leverage ratios of the issuing firms, long term debt plus debt in current liabilities are divided by common equity total. Compustat did not provide clear data for all the firms, so I used the firms from which the data was usable. The average expected leverage ratio across all firms is 2.86, which is calculated using estimation periods prior to every SEO event. After subtracting the expected or normal leverage ratios from the actual leverage ratios surrounding the event, I find that on average across all firms the leverage ratio over the time period is 1.17 lower than was expected. Therefore, I could assume that large SEOs give a positive sign to investors because managers are less constraint to debt than before the SEO. This again is consistent with the agreement level between managers and investors, and the assumption that managers will not take advantages out of overvaluation of the stock price.

6.2 Long-term Price Reactions of Competing Firms and Industries

To examine whether SEOs conducted by the issuing firms influence the stock price of competing firms within the same industry, the three factor model can be used. The three factor is the market model that includes two additional variables.

\[
NR_{it} = R_{ft} + \beta_i (R_{mt} - R_{ft}) + \delta_i SMB_t + \gamma_i HML_t
\]

The small minus big (SMB) variable controls for firm size. For example, a large firm is less likely to be effected by an SEO relative to a small firm. The SMB variable corrects for these difference between firms. The high minus low (HML) variable controls for the level of market value relative to book value. For example, firms with a higher market value relative to book value are expected to react less on SEOs within their industry than firms with a lower market value. However I chose to use the market model eventually and select firms with similar size and market-to-book ratio as the issuing firm. So controlling for these additional variables I did by hand, by selecting firms with similar values for these variables. So basically I use the three factor model, but with this method I am able to use the same market model as I used with the issuing firms.
Since Compustat data on market value is limited, I made a proxy for the value variable by multiplying total shares outstanding with the closing stock price.

\[ MKVAL_{it} = SHARES\ OUTSTANDING_{it} \times CLOSING\ PRICE_{it} \]

Secondly, Compustat did not provide a market-to-book variable. I made a proxy for this variable using the following formula:

\[ MtB_{it} = \frac{(AT_{it} - (AT_{it} - LT_{it}) + MKVAL_{it})}{AT_{it}} \]

Where, AT are the total assets of the firm during a specific period and LT are the total liabilities. The rival firms are selected by their three digit sic code. The three digit sic code refers to a specific industry group. I have chosen for the three digits, instead of two digits, to make the test more precise and really focus on industry competitors rather than on a major industry group.
Figure 4
Issuing firms abnormal returns around completed SEOs

This figure presents the cumulative average abnormal returns across rival firms included in the sample when an SEO occurred in their industry. The competitive firms have similar size and value as the issuing firm in the same industry. These firms are listed on either the NYSE, AMEX or NASDAQ. The average cumulative abnormal returns on the y-axis is the equally weighted market model excess return (in %) across the rival firms in an SEO event.

Based on the figure 4 it can be noticed that the stock prices of competing firms negatively react to SEOs in the same industry. The line shows decreasing cumulative average abnormal stock returns for the rival firms in the long-run. These decreasing stock returns start at 11 months prior to the event and decrease further across the event window. In the long run, after 36 months, the cumulative average abnormal returns are -1.48 percent. Using event studies calculations in Stata, the same cumulative average abnormal returns are found with a t value of -3.96 and a p value of 0. This means this negative stock price reactions of the competing firms after an SEO are statistically significant. Again, the results are controlled for robustness. This means the results are robust to other selection criteria as well and therefore are not due to specific selection criteria.
Based on these results, it can be concluded that large SEOs have negative effects on the stock price performance of firms that not issued new equity during the sample period. This is consistent with the assumption that issuing firms are using SEOs in order to increase their competitive position in the future. The proceeds are used for specific purposes, such as to increase R&D and capital expenditures and to decrease the amount of debt and the leverage ratio. The assumption I made is that these determinants positively affect the competitive position of the issuing firms and makes them more flexible regarding for example investment opportunities in the future. This is consistent with the results found by Hsu, Reed and Rocholl (2010), because they found similar effects for IPOs. I argued that the determinants for competitive effects described in their paper, also could hold for large SEOs.

Firms that do not conduct SEOs in order to stabilize and secure their future position will do worse relatively to firms that do take advantages from issuing new equity. Therefore, firms that issue new equity through large SEOs are expected to be a better competitor in the long-run and firms that do not are expected to be a weaker competitor and therefore the stock price shows a statistically significant decrease in the long run.

In addition, to highlight the overall effect of SEOs on an specific industry, I have grouped the competitors by their three digit sic code and gave all the firms with the same sic code a specific id. In this way each industry group could be seen as one big firm. The sample data consists of eighteen different industry groups, therefore after reorganizing the data eighteen “big firms” are created. Using the same test as before, this results in a highly statistically significant effect on the stock price of the overall industry including only the rival firms.

### Table 3

| cumulative-n | Robust Coef. | Std. Err. | t    | P>|t| |
|--------------|--------------|-----------|------|-----|
| _cons        | -1.47697     | .3734436  | -3.96| 0.000 |

This Stata output tests for significance across the competing firms included in the sample and other possible samples. The coefficient is negative and highly statistically significant at the 1% level with a p-value of 0.000 and with a t-value of -3.96.
The average cumulative abnormal returns per industry group is -9.07 percent, statistically significant at the 1 percent level with a t-value of -8.97. This indicates that SEOs made within an industry definitely changes the competitive composition of an industry. A portfolio of firms that do not conduct offensive SEOs in this period of time will underperform a portfolio of firms that do conduct SEOs.

Table 4
Stata output industry groups

| cumulative-n | Robust      |
|             | Coef. | Std. Err. | t    | P>|t| |
|--------------|-------|-----------|------|-----|
| _cons        | -9.071714 | 1.011902  | -8.97 | 0.000 |
7. Conclusion and Discussion

In the previous section, section 6, the results of the quantitative research were presented. In this section the main research question will be answered that is stated in the beginning of the paper. The main question was:

*What are the effects of seasoned equity offerings on stock price performance and are they able to change the competitive environment within an industry?*

The first section provides a short summary of the results. The second section compares the results found in this research with the results and arguments from previous research. Afterwards, section 7.3 discusses limitations of the study and provides recommendations for future research.

7.1 Summary of the Results

In this research the stock price performance of publicly traded firms is analysed after they conducted large SEOs or after SEOs occurred in their industry. First, the stock price performance of the issuing firms was investigated. Using event studies I found that issuing firms experienced positive stock returns surrounding the offer date of the SEO. The cumulative average abnormal return curve, showed significant increase in returns over almost a four year period. This positive reaction is found when the economy is in a normal and steady condition. I assumed that during this state of the economy on average SEOs are offensive. In order to see if this assumption is correct I did the same tests for SEOs during the economic crisis. I assumed that when the economy is in a less steady state SEOs are on average used in a more defensive matter. Therefore I expected a negative price reaction of issuing firms after they conducted an SEO. After collecting the new sample the results showed decreasing cumulative average abnormal returns during the event period.

Further, to strengthen the conclusion, I investigated the assumptions about capital expenditures, research and development and the leverage ratio and found the first two to increase and the latter to decrease during the event period relative to an estimation period. These effects are likely to secure and stabilize the position of the firm in the future and makes them more flexible
regarding investment opportunities. This is likely to give a positive signal to investors, and therefore an increase in the stock price is found after conducting an SEO.

Thereafter I investigated whether or not SEOs conducted by firms were able to affect rival firms in the same industry. In other words, the stock prices of the rival firms should on average show the opposite effect compared with the issuing firms. This would indicate that firms conducting SEOs would outperform non-issuing firms, by the fact that they becoming a tougher competitor. Again, using event studies, controlling for market correlation, size and value I found industry competitors to experience negative stock returns when an SEO is conducted in their industry. The cumulative average abnormal returns curve showed a significant decrease from 1 year prior to the offering to 3 years after the offering. This effect was expected because I assumed that when firms are not using SEOs to improve their competitive position for the future and given that others do, these firms will become weaker competitors in the long-run.

7.2 Confrontation

In this section, I will confront the existing literature on the effects and competitive effects of SEOs. I will compare the results found in my paper with the results found in previous studies.

As I already stated several times in this paper, almost all previous research documented a negative price reaction to SEOs for the issuing firms. The most common argument for this negative stock price reaction is that SEOs unveil negative information about the current value of the firm. This negative information gives the signal to investors to lower their expectations about firm value when re-evaluating the firm. This market reaction is said to be due to agency issues. For example, Myers and Majluf (1984), argued managers will only issue equity when they believe the firm’s stock is overvalued or that the capital is used for agency spending. Also Asquith and Mullins (1985) investigated the effect of equity issues on stock price and found equity offerings to reduce the stock prices significantly. However, this view became the norm in research thereafter and all concluded that SEOs have negative effects on stock price performance. In addition, the information revealed by SEOs is said to be firm specific and therefore no competitive effects are found in the previous literature.
My research adds a new dimension to the existing literature because I used the deviating theories about SEOs in a quantitative research. The theories and views stated in the introduction triggered me to investigate if there are other effects to be found and therefore to challenge the previous literature. My research differs from the previous research in that I only used large SEOs instead of using all SEOs. Large SEO are SEOs with a value of at least 20 percent of market value. I did this because a lot of SEOs are very small. It is obvious that a small SEO is less likely to significantly affect the stock price or competitive environment. SEOs of at least 20 percent are significantly changing the capital structure of a firm and is therefore assumed to be able to significantly affect the stock price. Besides, in my research I distinguish between offensive and defensive SEOs. Since my sample period is during economic stability I assumed that on average more SEOs are offensive. SEOs during economic instability, such as the crisis are expected to be more defensive. It is important to make a distinction between these two because defensive SEOs are less likely to influence the competitive environment. For example to save a company from bankruptcy. This reveals firms specific information and is therefore assumed not to affect the competitive environment.

Using these assumptions and selection criteria I expected to find results inconsistent with the results found so far. I expected SEOs to have a positive effect on the stock price performance of the issuing firm during my sample period. Besides, I hypothesized that during the same period, the stock prices of the rival firms within the same industry decrease. Previous literature argued SEOs only to unveil firm specific information. However, my arguments are against the often incorporated view that support agency issues and therefore I assumed offensive SEOs are able to reveal external market information.

After testing, both of my hypotheses are correct. I found that SEOs have a positive effect on the stock price performance of the issuing firms. I wanted to be sure whether my assumption about offensive versus defensive was right. Therefore I made a second testing sample during the economic crisis and expected and found SEOs to have a negative effect on stock price performance of the issuing firms after controlling for market movements. My results indicate that SEOs do not always have a negative effect on the stock price performance of the issuing firm. This also implies that previous research about the reasons for firms to issue equity is inconclusive.
In addition, the results found by previous literature on the competitive effects of SEOs are inconsistent with my results. For example, Slovin, Sushka and Poloncheck (1991) found no intra-industry effects for equity issues by industrial firms. They argue SEOs only reveal firm specific information, such that it does not affect industry competitors. Spiess and Affleck-Graves (1994) document firms making SEOs substantially underperform a sample of matched firms from the same industry that did not issue equity. Since I found positive price reactions for the issuing firms I expected and found industry competitors to experience a negative price reaction. My results are supported by Brander and Lewis (1986) who argued that rivals can be affected by strategic changes in a firm’s capital structure. Besides, Hsu, Reed and Rochell (2010) analysed the effects of IPOs on industry competitors and provide evidence that companies experience negative stock price reactions to completed IPOs in their industry. Since IPOs are very similar to large SEOs, except for the fact that the ownership structure changes, I expected large SEOs also to negatively affect industry competitors. This is because I argued that the same determinants of the competitive effects described in their paper also apply to SEOs. My results show that firms conducting SEOs outperform non-issuing firms in the same industry.
7.3 Limitations and Recommendations

This study focused on the stock price performance of companies after large SEOs. A limitation of this study is that I had relatively limited data available. Since I had to use different data sources and not every source had the useful data for every firm, it limited my data and influenced my sample. However, I was able to select 27 SEO events over 2 years, which is 13.5 SEOs on average per year. Compared to the article of Hsu, Reed and Rocholl (2010), they obtained 134 IPO event over 20 years which is 6.7 events on average per year. Using the robustness test I examined whether the results are sample specific or whether they also hold for different and more broadly selected samples. The results are statistically significant so in that case the sample is good. It was also not possible to fully exclude the agency problems and to include a variable for the level of agreement between managers and investors. If I was able to control for these variables and other external variables the results could be even more conclusive.

My study is a pioneer for future research. Of course the previous studies could be revised to see if my assumptions are also correct for other samples. Previous papers investigated the effects of all SEOs, while my study used SEOs with a value of at least 20 percent of market value. Future research could investigate whether the results also hold when varying the SEO size relative to market value.

My research is also the first to mention the difference between offensive and defensive SEOs. I made assumptions for these differences. Future research could investigate more in depth, the different effects of offensive versus defensive SEOs.

Furthermore, an open question can be used to further investigate whether specific firm characteristics lead to cross-sectional difference in the reaction to equity issues.
7.4 Closing Words

This is one of the first studies that not only uses theory, but also conducts explanatory research and uses quantitative data, to challenge the previous literature on the effects of SEOs. The findings are inconsistent with the overvaluation and agency issues arguments presented in many papers written on this topic. Besides, I am one of the first who investigated the competitive effect of SEOs and find, not like previous papers, that SEOs provide external information, such as to influence the competitive environment. My results suggest that SEOs have competitive effects on other companies that operate in the same industry. These effects are shown through the opposite price reaction after the SEO. This evidence not only affects the firms, but has also implications for investors and other market participants. My research sheds new light into strategic decision making regarding raising capital through equity. Finally, this study should encourage researchers to revise their results or to further investigate the competitive implications of changes in a firm’s capital structure.
References


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Other Sources


