Public Seasoned Equity Offerings and Asymmetric Information: An Investigation of Abnormal Returns, Discounts and Offer type choice

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Master's Thesis
Stockholm School of Economics, Spring 2014

Abstract

This thesis attempts to assess the effect of information asymmetry between firms and investors on indirect issuing costs in two offer types of public SEOs, fully-marketed and accelerated offers. Furthermore, the thesis investigates if firms that have higher information asymmetry are more likely to prefer one offer type to another. We define information asymmetry as insiders having information on the firm that is not available to investors and measure information asymmetry by using five different proxies. In an event study, we test if the cumulative abnormal return around the SEO window is more negative for fully-marketed offers than for accelerated offers. We conclude that fully-marketed offers have a significantly more negative cumulative abnormal return than accelerated offers. Moreover, we find marginal empirical evidence for the hypothesis that information asymmetry has a larger effect on the cumulative abnormal return in fully-marketed offers than in accelerated offers. In the second part of the thesis, we hypothesise that information asymmetry only affects the offer price discount in accelerated offers, as information asymmetry is reduced during the marketing period prior to a fully-marketed offer. We find that information asymmetry has no effect on the offer price discount of fully-marketed offers. In addition, we affirm the hypothesis that information asymmetry has an impact on the offer price discount of accelerated offers. Finally, we hypothesise that firms with higher information asymmetry are more likely to choose a fully-marketed offer than an accelerated offer. We find supporting evidence for the hypothesis that information asymmetry affects the offer type choice.

Keywords: SEOs, Accelerated Offerings, Offer price discount, Abnormal returns

We wish to thank our tutor Laurent Bach for the helpful insights, Alexander Totomanov and Dealogic for the generous supply of data and our friends Anja and Henrike for critically discussing the topic.

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1. Introduction

Seasoned equity offers (SEOs) are an important source of financing for already publicly listed firms. Public SEOs can take the form of a fully-marketed or an accelerated offer and for both offer types the conduction of the SEO increases the number of shareholders and shares outstanding. Prior to the 2000s, fully-marketed offers were the most prevalent form of public SEOs. Fully-marketed offers include a 2-3 week marketing period between the announcement and the offer that consists of a roadshow and investor education. Public SEOs without the marketing period are known as accelerated offers. These offers have only gained popularity recently, at the same time as technology has made information more easily accessible to investors.

Accelerated offers are often announced after markets have closed and are executed before markets open the subsequent day. Rick Cronklin and Paul Broude[1] (2009) note that through accelerated offers firms can take advantage of bullish equity markets, while possibly avoiding a drop in the share price and spending weeks on a roadshow. Therefore, firms often prefer accelerated offers to the traditional fully-marketed offer as they are quicker and considered as less costly for the firm and existing shareholders.

Despite the notable benefits of accelerated offers, we observe that more than 20% of firms in our sample still choose to issue equity via a fully-marketed offer. In addition, it can be noted that firms occasionally switch between the two issuing methods. For example, Commerzbank conducted four accelerated bookbuild offers from 2000 to 2011, before choosing a fully-marketed offer in 2011. Similarly, Buhrmann NV conducted an accelerated offer in 2000, before deciding to conduct a fully-marketed offer in 2001. Therefore, it appears that firms do not always consider accelerated offers as the most attractive public offer method.

In the context of the SEOs, information asymmetry entails that insiders have information about the intrinsic value of the firm that investors do not have. In our research, we investigate the effect of information asymmetry on fully-marketed and accelerated offers. Our research is divided into three parts. First, we analyse the cumulative abnormal return (CAR) over the SEO window for both accelerated and fully-marketed offers. For an event window starting three days before the announcement and ending three days after the offer, we find that CARs are significantly more negative for fully-marketed offers than for accelerated offers. Subsequently, we investigate if proxies for information asymmetry can explain part of the

[1] Rick Cronklin is a Managing Director at Robert W. Baird, an investment bank and Paul Broude is Partner at Foley & Lardner LLP, a law firm specialising in capital markets.

variation of CARs and if information asymmetry has a different effect on the CARs for each offer type. We find marginal evidence for the hypothesis that information asymmetry has a stronger effect for fully-marketed offers than for accelerated offers.

In the second part, we investigate whether measurements of information asymmetry established prior to the announcement have a different impact on the offer price discount for fully-marketed and accelerated offers. We find evidence for the hypothesis that information asymmetry affects the offer price discount for accelerated offers. As expected, we do not find that information asymmetry affects the offer price discount for fully-marketed offers. These results may be explained by a reduction of information asymmetry during the marketing period of fully-marketed offers which is in contrast to accelerated offers where no reduction of information asymmetry takes place.

In the final part of our study we analyse if information asymmetry affects a firm's choice between fully-marketed and accelerated offers. We argue that firms with high information asymmetry are more likely to choose a fully-marketed offer, as issuers expect a reduction of information asymmetry to decrease indirect costs. We find evidence supporting the hypothesis that firms with higher information asymmetry between insiders and public are more likely to choose fully-marketed offers.

Our contribution to existing literature is (i) to explore if information asymmetry affects indirect costs of fully-marketed and accelerated offers in a different manner and (ii) to explore if information asymmetry affects the choice of offering method. Most prior academic research on SEOs only considers public offers as a single entity and does not make a further distinction between fully-marketed and accelerated offers (Corwin, 2003; Altinkilic and Hansen, 2003).

While prior research has investigated the cumulative abnormal return for accelerated offers and fully-marketed offers, these studies use a short window over announcement (Bortolotti et al., 2008; Autore et al., 2008) Since accelerated offers are usually announced and executed within 24 hours, effects from the offer execution might distort the announcement effect for accelerated offers. In this thesis we use a window that captures the announcement and execution of both offer types to avoid potential confounding effects.

Moreover, to our knowledge, no prior research has investigated if information asymmetry affects the offer price discount in accelerated offers. Corwin (2003) finds weak evidence for information asymmetry affecting the offer price discount for public offers. However, his sample mainly consists of fully-marketed offers. As we argue that the marketing period is a crucial factor for the reduction of information asymmetry and only fully-marketed offers have

a marketing period, it is interesting to examine if information asymmetry affects the offer price discounts of the two offer types differently.

Lastly, to our knowledge, no other research has examined if information asymmetry affects the choice between a fully-marketed and accelerated offer using a European sample. Since academic literature has shown differences in indirect costs of SEOs across markets, it is interesting to analyse the offer type choice in a European context.

Our research is of importance to issuers and underwriters alike. It is essential for issuers to understand factors affecting the indirect costs when deciding between an accelerated and a fully-marketed offer. Similarly, it is important for underwriters to understand the drivers of indirect costs in SEOs in order to make sound advice to firms regarding the most appropriate offer type.

2. The SEO process

Seasoned equity offerings (SEOs) are offerings of capital to the market by an already publicly traded company. Seasoned equity offerings can be primary, secondary or mixed. A primary offer increases the amount of total outstanding shares by offering new shares to existing or new shareholders. In a secondary offer, one or more shareholders sell a large block of shares. Firms raise new capital for various reasons. Hull et al. (2009) report that debt reduction, new investments, financing of acquisitions and need for increased cash liquidity are among the most common reasons stated for the conduction of an SEO. The different offer types and their respective characteristics are described in the subsequent sections.

2.1. Flotation methods for SEOs

Primary SEOs can be separated into two main categories; public and non-public offers. Dependent on these categories, further distinctions can be made. Table 1 provides a brief overview of all SEO methods, as classified by Dealogic (2014).

Table 1

Summary of offer types
Table 1 shows all offer type classifications on the Dealogic ECM Analytics Database, their respective target market and execution time. Information on target market and execution time has been retrieved from Delaogic (2014).

Offer Type	Target Market	Execution time
Fully-Marketed	Public	~14-21 days
Accelerated Bookbuild	Public	~1-2 days
Bought Deal	Public	~1 day
Cash Placing	Public	~1 day
Guaranteed Preferential Allocation	Public, priority to existing shareholders	Case specific
Rights Issue	Existing shareholders	~14-21 days

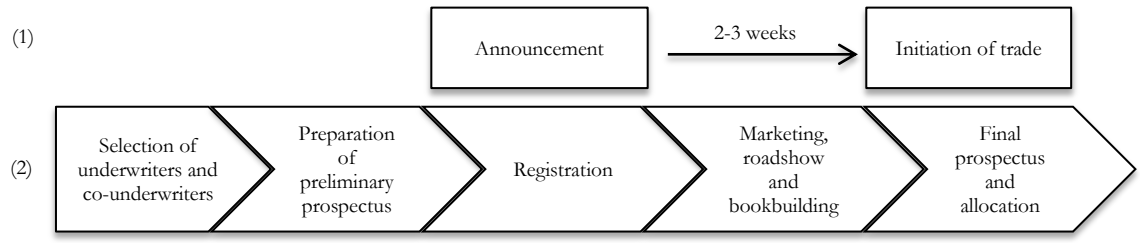
The SDC Platinum Database and Dealogic are the most commonly used databases for retrieving information regarding equity issues in academic literature. Occasionally, the databases are inconsistent in their classification of equity offer types, leading to different classifications of SEO subtypes (Bortolotti et al., 2008). We have chosen to use the Dealogic database as their offer type classification is regarded as using the most accurate classification (Gao and Ritter, 2010).

2.2. Public offers

2.2.1. Fully-marketed offer

In a fully-marketed offer firms select one or multiple underwriters to conduct and market the offer to investors. Once the offer has been announced, a preliminary prospectus with an indicated price range is distributed. Subsequently, the offer is marketed through a roadshow and investor meetings, usually lasting 2-3 weeks. In this respect, the process prior to a fully-marketed offer resembles the process prior to an IPO (Initial Public Offering). In the period between the announcement and the execution of the offer (marketing period) investors gain additional information on the use of the offer proceeds and the firm's future earnings prospects. During the marketing period the order book is built and the offer price range is narrowed down according to the investor demand. At the end of the marketing period the offer price is set and the final prospectus is published. Subsequently, the underwriter allocates the shares to participating investors and trading commences (Gao and Ritter, 2010; Geddes, 2003). The process of the fully-marketed offer is exemplified in Figure 1.

Figure 1
The SEO process for for fully-marketed offers
Row (1) shows the actions known to the public, while row (2) shows the actions conducted by the firm/underwriter. The graph is based on Gao and Ritter (2010) and Geddes (2003).



2.2.2. Accelerated offer

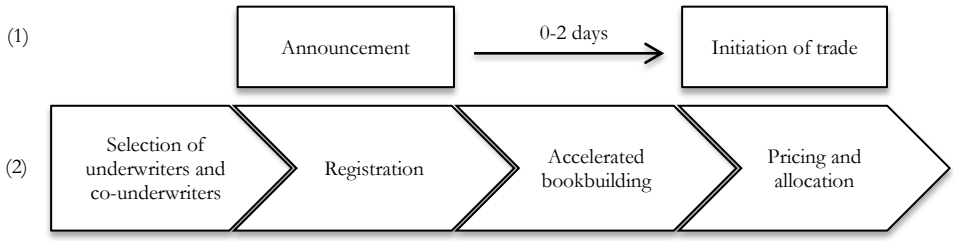
Accelerated offers are a faster way to raise capital whilst abstaining from extensive marketing efforts. There is no roadshow period and offers are closed within a maximum of 48 hours.

Accelerated offers can be further divided into accelerated bookbuild offers and bought deals. Each type is discussed in the subsequent section.

Accelerated bookbuild offer

The SEO process starts with firms selecting one or more underwriters to conduct the offer. Immediately after announcement the bookbuilding process begins and a price range is set according to investor demand. In some cases, underwriters guarantee a minimum offer price ("backstop") to the firm when underwriting the issue. Subsequently, a syndicate of underwriters is formed and the offer is marketed to investors. Bookbuilding is usually done rapidly, requiring investors to submit bids on desired prices and quantities immediately. While the bookbuild period can take up to 48 hours, a quick overnight bookbuild is usually preferred. In many cases announcement and execution of the offer take place after markets have closed. Hence it can be ensured that market reactions do not disturb the pricing process. After the bookbuilding period the final offer price is set, shares are allocated and trading commences (Geddes, 2003; Dealogic, 2014). Figure 2 provides an overview of the accelerated bookbuilding process.

Figure 2
The SEO process for accelerated bookbuild offers
Row (1) shows the actions known by the market and row (2) shows the actions by the firm/underwriter. The graph is based on Gao and Ritter (2010) and Geddes (2003)

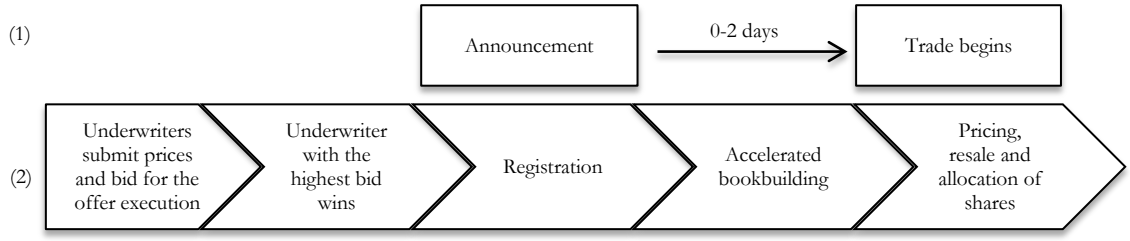


Bought deal

In a bought deal, a firm announces the amount of share it wishes to sell and underwriters bid for the total amount of shares in an auction. The underwriter bidding the highest price wins and re-sells the shares to investors. The bought deal resembles the accelerated bookbuild offer in terms of speed of execution and marketing efforts. The key difference between a bought deal and an accelerated bookbuilding is the higher risk for underwriters in reselling the shares. In a bought deal, the underwriter incurs a loss if the shares are sold below their purchase price. Given these features, bought deals are more common with small issue sizes and well-

known firms (Dealogic, 2014; Latham and Watkins, 2012). Figure 3 depicts the bought deal process.

Figure 3
The SEO process for bought deals
Row (1) shows the actions known by the market and row (2) shows the actions by the firm/underwriter. The graph is based on Gao and Ritter (2010) and Geddes (2003)



As accelerated bookbuilding offers and bought deals reveal similar characteristics they are grouped as accelerated offers for further analysis and statistical inference.

2.3. Non-public issues

2.3.1. Rights issues

Rights issues are one of the most prevalent issue methods of equity in Europe while they are rare in the US (Bortolotti et al., 2008). In a rights issue investors gain the right to purchase new shares proportionally to their existing amount of shares. This ensures that shareholders can maintain their proportional share of equity and avoid diluting the value of their stake, while the company receives additional funds. In some cases shareholders are allowed to sell their rights if they do not wish to execute the right to purchase additional shares (Hillier and Ross, 2013).

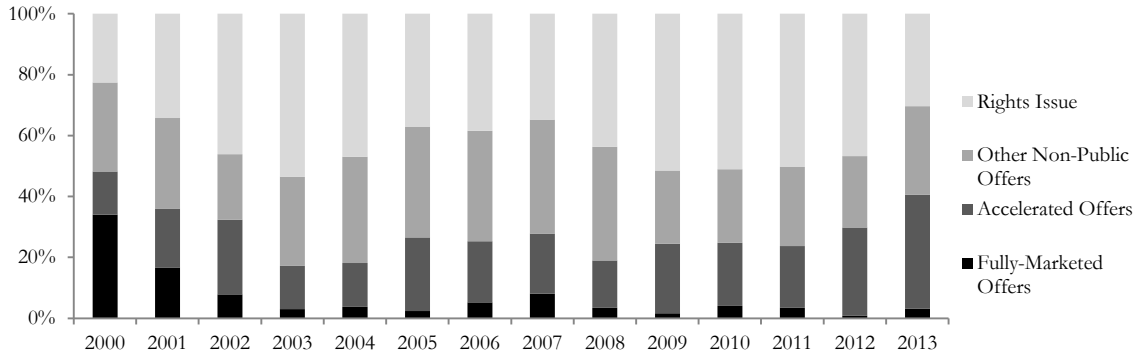
2.3.2. Other offer types

As mentioned earlier in the chapter, secondary offers are sales of large stake of shares from one or more shareholders. These offers are excluded from further discussion based on their non-dilutive nature. In addition to rights issues, guaranteed preferential allocations, cash placings and private placements are offer forms that have been disregarded. Guaranteed preferential allocations are open offers that are offered at prevailing market price giving priority to existing shareholders. Cash placings are small public offers at a fixed price to targeted investors on the UK market. These offers do not have a bookbuilding period. Private placements are placements of securities at an often high offer price discount targeting few private investors. We have excluded these offers from our sample as they differ from bookbuilt public offers.

2.4. The rise of accelerated offers

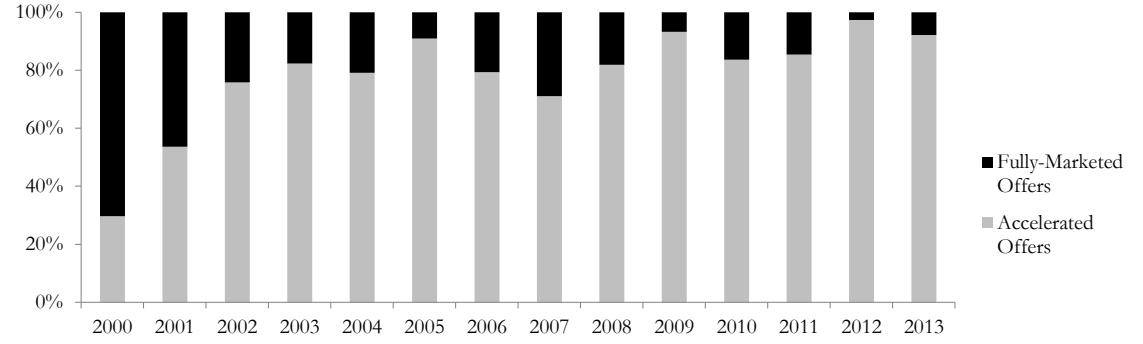
To our knowledge, Bortolotti et al. (2008) are the first to note that accelerated offers (defined as accelerated transactions in their article) have gained a rapidly increasing share of the SEO market since the early 2000s. Accelerated offers have increased from less than 1% of all primary or mixed SEOs in 1994 globally to more than a third of all SEOs in 2004. Using a European sample, Bortolotti et al. (2008) report that accelerated offers amount more than half of all issues during the 2000-2004 period. According to Bortolotti et al. (2008) as accelerated offers have gained market share in Europe, fully-marketed offers have decreased in popularity. A similar conclusion can be drawn using a more recent dataset from the Dealogic database. Figure 4 shows that from 2001 onwards accelerated offer have steadily gained ground as a percentage of total offers and account for more than a third of all issues in 2013 (Dealogic, 2014)

Figure 4
Market share of offer types on the European market
Market shares (measured by total number of offers) of SEO offer types from 2000-2013. Data has been extracted the Dealogic database (2014).



The rise of accelerated offers becomes more evident when analysing the increase in market share of accelerated offers within the public equity issue method segment, as depicted in Figure 5. In 2000, fully-marketed offers still accounted for 70% of all public offers while this figured declined to less than 10% of all public offers in 2013.

Figure 5
Market share of public offers on the European market
Market share (measured by total number of shares) for fully-marketed and accelerated offers respectively. Data has been extracted the Dealogic database (2014).



2.5. Costs of an SEO

Eckbo et al. (2007) summarise the floatation costs that are incurred during SEOs. They divide the costs into direct costs and indirect costs. Direct costs include (i) the underwriting fee, also known as the gross spread and (ii) out-of-pocket expenses to cover accountants, lawyers, listing fees, advertising, roadshow expenses and the cost of management time. Indirect floatation costs include (i) issue discount (or underpricing), (ii) stock price reactions to the announcement of the offer and (iii) cost of delays or cancellations. When firms choose the issuing method firms have an incentive to choose the offer type that minimize the expected total cost of the offer, both direct costs and indirect costs. As we discuss later, these costs have been shown to vary across firms, causing different firms to choose different offer types.

For the comparison between fully-marketed offers and accelerated offers, no clear pattern analysing which offer type has the lowest total cost has been established. Direct costs, measured by the underwriter spread, are not necessarily disclosed in Europe, as opposed to the US (Dealogic, 2014). Hence, the total cost comparison of the two offer types is not possible. Gao and Ritter (2010) note that the average gross spread is respectively 5.1 % for fully marketed offers, 4.2% for accelerated bookbuild offers and 2.3% for bought deals for the US. According to Gao and Ritter (2010) fees for fully-marketed offers are greater than fees for accelerated offers, as underwriters demand a compensation for the additional time and effort spent. It is reasonable to assume that fully-marketed offers also have a higher gross spread for Europe.

As the direct cost is assumedly higher but not observable, it is interesting to analyse if there is a difference in the indirect costs between fully-marketed and accelerated offers. In addition, it may be interesting to analyse which factors are determining the indirect costs. The drivers of indirect costs in seasoned equity offers are discussed in the literature review in Chapter 3. Prior research both on the announcement effect and on discounting and underpricing in SEOs is examined in this context. Research on how these costs affect the choice between capital issue methods is reviewed subsequently.

3. Literature Review

3.1. Abnormal returns around SEOs

A firm's stock negative price reaction upon the announcement of issuing equity has been thoroughly discussed by prior research. Bortolotti et al. (2008) are the first to investigate the announcement effect for accelerated offers and fully-marketed offers and find that the announcement effect for each offer type differs across markets and issue type. Analysing the

US sample they find a more negative announcement effect for fully-marketed offers (-3.1%) than for accelerated offers (-1.3%). In contrast, Gao and Ritter (2010) and Autore et al. (2008) find a more negative announcement effect for accelerated offers (-2.6%) than for fully-marketed offers (-1.7%). On the European market, Bortolotti et al. (2008) find a slightly positive announcement effect for fully marketed offers (+0.1%) and a slightly negative announcement effect for accelerated offers (-0.8%). Given the results from the relatively limited research it is difficult to conclude if there is a persistent difference in the announcement effect for fully-marketed or accelerated offers.

To our knowledge, Autore et al. (2008) conduct the only academic research that attempts to explain why there should be a difference in announcement effects for fully-marketed and accelerated offers. They argue that a difference in announcement effects can be explained by a signalling effect. In the case of information asymmetry between the firm and investors, lower quality issuers have an incentive to choose an accelerated offer to avoid disclosing unfavourable information through a due diligence process. Autore et al. (2008) find that accelerated offers have a significantly more negative announcement effect while controlling for proxies for information asymmetry. However, they note that for accelerated offers the cumulative abnormal returns over the announcement window often overlap the offer date, which can lead to confounding issue-related effects. The significance of their findings can further be questioned as Bortolotti et al. (2008) observe a larger announcement effect for fully-marketed offers than accelerated offers, while Autore et al. (2008) detect the opposite relationship.

While the difference in announcement effects between fully-marketed and accelerated offers has received little attention in academic literature, the negative announcement effect for seasoned equity offerings in general is well documented. Majluf and Myers (1984) relate the negative stock price reaction of equity issues to the lemon's problem proposed by Akerlof (1970). Majluf and Myers (1984) assume that there is asymmetric information between investors and the firm about the intrinsic value of the firm. Acting on behalf of shareholders, managers avoid issuing equity when they believe that the stock is undervalued, as an issue of undervalued equity would imply a cost for existing shareholders. Since investors have less information about the intrinsic value of the firm than insiders, investors perceive an equity issue as a sign that the share is overvalued. Consequently, the stock price is affected negatively.

Furthermore, Dierkens (1991) investigates if a more negative announcement effect can be explained by higher information asymmetry. She finds a negative relationship between information asymmetry and announcement effect by using the stock price reaction of earnings

announcements, the residual volatility of the stock and the trading volume as proxies for information asymmetry. Moreover, Dierkens (1991) argues that the intended use of the offer proceeds affects the returns around announcement. She argues that the market-to-book value can be seen as a proxy for growth opportunities and finds that a higher market-to-book value is associated with a less negative announcement effect. Her results are in line with Denis (1994) who finds a consistent negative announcement effect for SEOs which is less pronounced for young companies with high growth prospects.

Other researchers argue that the increased supply of shares in equity issues puts a downward pressure on the stock price. Asquith and Mullins (1986) claim that the demand curve of the stock is downward sloping, which implies no perfect substitutes for the stock. If a stock has a downward sloping demand curve, issuing equity involves an increased supply of shares on the market and ceteris paribus the stock price will fall (Scholes, 1972). Asquith and Mullins (1986) also find a negative relationship between the size of the equity offer and magnitude of the announcement effect.

As mentioned in Chapter 2.5, the offer price discount in SEOs is an indirect cost for existing shareholders in SEOs. One can assume that if the size of the discount can, to a certain extent, be predicted upon announcement, the expected offer price discount may affect the stock price around announcement. Altinkilic and Hansen (2003) establish a relationship between the discount and the announcement effect and find a more negative announcement effect for issues with a higher expected discount. A detailed overview of prior research on announcement effect can be found in Table I in Appendix A. In the next section prior research on SEO discounting is discussed more thoroughly.

3.2. Discounting in SEOs

In academic literature, the offer price discount and underpricing in SEOs are often used interchangeably. We note that the discount is the difference between the offer price and the stock price *prior* to the issue, while underpricing is the difference between the offer price and the stock price *after* the issue. This definition is consistent with Altinkilic and Hansen (2003).

Bortolotti et al. (2008) show that the discount for fully-marketed and accelerated offers varies both across offer types and markets. On the US market, Bortolotti et al. (2008) observe a higher discount for accelerated offers (3.1%) than for fully-marketed offers (2.5%), which is in line with the discounts observed by Gao and Ritter (2010). Bortolotti et al. (2008) note that the opposite relationship is observed on the European market, where the discount is higher for fully-marketed (7.1%) than for accelerated offers (3.5%). Gao and Ritter (2010) argue that the marketing period in fully-marketed offers flattens the elasticity of demand for the stock.

As a result, stocks with a steep demand curve can reduce their offer price discount by choosing a fully-marketed offer instead of an accelerated offer. According to Gao and Ritter (2010) this may be a possible explanation for the higher discount in accelerated offers as accelerated offers do not have a marketing period that possibly flattens the demand curve for the stocks. It also worth mentioning that Gao and Ritter (2010) find high correlation between information asymmetry and demand elasticity. Huang and Zhang (2011) build upon the findings of Gao and Ritter (2010) and find that the reduction of offer price discounts due to the underwriters' marketing efforts are likely to be greater as relative offer size and stock volatility increase, as these offers face greater price pressure and a more negatively sloped demand curve. While Gao and Ritter (2010) discuss factors that may explain the discount in accelerated offers, accelerated offers have been fairly neglected by other researchers investigating the SEO discount.

Extant research has attempted to explain the factors influencing the offer price discount without distinguishing between fully-marketed and accelerated offers. Most research finds an average observed discount for primary public SEOs around 2-3 %. Note that the sample used for these studies mainly includes fully-marketed offers. Corwin (2003) shows that the average SEO discount has increased since the 1980-1990s. He conducts research on the determinants of SEO discounts in the US market, excluding rights issues. Similar to other researchers Corwin (2003) concludes that larger firms have lower discounts. On the basis of the price pressure theory he argues that relatively larger issues are more discounted and the price pressure effect is more pronounced for securities with relatively inelastic demand. However, Corwin (2003) finds that information asymmetry has a weak effect on the offer price discount.

Mola and Loughran (2004) also note that the offer price discount in SEOs has increased over time. They attribute this observation to increased influence from the investment banking sector, where banks give discounted offers to favourable clients. In addition, Mola and Loughran (2004) find that issues with high uncertainty regarding firm value are associated with higher offer price discounts and consequently attribute the increase in offer price discounts over time to the increase in firms with higher uncertainty. To determine uncertainty about firm value, Mola and Loughran (2004) use issues by technology firms, larger relative offers and issues on NASDAQ as information asymmetry proxies. Moreover, Mola and Loughran (2004) find that underwriters tend to cluster prices by rounding the offer price down to the closest integer, reducing the offer price discount in particular for lower priced stocks. Similar to Kim and Shin (2004) they also find that issues underwritten by more prestigious underwriters (measured by a higher market share) have a lower offer price discount.

Altinkilic and Hansen (2003) propose a placement cost story where larger discounting is necessary to attract capital providers when the offer becomes difficult to place. Furthermore, they argue that the discount consists of an expected part and an unexpected part, where the latter is revealed when the offer price is announced. In addition to a review of prior research presented here, a thorough summary of research on the offer price discount can be found in Table II in Appendix A.

3.3. The choice of equity issue method

As mentioned in Chapter 2.5, firms have an incentive to minimise the expected sum of direct and indirect costs when they decide on an equity issue method. Gao and Ritter (2010) note that academic research regarding choice of equity issue method has mainly concerned the choice between rights issues and public offers. Research on how firms choose between rights issues and public issues is assumed to be less relevant for analysing the choice between fully-marketed and accelerated offers. This reasoning can be derived from the fact that the choice between right issues and public issues often depends on country specific legal aspects. For instance, in the United Kingdom shareholders are protected by pre-emption rights, protecting shareholders from dilution (Geddes, 2003). Therefore, rights offers are often preferred and shareholder approval is needed in the case of public offers. However, once a public offer has been approved, legal aspects do not influence the choice of a public equity issue method as the decision between fully-marketed and accelerated offers does not affect shareholder dilution differently.

Gao and Ritter (2010) note that surprisingly limited research has been conducted on choice between accelerated and fully-marketed offers. As mentioned in chapter 3.2, they find that the marketing period in fully-marketed offers reduce the offer price discount. Gao and Ritter (2010) also note that firms only choose a fully-marketed offer if the reduction in indirect costs from the marketing period is larger than the higher direct costs of a fully-marketed offer. They confirm the hypothesis that firms with a more inelastic stock price are more likely to choose a fully-marketed offer. By including issue specific control variables Gao and Ritter (2010) find that higher market capitalisation, lower deal value, lower relative offer size, higher analyst following and higher bid-ask spreads increases the likelihood of an accelerated offer. Similarly, Bortolotti et al. (2008) note that larger firms tend to choose accelerated offers. They argue that this may be due to larger firms facing less information asymmetry problems as compared to smaller firms.

Information asymmetry has been established as an important factor affecting the choice of financing. In the pecking order theory, Majluf and Myers (1984) argue that due to asymmetric

information between firms and investors, firms only choose to issue equity as a last resort, as investors perceive equity issues as a sign of overvaluation. Consequently the stock price falls when the offer is announced. Fama and French (2005) argue against the pecking order theory as they find that more than 50% of firms violate the pecking order when making financing choices. Fama and French (2005) also argue that an explanation for the amount of firms violating the pecking order is that the theory does not allow for equity issues without asymmetric information problems. They argue that firms seek to issue equity in a way that limits asymmetric information.

Concluding the literature review, it can be stated that extant research has demonstrated that the offer price discount and the announcement effect are affected by similar factors. These factors include but are not limited to proxies for information asymmetry as well as issue specific factors such as the relative offer size. Prior research has also pointed out that firms are concerned about asymmetric information when they choose equity issue method.

4. Development of hypotheses

4.1. Abnormal returns around SEO window

Previous research has found significant negative abnormal returns around the announcement date for SEOs. Possible factor affecting the negative announcement effect are overvaluation of firms conducting SEOs, the size of company, the relative offer size, the expected offer price discount and information asymmetry between firms and investors regarding the intrinsic value of the firm. However, little research has focused on whether these factors affect fully-marketed and accelerated offers differently. Upon announcement of a fully-marketed offer, the expected offer price discount and the probability of success of the offer are many times associated with uncertainty. According to Altinkilic and Hansen (2003) the expected offer price discount has a negative effect on the announcement returns. In addition, Eckbo et al. (2007) argue that the potential failure of an offer is an indirect cost in SEOs that may affect abnormal returns negatively. In accelerated offers, the announcement and execution is often made within a few hours after markets have closed. Therefore, the offer price discount and the success of the offer are often already known when markets react to the announcement accelerated offers. Consequently, we expect the cumulative abnormal returns to be negative but smaller in magnitude for accelerated offers than for fully-marketed offers as there is less uncertainty regarding the offer price discount and success of the offer. This reasoning leads to the formulation of Hypothesis 1a.

H1a: Cumulative abnormal returns are more negative for fully-marketed offers than for accelerated offers around offer.

Following Akerlof's (1970) lemon's problem and Majluf and Myers (1984) information asymmetry affects the CAR of both offer types negatively, as investors only expect firms to issue capital when they are overvalued. In addition, as argued above, the uncertainty arising from the fully-marketed offer process affects CARs negatively. We assume that investors are more uncertain about the expected offer price discount and the success of the offer for firms that exhibit high information asymmetry. Hence, for fully-marketed offers information asymmetry has an additional negative effect on the CARs as it impacts the uncertainty regarding the offer price discount and the success of the offer. On the other hand, for accelerated offers, there is no uncertainty regarding the offer price discount and the success of offer because announcement and execution of the offer is in most cases conducted while markets are closed. Once markets react to the announcement of the offer, the discount and success of the offer are known. The additional impact of information asymmetry on uncertainty for fully-marketed offers leads to the formulation of the following hypothesis:

H1b: Information asymmetry has a stronger impact on the cumulative abnormal return around offer for fully-marketed offers than for accelerated offers.

4.2. Offer price discount

Investors demand compensation for perceived uncertainty about a firm's value when investing in a firm that is issuing capital. As information asymmetry increases the uncertainty about the intrinsic value of a share, it may affect the offer price discount of an SEO. The time period between the announcement and pricing of a fully-marketed offer allows firms to educate investors about the firm's earning prospects, use of proceeds and its intrinsic value. In addition, the elapsed time between announcement and pricing enables investors to conduct due diligence. For fully-marketed offers, one may assume that both the firm's marketing efforts as well as investors' own research contribute to a reduction of information asymmetry. In contrast, little reduction of information asymmetry takes place between the time of announcement and pricing for accelerated offers and investors are required to respond quickly whether to participate in the offer or not. The different length of time between announcement and pricing date for the two offer types is likely to cause a different level of reduction of information asymmetry between the two offer types. Therefore, information asymmetry

measured prior to the announcement of the offer is likely to affect the discount for accelerated offers, but not for fully-marketed offers. This assumption leads to the formulation of the following two hypotheses regarding the offer price discount:

H2a: For fully-marketed offers, levels of information asymmetry established prior to the offer do not have an effect on the offer price discount.

H2b: For accelerated offers, levels of information asymmetry established prior to the offer have an effect on the offer price discount.

4.3. The choice of equity issue method

As mentioned in Chapter 2.5, firms choose the offer type that minimises the expected total costs. Gao and Ritter (2010) find that the direct costs (underwriter fee) for fully-marketed offers are higher than for accelerated offers. Therefore, firms only choose a fully-marketed offer if the indirect costs of the offer are expected to be sufficiently reduced, thereby offsetting the higher direct cost. As hypothesised above, information asymmetry is expected to affect the discount negatively if there is no marketing period before the offer. Information asymmetry can be reduced in fully-marketed offers, as investors are educated about the firm during the roadshow. Hence, for high levels of information asymmetry the reduction of the discount for a fully-marketed offer may be larger than the direct costs incurred. Furthermore, a fully-marketed offer may be a necessary action for a firm that has high information asymmetry, as shares might be difficult to place in an accelerated offer. Thus, firms with high information asymmetry choosing accelerated offers risk a failure of the offer or the placement of shares at a very high discount. This leads to the formulation of the last hypothesis.

H3*: Firms with relatively high information asymmetry are more likely to choose a fully-marketed offer than an accelerated offer.*

5. Data Selection

5.1. Description of sample

Data has been extracted from the Dealogic Equity Capital Markets (ECM) Analytics database (2014) and Datastream (2014) for the time period 2000-2013. Data has been extracted for all SEOs that have been carried out in the European Union (EU) by firms originated in the EU. Closed End Funds, REITs[2], secondary offers and offers that have a deal size smaller than

[2] Real Estate Investment Trusts

$25m have been excluded, in line with Corwin (2003) and Mola and Loughran (2004). Given their deviating nature from public bookbuilt offers, we have excluded rights issues, guaranteed preferential allocations, cash placements and private placements. Data entries from Dealogic that appear incomplete and did not offer a possibility for manual reconstruction have also been deleted. Moreover, firms whose stock price or information asymmetry proxies could not be traced in Datastream have been removed. Issues that offered warrants as part of their deal or were classified as an ABSA[3] deal have been deleted as their offer pricing deviates from other public offers. From an initial sample of 4,148 deals our sample is reduced to 553 observations. Table 2 describes how the data sample was constructed in detail.

Table 2
Sample construction
The table describes the derivation of the sample from the initial raw data.

	Sample Size
SEOs in the European Union 2000-2013, excl. REITs, Closed End Funds and deals <$25m	**4,148**
Pure secondary offerings	-1,634
Rights Issues	-1,043
Guaranteed Preferential Allocations	-273
Cash Placings	-488
Full sample of public offers	**710**
Observations with incomplete Dealogic information	-50
Observations that reveal a warrant or ABSA component	-24
Observations that have missing information on stock prices or information asymmetry proxies	-83
Final sample	**553**

From the 157 public offer issues that were erased due to missing information, 79 accelerated bookbuilds, 8 bought deals and 70 fully-marketed offers have been deleted. Hence fully-marketed deals have been deleted disproportionally much, lowering the initial ratio of fully-marketed to accelerated offers from 25.5% to 20.1%. Since we hypothesise that fully-marketed offers have higher information asymmetry, we see an irony in the fact that data on these firms is relatively more difficult to find. Table 3 shows the number of the remaining SEOs for each year and the different offer types. The table shows that the overall level of equity issues is highly volatile and dependent on overall macroeconomic conditions. From Table 3 it also becomes evident that accelerated bookbuild offers are the most popular issue method and that its popularity has increased over time, peaking in 2009. On the other hand, fully-marketed offers have declined over time, except for an increase in fully-marketed offers in 2007. Our sample includes few bought deals, which might be because issues with an issue size smaller than $25m have been excluded. As banks fully purchase the entire deal size when executing a

[3] ABSA is the abbreviation for *action à bon de souscriptiond'action* which is the French equivalent to a share issue with a warrant

bought deal, these offer imply a higher risk for banks. Therefore bought deals are more common for smaller issue sizes.

Table 3

Sample summary statistics
The sample includes 553 seasoned equity offerings from the Dealogic ECM Analytics database between 2000-2013 with an issue size greater than $25 million. The issuing firm must be from a EU member country and have made its offer on of the stock exchange of the EU. Secondary offers, rights offers, guaranteed preferential agreements and cash placings have been excluded. In addition, Closed-End Funds and REITs are excluded from the sample. 157 observations have been excluded due to unavailability of complete deal information or stock prices. Number presents the amount of successfully completed offers by offer type and year. Proceeds are the total amount of proceeds raised in billions of € including exercised overallotment shares.

	All SEOs		Accelerated bookbuilds		Bought deals		Fully-marketed offers	
Year	Number	Proceeds (€bn)	Number	Proceeds (€bn)	Number	Proceeds (€bn)	Number	Proceeds (€bn)
All	553	168,369	422	12,409	20	2,938	111	41,336
2000	63	31,693	17	537	8	1,723	38	24,600
2001	37	18,351	18	1,250	2	172	17	5,675
2002	27	10,006	23	907			4	938
2003	15	2,067	13	200		0	2	67
2004	21	5,194	14	441	3	401	4	381
2005	46	13,632	44	1,352			2	113
2006	47	17,519	37	1,581	3	434	7	1,279
2007	64	14,285	42	1,122	2	121	20	2,947
2008	25	7,775	22	747			3	302
2009	67	15,577	62	1,535	1	62	4	163
2010	44	4,679	39	433			5	350
2011	37	12,493	32	800	1	25	4	4,467
2012	35	9,536	34	948			1	54
2013	25	5,563	25	556				

5.2. Description of variables

5.2.1. Information asymmetry proxies

In this chapter we discuss the reasoning for the chosen proxies for information asymmetry and how the variables have been retrieved. One can argue that there is no perfect measurement for information asymmetry. Information asymmetry proxies have been chosen based on identified proxies by other researchers and the availability and reliability of the data. In order to identify the degree of information asymmetry between the public and the firm, we use the following proxies: (i) equity research coverage (ii) public firm age (iii) bid-ask spread (iv) stock return volatility (v) bookrunner prestige.

Equity research analyst coverage

Equity analysts provide estimates about the fair value of shares and their earnings prospects. Therefore, higher equity research analyst coverage should be associated with lower information asymmetry. Equity analyst coverage as an information proxy is, for example, also used by Autore et al. (2008), Chen and Schatzenberg (2010) and Wu (2004) in the context of equity issue choice and by Huang and Zhang (2011) in the context of SEO discounts. The number of equity analysts covering a stock has been retrieved from the I/B/E/S database

(2014). Equity research analyst coverage is measured as the number of analysts providing EPS (Earnings per share) estimates for the forthcoming fiscal year from six months before the announcement until the announcement date.

Public firm age

Firms that have been public longer provide more information on historical performance and are better known by investors. A firm that has been publicly listed for a long time is therefore associated with lower information asymmetry. Public firm age as a proxy for information asymmetry is used by Cronquist and Nilson (2004), Wu (2004) and Autore et al. (2008) in the context of equity offer method and by D'Mello et al. (2011) in the context of returns around announcement. Public firm age is retrieved from Thomson Reuters Datastream where historical company data dating more than 40 years back in time is available. This implies that firms can have a maximum age of 40 years in our sample. However, it is fair to assume that information dating back more than 40 years does not decrease information asymmetry.

Bid-ask spread

The bid-ask spread measures the cost of a trade and can be seen as an indirect measure of liquidity, where more illiquid stocks have higher bid-ask spreads. The bid-ask spread is the difference of the price for buying a stock from a dealer (ask price) and selling the stock to a dealer (bid price) at the same point in time. The bid-ask spread is calculated using the adjusted bid and ask price in Datastream, using (1).

$$\text{Bid} - \text{ask spread} = \frac{\text{Ask price} - \text{Bid Price}}{\text{Price midpoint}} * 100 \quad (1)$$

In our calculations the 6-month average bid-ask spread is deployed, ending 10 days prior the announcement day. A small bid-ask spread indicates that more buyers and sellers take part in the pricing building process. The more buyers and sellers take part in the pricing building process, the more opinions about the intrinsic value of a firm are revealed. Hence one may argue that a narrower bid-ask spread is associated with lower information asymmetry. This reasoning is in line with Jeppson (2013), Wu (2004) and Barners and Walkers (2006) who deploy the same variable in the context of equity offer methods and Kim and Park (2005) who apply bid-ask spread for estimating the impact of information asymmetry on offer price discounts.

Stock volatility

A high stock volatility is associated with more uncertainty about the intrinsic value of a firm than a stock with low volatility. Barnes and Walker (2006) use standard deviation of daily returns to approximate information asymmetry for the choice of equity issue. Similarly,

Corwin (2003) and Altinkilic and Hansen (2003) employ stock return volatility to measure the impact of information asymmetry on offer price discounts. Stock return volatility is measured as the average standard deviation of daily stock returns over one months, ending 10 days before announcement of the equity offer.

Bookrunner prestige

If a leading bank is underwriting the offer, investors are likely to assume that prior due diligence has been taking place by the underwriter. Furthermore, the bank risks losing its reputation if the offer is unsuccessful or followed by a sharp drop in the stock price. Therefore, using a prestigious bookrunner is considered to have a certification effect that reduces information asymmetry and in turn the offer price discount. Autore et al. (2008) and Huang and Zhang (2011) reason similarly and use underwriter's reputation as a proxy for information asymmetry. Bookrunner prestige is defined as a dummy variable that takes the value of 1 if the bookrunner is considered as prestigious. In our estimate, a bookrunner is considered as prestigious if the bank has been in the Top 10 of the Dealogic ECM EMEA league table in the respective year (Dealogic, 2014).

Summary of expected signs

Table 4 shows the sign of the information asymmetry variable we expected to see if information asymmetry has an impact on the respective dependent variable.

Table 4
Summary of information asymmetry variables and expected sign
The table shows the information asymmetry variables in the first column and the dependent variables for the different hypotheses in the first row. Note that the variable choice of equity issue method is dichotomous and takes the value of 1 for a fully-marketed offer.

	CAR during SEO window	Offer price discount	Choice of equity issue method
Analyst Following	(+)	(−)	(−)
Public Firm Age	(+)	(−)	(−)
Bid-ask Spread (%)	(−)	(+)	(+)
Stock Volatility	(−)	(+)	(+)
Prestigious Bookrunner	(+)	(−)	not included

5.2.2. Control variables

6 Months share run up

Higher share prices imply that firms receive more capital per offered share. Prior academic literature has argued that firms time equity issues, taking advantage of a positive share performance or stock overvaluation (Majluf and Myers, 1984; Eckbo et al., 2007). The share run up is calculated as the buy and hold return of the share adjusted share prices 6 months prior to the offer, ending 10 days before the offer. Share prices have been extracted in Datastream (2014).

Market-to-book ratio

Prior research has argued for the market-to-book as a measurement of growth opportunities (Denis, 1994; Eckbo et al., 2007). Rhodes-Kropf et al. (2005) argue that the market-to-book value can be decomposed into two parts: growth opportunities and mis-valuation. One can assume that high growth opportunities should imply a less negative announcement effect or lower discount, while overvaluation would imply the opposite. Either way, the market-to-book value can be considered as an important control variable. The market-to-book value is measured 10 days before announcement and has been extracted from Datastream (2014).

Relative offer size

Relative offer size indicates the amount of primary shares offered as a percentage of the total market value of the firm prior to the offer. A larger relative offer size is expected to increase the offer price discount. According to the price pressure hypothesis, an increase in supply reduces the offer price if stocks have a downward sloping demand curve (Scholes, 1972). Masulis and Korwar (1986) also find that the relative offer size has a negative effect on announcement returns for SEOs. The relative offer size may also influence the equity issue choice, as larger stakes may demand more marketing efforts (Gao and Ritter, 2010). Relative offer size is calculated by dividing deal value by market capitalisation, where data is retrieved from Dealogic (2014).

Market capitalisation

Larger firms have more visibility in media and have more detailed quarterly and annual reports, which implies lower information asymmetry. Prior research has used firm size, measured by market capitalisation as a proxy for information asymmetry (Aboody and Lev, 2000). Furthermore, market capitalisation has shown to have an effect on the abnormal return around announcement (Asquith and Mullins, 1986), the offer price discount (Corwin, 2003) and equity issue method (Gao and Ritter, 2010). As the market capitalisation reveals high correlation with the other information asymmetry variables, we have included market capitalisation as the last control variable in our regressions. Market capitalisation has been retrieved from Dealogic (2014) and checked against values in Datastream (2014).

Time lag

The time lag between announcement date and trade date in fully-marketed offers can cause a bias in the calculation of cumulative abnormal return given the larger event window as other events than the SEO can affect the abnormal returns. In addition, one can argue that

uncertainty about the success of an offer increases as the time lag becomes larger. The time lag variable is only included in the analysis of the cumulative abnormal returns around the offer.

Year and country dummies

We add year and country dummies to control for time and regional fixed effects. Adding year dummies ensures that the analysis on the equity issue type, the discount and the abnormal returns is not influenced by a time trend. The country dummies control country characteristics such as different legal systems.

5.2.3. Delimitation of choice of information asymmetry and control variables

In this section, we will shortly discuss some information asymmetry proxies proposed by other authors that have been disregarded.

Trading volume

Stocks with lower trading volume are considered to be less liquid and are associated with more uncertainty about value. Furthermore, price pressure effect from additional shares outstanding is expected to be more pronounced for more illiquid stocks. Trading volume or share turnover (measured as the trading volume divided by the average number of shares outstanding) has been employed by researchers such as Dierkens (1991). We do not include the trading volume, as it is difficult to establish the aggregated trading volume for European stocks, both in Datastream and Bloomberg. Most European stock trade on multiple stock exchanges and hence the trading volume has to be considered as an aggregate of trading volumes of all exchanges. Unfortunately, the aggregated data is not available on Datastream. Similarly, on Bloomberg aggregated trading volumes of European stocks are only available from 2007. As not aggregating trading volumes would underestimate the liquidity of some shares significantly, we decide not to include the trading volume. It can also be argued that the information asymmetry variable bid-ask spread accounts for liquidity.

Standard deviation of EPS forecast

Standard deviation of EPS forecasts of equity research analysts is another proxy for information asymmetry, for example deployed by Gomes and Philips (2012) or Rinne and Suominen (2009). The variable demonstrates if consensus among research analyst on the intrinsic value of a share exists. The variable can only be defined for stocks that have analyst coverage larger than 1. As this would dismiss more than 100 observations from our sample, we decide not to include the variable.

Institutional shareholding (%)

High institutional shareholding is associated with better-informed investors, indicating a lower information asymmetry between firm and investors. The variable has for instance been used by Autore et al. (2008), Wu (2004) or D'Mello et al. (2011) to approximate for information asymmetry. Unfortunately we cannot include this variable due to limited availability of data on institutional shareholding in Europe. Thomson Reuters Institutional (13f) Holdings database only reports shareholding for US listed firms. Bloomberg, on the other hand, has only collected shareholder data since 2007.

6. Methodology

6.1. Statistical significance

A two-sided t-test for an unpaired sample is used to establish whether the means between the offer subgroups differ statistically with regard to the asymmetric information variables as well as the control variables. We consider the student's t-test to be appropriate as the sample is normally distributed with independent subgroups. However, as the two groups reveal unequal variances, Welch's adaption to the t-test is deployed. The t-statistic of this t-test, which is used to calculate the p-value, is defined as

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}} \tag{2}$$

where $\bar{x}_1$,$\bar{x}_2$ are the respective means of the subsamples and s_1, s_2 and N_1, N_2 their respective standard deviation and sample size (Welch, 1947).

6.2. Event Study

6.2.1.The market model

The market model is a linear statistical model, which relates the return of any given security to the return of the market portfolio. For any given security the market model is

$$R_{it} = \alpha + \beta_i R_{mt} + \varepsilon_{it} \tag{3}$$

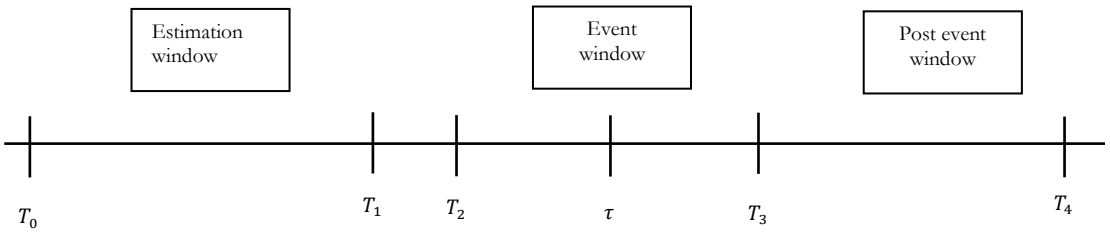
$$E(\varepsilon_{it} = 0) \qquad var(\varepsilon_{it}) = \sigma_{\varepsilon_i}^2$$

where R_{it} and R_{mt} are the period t returns on respectively the security i and the market portfolio, and α, β_i and $\sigma_{\varepsilon_i}^2$ are the parameters estimated by the market model (MacKinlay,

1997). Other potential models for measuring abnormal return include the Fama-French Three-factor model. MacKinlay (1997) argues that more complex factor models reduce little of the variance in the abnormal return and that the explanatory power of additional variables.

Figure 6
The event study window

In the estimation window $L_1 = T_1 - T_0$ the α, β and ε term for each stock is calculated using an OLS regression with stock returns as the dependent variable and local market returns as an independent variable. To avoid potential announcement effects on the parameter estimations there are 6 days between T_1 and T_2. The event window, for which cumulative abnormal return is calculated, is $L_2 = T_3 - T_2$ with τ being the event date.



For each security the estimation window for calculating the parameters is 1 year ending 10 days before announcement of the offer. 34 of our observations do not have security prices dating back to the beginning of the estimation period. For these observations, the maximum possible days in the estimation window is used. However, as the lowest estimation window is 126 trading days, we consider this estimation window as sufficient for measuring the parameters. Each security has been matched to its local market listing for the parameter estimation. In estimating our parameters we run an ordinary least squares (OLS) regression with the daily security return as the dependent variable and the daily market return as the independent variable. The formulas for the parameter estimation is as follows:

$$\hat{\beta}_i = \frac{\sum_{\tau=T_0+1}^{T_1}(R_{m\tau}-\hat{\mu}_i)(R_{m\tau}-\hat{\mu}_m)}{\sum_{\tau=T_0+1}^{T_1}(R_{m\tau}-\hat{\mu}_m)^2} \tag{4}$$

$$\hat{\alpha}_i = \hat{\mu}_i - \hat{\beta}_i\hat{\mu}_m \tag{5}$$

$$\hat{\sigma}_{\varepsilon_i}^2 = \frac{1}{L_1 - 2} * \sum_{\tau=T_0+1}^{T_1}(R_{i\tau} - \hat{\alpha}_i - \beta_i R_{mt})^2 \tag{6}$$

The mean return of the market and the security is calculated as

$$\hat{\mu} = \frac{1}{L_1}\sum_{\tau=T_0+1}^{T_1} R_\tau \tag{7}$$

6.2.2. Calculating abnormal return

The abnormal return is the disturbance term of the market model, implying the difference between the actual return and the expected return predicted by the market model.

$$\widehat{AR}_{i\tau} = R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{mt} \tag{8}$$

Under the null hypothesis, conditional on the event window market returns, the abnormal returns is jointly normally distributed with a zero conditional mean and variance $\sigma^2(\widehat{AR}_{i\tau})$ where

$$\sigma^2\left(\widehat{AR}_{i\tau}\right) = \sigma_{\varepsilon_i}^2 + \frac{1}{L_1}\left[1 + \frac{(R_{m\tau} - \hat{\mu}_m)^2}{\hat{\sigma}_m^2}\right] \tag{9}$$

The variance of estimated abnormal return consists of disturbance variance in $\sigma_{\varepsilon_i}^2$ and sampling error in estimating $\hat{\alpha}$ and $\hat{\beta}$ from the market model. The abnormal return observations are aggregated across time and securities in order to draw overall inferences regarding the offers. Cumulative abnormal return is calculated as follows:

$$\widehat{CAR}(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} (\overline{AR_\tau}) \tag{10}$$

with the variance of the CAR for each event and a large L_1 being

$$\sigma_2(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} (\tau_2 - \tau_1 + 1)\sigma_{\varepsilon_i}^2 \tag{11}$$

The aggregation across events windows and observed events relies on the assumption that there is no overlap in the event windows of the included index returns (i.e. no clustering of events).

6.2.3. Event window

In order to measure the abnormal stock price impact for seasoned equity offerings we conduct an event study from 3 days before the announcement of the SEO to 3 days after the SEO has been executed. This event window poses certain measurement problems, as the event windows differ significantly between accelerated offers and fully marketed offers. However, the long event window is necessary to capture both the effect of announcement of the offer and the discount. While these effects occur simultaneously for accelerated offer, this is not the case for fully marketed offers. Measuring abnormal return over announcement therefore leads to confounding effects as noted by Autore et al. (2008).

6.3. Offer price discount

The offer price discount of each security i calculated as

$$OPD_i = \frac{P_{M_i} - P_{O_i}}{P_{M_I}} \tag{12}$$

where P_M is the closing price of the security i on the day before the offer was made and P_O is the offer price of the SEO, as reported by Dealogic (2014).

6.4. Ordinary Least Squares regression

OLS regressions are applied in order to test for the impact of information asymmetry on the offer price discount as well as the cumulative abnormal returns around announcement and trade date. Formally, the ordinary least square regression is that

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_K X_{Ki} + \varepsilon_i \quad (13)$$

where X_1, X_2, X_K are independent variables. In a sample of *n* observations on variables Y, X_1, X_2, X_K the ordinary least square regression is deployed to fit the equation

$$\check{y} = \check{\beta}_o + \check{\beta}_1 X_1 + \check{\beta}_2 X_2 + \check{\beta}_K X_k \quad (14)$$

so that $\check{\beta}_1, \check{\beta}_2, \check{\beta}_K$ minimize the sum of squared residual (Woolridge, 2008). For the regressions we use robust standard errors to correct for heteroskedasticity and cluster standard errors on issuer level. As our sample contains few firms that issue capital multiple times during our sample period, the clustering of standard errors on issuer level controls for a possible correlation of standard errors within firm level. In addition, we use a partial F-test to compare the complete model to its reduced version . The F-statistics is calculated by equation (15):

$$F = \frac{(SSE_R - SSE_C)/(DF_R - DF_C)}{SSE_C/DF_C} \quad (15)$$

Where SSE is the sum of squares due to error for the reduced and complete model and DF are the respective degrees of freedom of each estimate.

6.5. Logit model

In H3 we test whether relatively higher information asymmetry increases the likelihood to choose a fully-marketed offer. Hence, for the binary output variable Y, we want to model the conditional probability (Pr Y=1|X=x) as a function of x. In order to ensure that the probability takes a value between 0 and 1 and is bounded logistic transformation is applied, modifying p(x) to $\ln\frac{p}{1-p}$. Formally, the logistic regression is that

$$\ln\frac{p}{1-p} = b_o + b_1 X_1 + b_k X_k \quad (16)$$

Solving for p gives

$$p = \frac{e^{b_o + b_1 X_1 + b_k X_k}}{1 + e^{b_o + b_1 X_1 + b_k X_k}} = \frac{1}{1 + e^{-(b_o + b_1 X_1 + b_k X_k)}} \quad (17)$$

In addition, the marginal effects $\frac{\partial P(y=1|X)}{\partial x}$ are calculated and reported in the output (Woolridge, 2008).

7. Results

7.1. Abnormal returns around SEO execution window

7.1.1. Hypothesis 1a

As explained in Chapter 6.2.3, cumulative abnormal return is calculated from three days before announcement to three days after trade. The mean (median) time between announcement and trade is 0.4 (0) days for accelerated offers and 18.9 (13) days for fully-marketed offers. This results into a median estimation window of 6 days for accelerated offers and 19 days for fully-marketed offers. In order to test for a significant difference in the cumulative abnormal returns between fully-marketed offers and accelerated offers, Welch's t-test is applied. This test can be considered to be most appropriate as the two subsamples are normally distributed but reveal differences in variances. Table 5 shows the result on the difference in means.

Table 5

Mean difference of CARs between accelerated offers and fully-marketed offer
Welch's t-test tests for H1a. The tested variable is the mean of cumulative abnormal return starting three days before the announcement date and ending three days after the trade date. The sample is derived from the Dealogic database and is comprised of all public offers in the European Union from 2000 to 2013 excluding Closed-End Funds, REITs, issue sizes smaller than $25m and the observations discussed in 5.1.

Group	Observations	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Accelerated offers	442	-0.0171	0.0037	0.0775	-.02439	-0.0099
Fully-marketed offers	111	-0.0576	0.0201	0.2123	-.09733	-0.0178
Combined	553	-0.0253	0.0050	0.1187	-.03523	-0.0154
Difference		0.0404	0.0204		0.0000	0.0808

difference = mean (accelerated offer) - mean(fully-marketed offer)		t=1.9824
		df = 118.721
Ha: diff < 0	Ha: diff != 0	Ha: diff > 0
Pr(T < t) = 0.9751	Pr(|T| > |t|) = 0.0497	Pr(T > t) = 0.0249

Table 5 shows that the mean CAR for accelerated offers is -1.71% and for fully-marketed offers the mean CAR -5.76%. Welch's t-test shows that the means are different at a 5% significance level. The result of the t-test can therefore be regarded as evidence for H1a, as the cumulative abnormal returns are significantly larger for fully-marketed offers.

Figure 7 shows the daily abnormal return for fully-marketed offers and accelerated offers around announcement. From the graph we can see that the announcement effect for accelerated offers and fully-marketed offers are similar. Figure 8 shows the daily abnormal return around the offer date for fully-marketed and accelerated offers. The abnormal returns for accelerated offers in Figure 7 and 8 are similar since accelerated offers are usually announced and offered on the same date. Figure 8 shows that fully-marketed offers appear to have a negative abnormal return prior to the offer date, indicating a negative abnormal return between announcement date and offer date. This observation is in line with the finding from

Table 5 that the CAR over a (-3,3) window around the whole SEO execution is significantly larger in absolute terms for fully-marketed offers than for accelerated offers.

Figure 7
Abnormal return over the (-2,2) window around announcement date
The figure shows the average daily abnormal return from two days before the announcement of the offer until two days after the announcement.

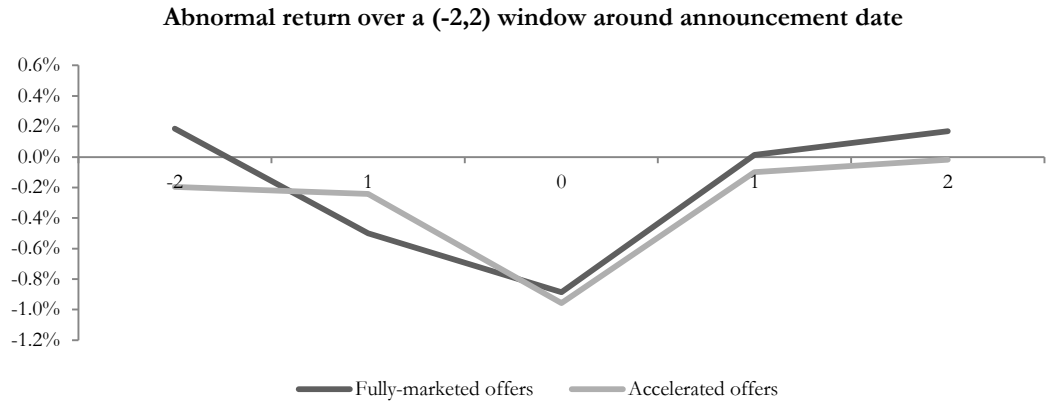
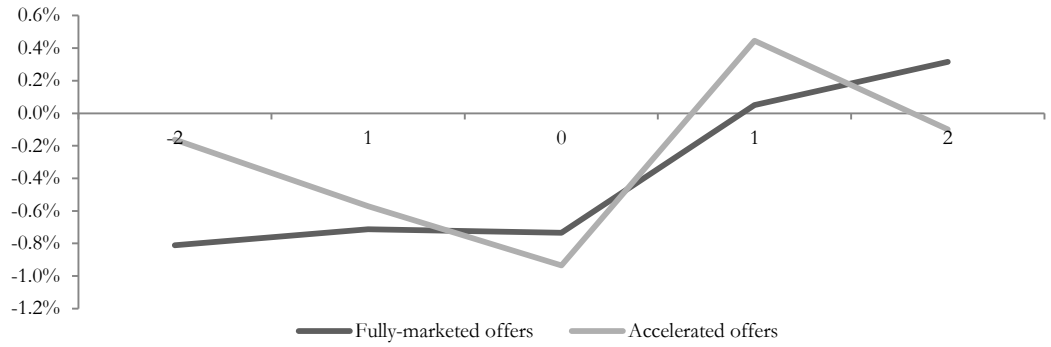


Figure 8
Abnormal return over the (-2,2) window around offer date
The figure shows the average daily abnormal return from two days before the offer date until two days after the offer.



7.1.2. Hypothesis 1b

7.1.2.1. Bivariate analysis

We investigate the impact of information asymmetry on the cumulative abnormal returns over the (-3,3) SEO execution window for both offer types by first analysing bivariate relationships between the CARs and the information asymmetry variables. Information asymmetry and control variables are grouped in quartiles and mean CARs for each quartile are calculated. Figure 9 shows the bivariate relationship between information asymmetry and control variables compared to the CAR over a (-3,3) window around the SEO execution for fully-marketed offers.

Figure 9: CARs around SEO execution window vs. information asymmetry and control variables for fully-marketed offers

Figure 9: The cumulative abnormal returns starting three days before the announcement date and ending three days after announcement against several information asymmetry and control variables. The sample is derived from the Dealogic database and is comprised of all fully-marketed offers in the European Union from 2000 to 2013 exluding Closed-End Funds, REITs, issue sizes smaller than $25m and the deleted observations discussed in 5.1. A definiton of the variables can be found in Chapter 5.2.The mean cumulative abnormal returns are measured within the respective quartiles of information asymmetry and control variables (lowest I to highest IV) or in the case of the Prestigious Bookrunner by Yes or No.

The graphs reveal the expected patterns for analyst following, stock volatility and prestigious bookrunner. Firms with higher analyst following and firms using a prestigious bookrunner are associated with less negative CARs, while firms with higher stock volatility are associated with more negative CARs. The patterns are unclear for other variables. Figure 10 shows the bivariate relationship between information asymmetry and control variables compared to the CAR over a (-3,3) window around the SEO execution for accelerated offer.

Figure 10: CARs around SEO execution window vs. information asymmetry and control variables for accelerated offers

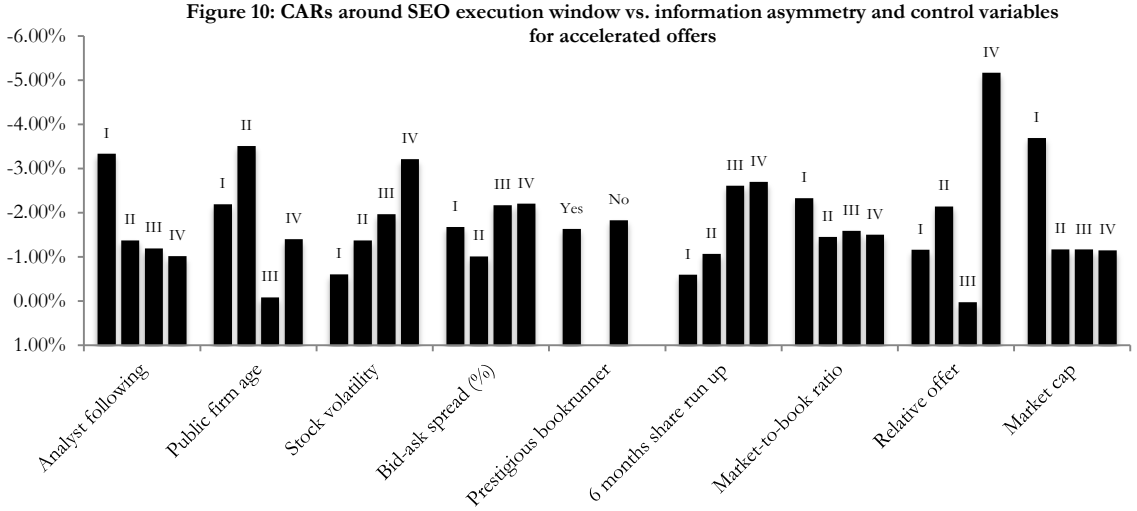


Figure 10: The cumulative abnormal returns starting three days before the announcement date and ending three days after announcement against several information asymmetry and control variables. The sample is derived from the Dealogic database and is comprised of all accelerated offers in the European Union from 2000 to 2013 exluding Closed-End Funds, REITs, issue sizes smaller than $25m and the deleted observations discussed in 5.1. A definiton of the variables can be found in Chapter 5.2. The mean cumulative abnormal returns are measured within the respective quartiles of information asymmetry and control variables (lowest I to highest IV) or in the case of the Prestigious Bookrunner by Yes or No.

Figure 10 resembles Figure 9 for fully-marketed offers and reveals some expected patterns. Firms with higher analyst following and firms using a prestigious bookrunner have less negative CARs, while firms with higher stock volatility have more negative CARs. Analysing the control variables, accelerated offers with a higher share run up have more negative CARs. A slight pattern indicates that firms with higher market capitalisation have lower CARs. Other variables show no pronounced pattern.

In H1b we hypothesise that information asymmetry has a more pronounced impact on CARs for fully-marketed offers than for accelerated offers. The relatively similar patterns in the bivariate analysis for CARs in fully-marketed and accelerated offers indicate evidence against H1b. In order to further investigate whether information asymmetry has a larger impact on the CAR for fully-marketed than accelerated offers, a multivariate interaction model is deployed in 7.1.2.2.

7.1.2.2. Ordinary Least Squares (OLS) analysis

OLS is applied to assess the joint impact of information asymmetry on the cumulative abnormal returns for both offer types. As hypothesised in H1b we expect information asymmetry to have a more pronounced impact on CARs for fully-marketed offers than for accelerated offers. In order to test the joint impact of information asymmetry on both offer types, we add the interaction terms FM∗ Ln(1+Analyst following), FM∗ Ln(1+Public firm age), FM∗Stock volatility, FM∗Bid-ask spread and FM*Prestigious Bookrunner where FM is an abbreviation for fully-marketed. If H1b holds, we expect the interaction terms FM∗ Ln(1+Analyst following), FM∗Ln(1+Public firm age) and FM∗Prestigious Bookrunner to be positive and the interaction terms FM∗Stock volatility and FM∗Bid-ask spread to be negative. Significance for the interaction term and the expected signs would imply that the effect of information asymmetry on the CARs is more pronounced for fully-marketed offers than for accelerated offers, as postulated in H1b. Estimate (1) is significant at 5% for the non-interacted variable of analyst following, showing that firms with higher information asymmetry have less negative CARs, regardless of offer type. The joint variable for analyst following is insignificant for all other estimates, but reveals the expected positive sign throughout. Estimates (4)–(10) shows that the variable FM ∗ Ln(1+analyst following) is significant at 5-10% level. Taking the bivariate analysis in Figure 9 and Figure 10 into account, Table 6 provides little evidence for an effect of analyst following on the CAR for both offer types, as analyst following is only significant estimate (1). However, estimates (4)–(10) provide some evidence for analyst following affecting the CARs in fully-marketed offers more than in accelerated offers as the interaction term is significant.

Table 6

Ordinary Least Squares regression on CARs around SEO window
The regression tests Hypothesis 1b. The dependent variable is cumulative abnormal returns starting three days before the announcement date and ending three days after the trade date. The sample is comprised of all public SEOs in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1.Log transformation is applied for the number of analysts following a stock, the public firm age, market capitalisation and time lag. FM is a dummy and used as an abbreviation for fully-marketed offers. Interaction terms are added to the model, multiplying the information asymmetry variables with the fully-marketed offer dummy. Year and country dummies are added to every regression in order to control for country specific fixed effects as well as time fixed effects. Standard errors are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable: CAR (-3,+3)										
Constant	**-0.026**	**-0.030**	**-0.024**	**-0.033**	**-0.032**	**-0.025**	**-0.020**	**0.005**	**0.054**	**0.037**
	(0.023)	(0.025)	(0.028)	(0.028)	(0.028)	(0.027)	(0.028)	(0.030)	(0.098)	(0.095)
FM	**-0.052**	**-0.061**	**0.063**	**-0.017**	**-0.015**	**-0.029**	**-0.030**	**-0.018**	**-0.017**	**0.093***
	(0.034)	(0.043)	(0.061)	(0.055)	(0.054)	(0.046)	(0.046)	(0.045)	(0.046)	(0.056)
Ln (1+Analyst following)	**0.011****	**0.010**	**0.008**	**0.009**	**0.010**	**0.005**	**0.005**	**0.002**	**0.004**	**0.003**
	(0.005)	(0.006)	(0.006)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)
FM*Ln (1+Analyst following)	**0.022**	**0.021**	**0.020**	**0.040****	**0.042****	**0.038***	**0.039***	**0.038***	**0.037***	**0.030***
	(0.019)	(0.020)	(0.019)	(0.019)	(0.020)	(0.020)	(0.020)	(0.021)	(0.021)	(0.020)
Ln (1+Public firm age)		**0.003**	**0.003**	**0.004**	**0.004**	**0.003**	**0.002**	**0.001**	**0.002**	**0.001**
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
FM* Ln (1+Public firm age)		**0.007**	**-0.010**	**-0.007**	**-0.007**	**-0.004**	**-0.006**	**-0.002**	**-0.001**	**0.007**
		(0.022)	(0.024)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.019)
Stock volatility			**-0.143**	**-0.120**	**-0.118**	**0.395**	**0.429**	**0.505**	**0.510**	**0.512**
			(0.442)	(0.444)	(0.446)	(0.448)	(0.438)	(0.392)	(0.396)	(0.371)
FM*Stock volatility			**-3.314***	**-4.315****	**-4.324****	**-2.900****	**-2.899****	**-3.061*****	**-3.094*****	**-2.925*****
			(1.776)	(1.751)	(1.751)	(1.188)	(1.173)	(1.175)	(1.180)	(1.091)
Bid-ask spread (%)				**0.226**	**0.216**	**0.049**	**-0.033**	**0.233**	**0.193**	**0.205**
				(0.561)	(0.562)	(0.550)	(0.550)	(0.573)	(0.582)	(0.603)
FM*Bid-ask spread (%)				**4.813*****	**4.810*****	**4.098*****	**4.176*****	**4.302*****	**4.338*****	**4.679*****
				(1.546)	(1.566)	(1.450)	(1.442)	(1.448)	(1.450)	(1.460)
Prestigious Bookrunner					**-0.001**	**0.000**	**-0.001**	**-0.001**	**0.001**	**0.000**
					(0.010)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)
FM*Prestigious Bookrunner					**-0.011**	**-0.027**	**-0.028**	**-0.022**	**-0.022**	**-0.011**
					(0.041)	(0.037)	(0.037)	(0.037)	(0.037)	(0.035)
6 month share run up						**-0.029*****	**-0.028****	**-0.029*****	**-0.028*****	**-0.026****
						(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Market-to-book value							**-0.001**	**-0.002**	**-0.002**	**-0.002****
							(0.001)	(0.001)	(0.001)	(0.001)
Relative offer size (%)								**-0.149*****	**-0.158*****	**-0.143****
								(0.056)	(0.057)	(0.059)
Ln (Market Cap)									**-0.003**	**-0.001**
									(0.005)	(0.005)
Ln (1+Time lag)										**-0.054*****
										(0.014)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	553	553	553	553	553	553	553	553	553	553
R-squared	0.063	0.064	0.126	0.179	0.179	0.241	0.243	0.256	0.257	0.297

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

Estimates (3)-(10) show that FM∗Stock volatility is significant with the expected sign in all estimates, while its base variable is insignificant. An increase in stock volatility has a negative

relationship with the CARs for fully-marketed offers but is not related to the CARs of accelerated offers.

Estimates (4)–(10) show that FM∗Bid-ask spread is significant, implying that the bid-ask spread has a significant positive impact on the CARs for fully-marketed offers. This is a surprising observation, as we would expect a higher bid-ask spread to imply a more negative CAR. A slightly similar pattern can be seen in the bivariate analysis for bid-ask spread in Figure 9, where the highest bid-ask spread is associated with the lowest CARs.

Investigating the control variables, a higher share run up, a higher market-to-book value and a relatively higher offer size affect the CAR for both offer types negatively. In addition, we observe that an increase in the time lag variable is significantly associated with more negative CARs. The negative time lag variable may indicate that a longer time between announcement and offer execution increases the uncertainty about a successful offer. However, another explanation is that abnormal returns in the longer event window are affected by other firm events.

It may be of additional interest to analyse whether the interaction model is superior to a simple model where interaction terms are omitted and the differences in offer types are not taken into account. We run a partial F-test that compares the model (10) above with its reduced version without interaction terms. We find that the interaction terms are jointly significant at 1%, indicating that the interaction model is better suited to explain variations in CARs.

The numbers of variables in the interaction model raise the possible concern of multicollinearity. Therefore, we also run two separate models estimating the impact of information asymmetry on the CAR for each offer type individually. The results for fully-marketed offers and accelerated offers can be found in Table III and Table IV in Appendix B respectively. The results are similar to the interaction model's results showing that two information asymmetry proxies, analyst following and stock volatility, have an impact on the CAR for fully-marketed offers. For accelerated offers, on the other hand, information asymmetry proxies do not have an impact on the CAR in estimates (2)-(10).

7.1.3 Analysis of abnormal return around SEOs

We find that fully-marketed offers have a significantly larger cumulative abnormal return calculated 3 days before announcement to 3 days after offer. Therefore we confirm H1a, which states that fully-marketed offers have higher cumulative abnormal return over the SEO window than accelerated offers. Analysing abnormal return solely over announcement, we see that fully-marketed and accelerated offers have similar abnormal returns. The observation is

confirmed by deploying Welch's t-test on the announcement window, which can be found in Table V in Appendix B.

As abnormal returns are similar during the announcement period, the observation implies that fully-marketed offers have more negative abnormal returns between announcement and offer. Our results are not in line with Bortolotti et al. (2008) who find that European fully-marketed offers have a slightly positive abnormal return around announcement (+0.1%), while accelerated offers have a slightly negative abnormal return around announcement (-0.8%).

H1b states that information asymmetry has a larger effect on the CARs around fully-marketed offers than accelerated offers. We find some evidence for analyst following and stock volatility having a larger impact on fully-marketed offers than accelerated offers. However, these variables do not reveal persistent significance throughout the estimates. This might be due to correlation between the independent variables as shown in Table VI in Appendix B. Unexpectedly, we find that a larger bid-ask spread affects the CAR for fully-marketed offers positively. In addition, the public firm age and prestigious bookrunner variables are insignificant. Though our results indicate that information asymmetry has a more pronounced effect for the CAR in fully-marketed offers, the inconclusive evidence implies that we cannot confirm H1b.

Even though our results are modest, they are in contrast to Autore et al. (2008) who find that accelerated offers have a more negative CAR around announcement as accelerated offers have a negative signalling effect regarding the quality of the firm.

Moreover, it might be of interest that share run up is a significant variable throughout and indicates that overvaluation affects the CAR negatively. These results are in line with Majluf and Myers (1984). In addition, the price pressure hypothesis (Scholes, 1972) seems to affect cumulative abnormal returns, as the relative offer size variable is significant throughout the estimates.

7.2. Offer price discount

The mean offer price discount for accelerated offers is 3.1% and the mean offer price discount for fully-marketed offers is 5.1%, where the means are significantly different (Table VII Appendix B). In this section we attempt to show that the offer price discount for accelerated offers and fully-marketed offers is affected by information asymmetry differently.

7.2.1 Hypothesis 2a

7.2.1.1 Descriptive statistics

We investigate the impact of information asymmetry on the offer price discount for fully-marketed offers, starting with an analysis of the bivariate relationships between the discount and the information asymmetry and control variables. Information asymmetry and control variables are grouped in quartiles and mean offer price discounts for each quartile are calculated.

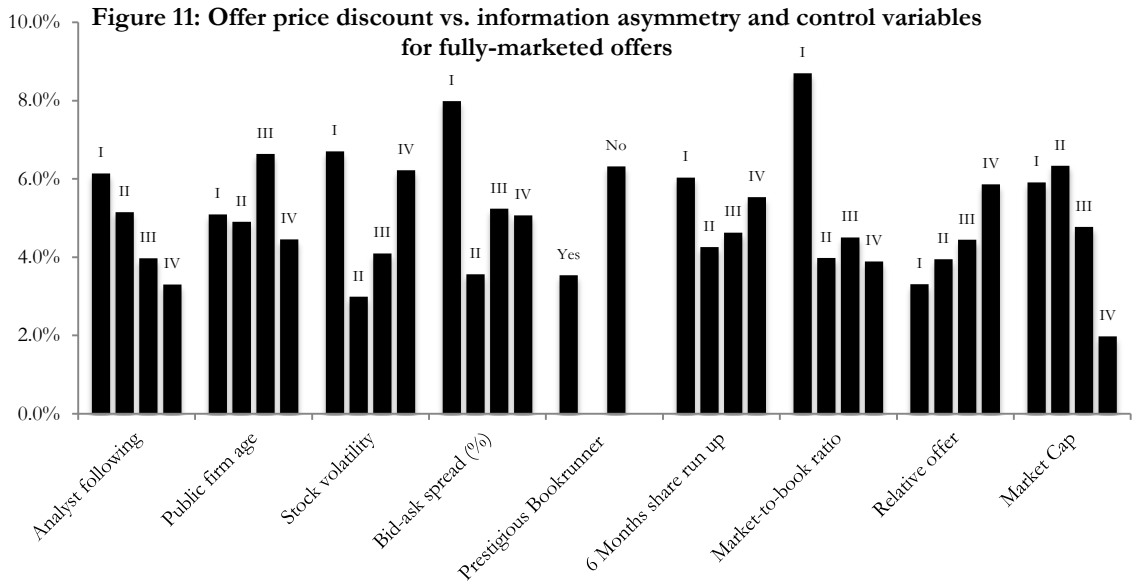


Figure 11: The offer price discount measured against several information asymmetry and control variables. The sample is derived from the Dealogic database and is comprised of all fully-marketed in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1 A definiton of the variables can be found in 5.2. The mean discounts are measured within the respective quartiles of information asymmetry and control variables (lowest I to highest IV) or in the case of the Prestigious Bookrunner by Yes or No.

Figure 11 shows a pattern indicating that firms with higher analyst following and firms using a prestigious bookrunner have a lower offer price discount. There is no clear linear pattern for the other information asymmetry variables. Relative offer size is the only control variable depicting the expected linear pattern, implying that an increase in the relative offer size increases the discount. The observed pattern in the bivariate analysis may be regarded as a modest indication against H2a, which states that the offer price discount for fully-marketed offers is not affected by information asymmetry. These findings justify to further investigate the relationship in a multivariate context in 7.2.1.2

7.2.1.2. Ordinary Least Squares (OLS) analysis

We deploy multivariate OLS estimations to assess how information asymmetry affects the discount for fully-marketed offers. Table 7 shows the multivariate analysis of the offer price discount in fully-marketed offers.

Table 7 shows that stock volatility is significant at a 10% level for estimate (4) and (5) with the expected sign. The prestigious bookrunner dummy is marginally significant with the expected sign in estimate (9). This implies that stocks with lower stock volatility and firms using a prestigious bookrunner are associated with lower offer price discounts.

Table 7

Ordinary Least Squares regression on offer price discount for fully-marketed offers

The regression tests Hypothesis 2a.The dependent variable is the offer price discount measured in %. The sample is derived from the Dealogic database and is comprised of all public SEOs in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1. Log transformation is applied for the number of analysts following a stock, the public firm age and market capitalisation. Year and country dummies are added to every regression in order to control for country specific fixed effects as well as time fixed effects. Standard errors are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable: Offer price discount									
Constant	**0.233*** **	**0.247*** **	**0.238*** **	**0.276*** **	**0.279*** **	**0.278*** **	**0.279*** **	**0.261*** **	**0.376*** **
	(0.032)	(0.037)	(0.038)	(0.039)	(0.040)	(0.040)	(0.039)	(0.037)	(0.117)
Ln (1+Analyst following)	**-0.003**	**-0.001**	**0.001**	**-0.004**	**-0.002**	**-0.001**	**-0.001**	**0.002**	**0.005**
	(0.007)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	0.012
Ln (1+Public firm age)		**-0.006**	**-0.005**	**-0.004**	**-0.004**	**-0.004**	**-0.005**	**-0.005**	**-0.004**
		(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Stock volatility			**0.423**	**0.641***	**0.620***	**0.547**	**0.552**	**0.563**	**0.508**
			(0.350)	(0.349)	(0.339)	(0.379)	(0.387)	(0.377)	(0.365)
Bid-ask spread (%)				**-1.164** **	**-1.192** **	**-1.154** **	**-1.162** **	**-1.357*** **	**-1.435*** **
				(0.519)	(0.510)	(0.500)	(0.497)	(0.470)	(0.451)
Prestigious Bookrunner					**-0.016**	**-0.015**	**-0.016**	**-0.0191***	**-0.014**
					(0.012)	(0.012)	(0.012)	(0.011)	(0.012)
6 month share run up						**0.001**	**0.001**	**0.002**	**0.002**
						(0.002)	(0.002)	(0.002)	(0.002)
Market-to-book value							**0.000**	**0.000**	**0.000**
							(0.001)	(0.001)	(0.001)
Relative offer size (%)								**0.093*** **	**0.072***
								(0.032)	(0.039)
Ln (Market capitalisation)									**-0.006**
									-0.006
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	111	111	111	111	111	111	111	111	111
R-squared	0.377	0.381	0.392	0.429	0.439	0.440	0.440	0.473	0.477

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

Analyst following is insignificant in all estimates, though depicting a linear relationship in the bivariate analysis in Figure 11. Public firm age is insignificant throughout all estimates. The bid-ask spread is significant at a 1-5% level throughout the estimates. However, the coefficient has a negative sign, indicating that higher information asymmetry results in a lower offer price discount. For example, a 1% increase in bid-ask spread decreases the offer price discount by 1.16% in estimate (4). This is puzzling as we expect a higher bid-ask spread to increase the offer price discount. In Table 6 we observe the same unexpected pattern, where a higher bid-ask spread reduces the CAR around fully-marketed offers. Investigating the control variables, we find that a higher relative offer size increases the offer price discount for both estimates.

We consider the results in Figure 11 and in Table 7 as too weak evidence to establish a relationship between information asymmetry and the offer price discount in fully-marketed offers. This observation is in line with H2a where we conjecture that information asymmetry

measured prior to the offer does not affect the offer price discount for fully-marketed offers, as information asymmetry is reduced during the marketing period before the offer.

In conclusion, we find that information asymmetry does not have an effect on the offer price discount for fully-marketed offers. Therefore we can confirm H2a.

7.2.2 Hypothesis 2b

7.2.2.1 Descriptive statistics

In this section we investigate the impact of information asymmetry on the offer price discount for accelerated offers, starting with a bivariate analysis of the relationship between offer price discount and information asymmetry and control variables. Information asymmetry and control variables are grouped in quartiles and mean offer price discounts for each quartile are calculated.

Figure 12: Offer price discount vs. information asymmetry and control variables for accelerated offers

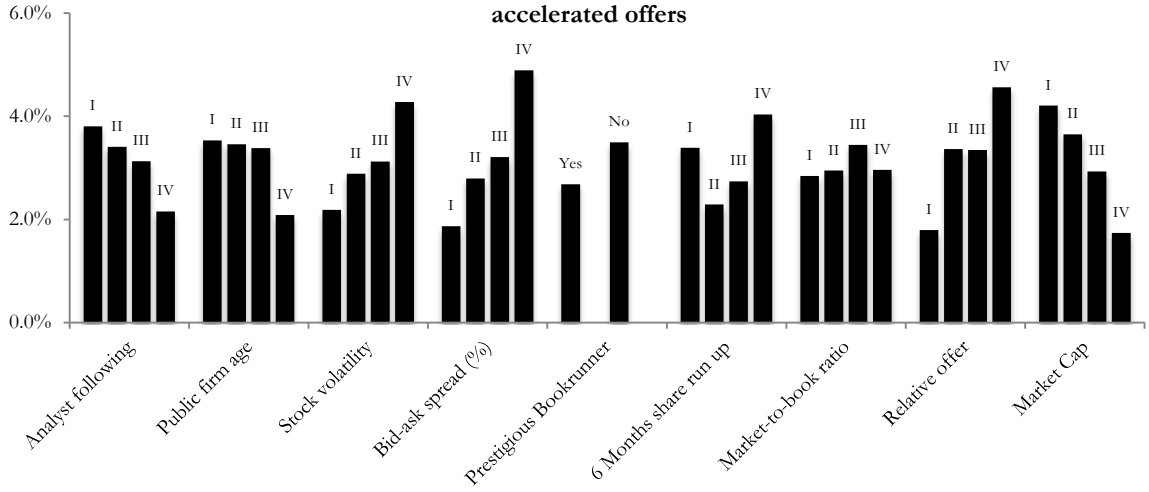


Figure 12: The offer price discount measured against several information asymmetry and control variables. The sample is derived from the Dealogic database and is comprised of all accelerated offers in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1.A definiton of the variables can be found in 5.2. The mean discounts are measured within the respective quartiles of information asymmetry and control variables (lowest I to highest IV) or in the case of the Prestigious Bookrunner by Yes or No.

Figure 12 reveals a pattern showing that the impact of information asymmetry on the offer price discount for accelerated offers is more pronounced than for fully-marketed offers (Figure 11). One can observe that all information asymmetry variables show the expected linear relationship. For analyst following and public firm age, the offer price discount is decreasing along the quartiles, while the offer price discount increases with a higher stock volatility and bid-ask spread. Similar to the fully-marketed offers, firms using a prestigious bookrunner have a lower offer price discount. In H2b, we hypothesise that the offer price discount in accelerated offers is affected by information asymmetry. The patterns observed in

Figure 12 give indication for a possible confirmation of H2b. To analyse the relationship further in a multivariate context, OLS is applied in 7.2.2.2

7.2.2.2. Ordinary Least Squares (OLS) analysis

Table 8 demonstrates the OLS regression for the effect of information asymmetry and control variables on the offer price discount.

Table 8

Ordinary Least Squares regression on offer price discount for accelerated offers

The regression tests Hypothesis 2b. The dependent variable is the offer price discount measured in %. The sample is derived from the Dealogic database and is comprised of all public SEOs in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1 Log transformation is applied for the number of analysts following a stock, the public firm age and market capitalisation. Year and country dummies are added to every regression in order to control for country specific fixed effects as well as time fixed effects. Standard errors are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable: Offer price discount									
Constant	**0.058*** **	**0.064*** **	**0.055*** **	**0.040*** **	**0.042*** **	**0.042*** **	**0.043*** **	**0.033** **	**0.106*** **
	(0.010)	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)	(0.012)	(0.013)	(0.038)
Ln (1+Analyst following)	**-0.010*** **	**-0.008*** **	**-0.007*** **	**-0.003**	**-0.001**	**-0.001**	**-0.001**	**0.001**	**0.004**
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Ln (1+Public firm age)		**-0.003**	**-0.002**	**-0.002**	**-0.002**	**-0.002**	**-0.003**	**-0.002**	**-0.001**
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Stock volatility			**0.245***	**0.228** **	**0.235** **	**0.224***	**0.230***	**0.207***	**0.214***
			(0.127)	(0.109)	(0.117)	(0.129)	(0.133)	(0.111)	(0.110)
Bid-ask spread (%)				**0.668*** **	**0.623*** **	**0.625*** **	**0.607*** **	**0.473** **	**0.420***
				(0.183)	(0.191)	(0.190)	(0.194)	(0.211)	(0.217)
Prestigious Bookrunner					**-0.008***	**-0.008***	**-0.008***	**-0.008** **	**-0.005**
					(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
6 month share run up						**0.001**	**0.001**	**0.001**	**0.001**
						(0.003)	(0.003)	(0.003)	(0.003)
Market-to-book value							**0.000**	**0.000**	**0.000**
							0.000	0.000	0.000
Relative offer size (%)								**0.066***	**0.052**
								(0.034)	(0.036)
Ln (Market capitalisation)									**-0.004** **
									(0.002)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	442	442	442	442	442	442	442	442	442
R-squared	0.127	0.132	0.148	0.172	0.18	0.18	0.182	0.197	0.206

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

In estimates (1)–(3), analyst following is significant with the expected negative sign, implying that firms with more analyst following have a lower offer price discount. In estimates (4)–(9) analyst following is insignificant after adding bid-ask spread to the regression. One possible explanation for this might be that the correlation between the independent variables bid-ask spread and analyst following is -0.4. Hence the effect of analyst following may be partly captured by the bid-ask spread. Furthermore, stock volatility and bid-ask spread are significant through all estimates showing that an increase in stock volatility or bid-ask spread increases the offer price discount for accelerated offers. The prestigious bookrunner dummy is significant in all regressions except for (9), showing that offers using a prestigious bookrunner have lower offer price discounts. Regarding the control variables, relative offer is significant in

estimate (8) and market capitalisation is significant in estimate (9) both showing the expected sign.

For completeness, we have included an interaction model that interacts the dummy accelerated offer ("AO") with each information asymmetry variable in Table VIII in Appendix B. However, we consider an evaluation using two separate models to be more appropriate, as our hypothesis does not include an analysis of differences in magnitude of effects. The interaction model shows that the information asymmetry proxy bid-ask spread has an effect on the offer price discount for accelerated offers, as the interaction term is highly significant. For the other information asymmetry proxies and their respective interaction terms no statistical significance can be determined. We suspect that the insignificance of some information asymmetry variables can be attributed to multicollinearity. However, an F-test shows that the interaction terms are jointly significant.

In conclusion, we argue that we find sufficient evidence to accept H2b. The bivariate analysis establishes a clear pattern for all information asymmetry variables. However, the multivariate analysis only shows consistent significance for stock volatility and bid-ask spread. Nonetheless, there is still significance for the variables analyst following and bookrunner prestige in estimates (1)-(3) and (5)-(8) respectively. A possible explanation for the clear pattern in the bivariate analysis but weak evidence in the multivariate analysis is that the information asymmetry variables are highly correlated as shown in Table VI in Appendix B. Though it can be debated, we argue that our findings are sufficient to confirm H2b and conclude that information asymmetry affects the discount in accelerated offers.

7.2.3 Analysis of offer price discount

In Chapter 7.2.1 we find that information asymmetry does not have an impact on the discount in fully-marketed offers, therefore we confirm H2a. We argue that information asymmetry does not have an effect on the discount in fully-marketed offers, as the marketing period between the announcement and offer date reduces information asymmetry. These results are in line with Corwin (2003) who finds that information asymmetry has a weak effect on the offer price discount in public offers. Corwin (2003) does not distinguish between fully-marketed and accelerated offers, but it is reasonable to assume that his sample mainly consists of fully-marketed offers as the sample only includes public offers before 1998. Gao and Ritter (2010) find that demand elasticity is positively correlated with information asymmetry. Similar to Huang and Zhang (2011), they find that demand elasticity is increased during the marketing period which in turn reduces the offer price discount for fully-marketed offers. If one considers information asymmetry to be analogous to demand elasticity, our findings are line

with Gao and Ritter (2010) and Huang and Zhang (2011) as we find that information asymmetry does not affect the offer price discount in fully-marketed offers.

In chapter 7.2.2 we argue that our results are sufficient evidence to confirm H2b, which states that information asymmetry affects the offer price discount in accelerated offers. Gao and Ritter (2010) and Huang and Zhang (2011) find that the marketing period in fully-marketed offers increases the demand elasticity of the stock, which in turn reduces the offer price discount. One can argue that these findings indirectly infer that information asymmetry has an effect on the offer price discount in accelerated offers. However, neither Gao and Ritter (2010) and Huang and Zhang (2011) explicitly test for the effect of information asymmetry on offer price discounts in accelerated offers. To our knowledge, no other research has shown that information asymmetry affects the discount in accelerated offers. We therefore argue that this part of our research, in particular, is a contribution to the existing research on the offer price discounts in seasoned equity offerings.

7.3. Choice of issue method: Hypothesis 3

7.3.1. Descriptive statistics

Table 9 shows the means and medians for all SEOs and the different offer types with respect to offer characteristics and information asymmetry proxies. The information asymmetry proxies show a significant difference between the accelerated offers and fully-marketed offers, indicating a possible effect of information asymmetry on offer type choice. For example, firms that choose to conduct an accelerated offer have on average 4.4 more analysts following their stock compared to firms choosing a fully-marketed offer. Similarly, firms issuing capital via an accelerated offer have on average been listed for 10 years more than firms opting for a fully-marketed offer. Fully-marketed offers also appear to be less liquid than accelerated offers, as they have a bid-ask spread that is 63 basis points higher. In addition, stock returns prior to fully-marketed offers are more volatile than stock returns prior to accelerated offers. On average, accelerated offers are more frequently led by prestigious bookrunners than fully-marketed offers. The offer types also exhibit some differences with regard to the control variables. Accelerated offers have a significantly larger market capitalisation than fully-marketed offers. The proceeds raised in fully-marketed offers are larger than in accelerated offers. However, given the large standard deviation of the means, the difference in proceeds is not significant. Moreover, fully-marketed offers have a significantly higher market-to-book ratio and fully-marketed offers have a significantly larger relative offer size compared to accelerated offers. The 6 months share run up prior to fully-marketed offers is significantly larger than for accelerated offers.

Given the significant differences in information asymmetry proxies between the two offer types, it is reasonable to analyse the determinants of equity issue method in a multivariate framework.

Table 9

Summary statistics of offer characteristics and information asymmetry proxies

The sample is comprised of all public SEOs in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1. Panel A shows the means (medians) of the information asymmetry proxies for the different deal types. Analyst following is the number of analyst following a stock and have made a recommendation within 6 months prior to the offer. Data for analyst following has been extracted from I/B/E/S. Public firm age indicates how long has been traded publicly and data has been obtained from Datastream. Bid-ask spread is calculated as the average bid-ask spread over the past 170 days prior and ending 10 days prior to the offer, scaled by the stock's midprice point. Stock volatility is measured as the average standard deviation of daily stock returns over the window (-170,-10) before the equity offer. Bookrunner prestige is a dummy that takes the value of 1 if one of the bookrunners has been in the Top 10 of the Dealogic ECM league table for the respective year. Panel B shows means (medians) of the offer characteristics for the different deal types. Market capitalisation for the firm is calculated one day prior to the offer in millions of €. Deal value reveals the amount of total proceeds raised including the execution of the overallotment option in millions of €. Information on the market-to-book ratio has been extracted from Datastream 10 days prior to the offer. Relative offer measures the % of new capital raised as a fraction of the firm's market capitalisation. The 6 months share run up is calculated as the buy and hold return of the stock over the window (-170,-10). The fifth column indicates the difference between fully-marketed offers and accelerated offers, where the latter includes accelerated bookbuilds and bought deals. P-values for the mean difference using Welch's two-sided t-test are reported in the last column.

	All SEOs	Accelerated Offers	Fully-Marketed Offers	Difference Accelerated Offers - Fully Marketed	p-value for difference
Panel A: Information asymmetry proxies					
Analyst following	9.8	10.7	6.3	4.4	0.0000
	(7.0)	(8.0)	(4.0)		
Public firm age	14.3	16.2	6.5	9.7	0.0000
	(9.0)	(12.0)	(3.0)		
Bid-ask spread (%)	0.95%	0.82%	1.45%	0.63%	0.0000
	(0.61%)	(0.52%)	(1.00%)		
Stock volatility	2.55%	2.42%	3.04%	0.61%	0.0041
	(2.04%)	(1.96%)	(2.51%)		
% of companies that have a prestigious bookrunner	54.43%	57.47%	42.34%	15.12%	0.0046
Panel B: Offer characteristics					
6 Months share run up	45.8%	34.0%	92.6%	58.6%	0.0103
	(17.56%)	(16.12%)	(28.57%)		
Market-to-book ratio	3.1	2.8	4.1	1.3	0.0293
	(2.0)	(2.0)	(2.3)		
Relative offer (%)	11.7%	9.5%	20.6%	11.0%	0.0000
	(8.65%)	(8.40%)	(18.14%)		
Deal value (€m)	297	279	371	93	0.2468
	90	88	102		
Market capitalisation (€m)	4900	5367	3050	2320	0.0188
	(1040)	(1165)	(587)		

7.3.2. Logit estimation

Logit regression is applied to estimate the joint impact of information asymmetry variables on the choice of equity issue method. Table 10 summarises the result of the regression of the indepedent variables on the equity issue choice. Estimates (1)-(4) show the impact of the information asymmetry proxies on the issue type only. Estimates (5)–(8) add further variables controlling for share run up, market-to-book value, relative offer size and market capitalisation. Note that bookrunner prestige as a proxy for information asymmetry has not been deployed for the logit estimation. Including bookrunner prestige would impose an endogeneity problem as one may argue that the bookrunner is determined jointly with the selection of the equity issue method. Table 10 shows that analyst following and public firm age prove to be significant predictors of the choice of equity issue method. By solely analysing the impact of the two information asymmetry proxies on the choice of equity issue method in estimate (2) it becomes apparent that a 1% increase in analyst following (public firm age) decreases the likelihood of choosing a fully-marketed offer by 0.04% (0.03%). When controlling for other variables, analyst following and public firm age remain significant and in estimate (8) a 1% increase in either variables decreases the likelihood of choosing a fully-marketed offer by approximately 0.02%. The control variables relative offer size and market capitalisation are significant at 1% level. However, the control variable for market capitalisation shows a positive unexpected sign indicating that an increase in market capitalisation increases the likelihood to choose a fully-marketed offers. The model has a pseudo R-square ranging from 44% to 60% implying that the model provides a good fit in explaining the choice for the equity issue method.

The descriptive statistics show that the two offer types significantly differ with respect to all information asymmetry proxies. In the logit estimate, analyst following and public firm age are persistently significant. However, the two other information asymmetry variables, stock volatility and bid-ask spread, are insignificant throughout the estimates. While their insignificance can be considered as evidence against our hypothesis, one has to take into account the correlation between the information asymmetry proxies as shown in Table VI in Appendix B. We argue that our findings are sufficient evidence to confirm Hypothesis 3, which postulates that information asymmetry has an effect on the equity offer choice between accelerated and fully-marketed offers.

Table 10

Binominal logistic regression on choice of equity issue method

The regression tests H3. The dependent variable is dichotomous and takes the value of 1 for a fully-marketed offer and 0 for accelerated offer which both includes accelerated bookbuilds and bought deals. The sample is derived from the Dealogic database and is comprised of all public SEOs in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1. Log transformation is applied for the number of analysts following a stock, the public firm age and market capitalisation. Year and country dummies are added to every regression in order to control for country specific fixed effects as well as time fixed effects. We report marginal effects in the second column of each regression. Standard errors are reported in brackets. The R^2 is the likelihood based pseudo R^2 measure.

	(1)	dy/dx	(2)	dy/dx	(3)	dy/dx	(4)	dy/dx	(5)	dy/dx	(6)	dy/dx	(7)	dy/dx	(8)	dy/dx
Dependent variable: Fully-marketed offer																
Constant	-15.84***		-14.89***		-14.90***		-14.73***		-14.99***		-14.78***		-21.21***		-35.23***	
	(0.555)		(0.785)		(0.456)		(0.776)		(0.880)		(0.860)		(1.993)		(4.424)	
Ln (1+Analyst following)	**-1.273*** **	**-0.057*** **	**-1.027*** **	**-0.041*** **	**-1.027*** **	**-0.041*** **	**-0.988*** **	**-0.040*** **	**-0.965*** **	**-0.038*** **	**-0.975*** **	**-0.037*** **	**-0.843*** **	**-0.019*** **	**-1.234*** **	**-0.021*** **
	(0.224)	(0.010)	(0.240)	(0.007)	(0.241)	(0.013)	(0.262)	(0.012)	(0.267)	(0.013)	(0.269)	(0.010)	(0.319)	(0.008)	(0.340)	(0.007)
Ln (1+Public firm age)			**-0.738*** **	**-0.029*** **	**-0.738*** **	**-0.029*** **	**-0.741*** **	**-0.029*** **	**-0.740*** **	**-0.029*** **	**-0.788*** **	**-0.030*** **	**-0.701*** **	**-0.0154** **	**-0.882*** **	**-0.015** **
			(0.204)	(0.007)	(0.204)	(0.011)	(0.203)	(0.009)	(0.203)	(0.010)	(0.207)	(0.008)	(0.240)	(0.006)	(0.243)	(0.006)
Stock volatility					**0.183**	**0.007**	**-0.624**	**-0.025**	**-3.876**	**-0.153**	**-2.283**	**-0.087**	**-16.82**	**-0.369**	**-19.660**	**-0.339**
					(6.063)	(0.239)	(6.920)	(0.274)	(8.790)	(0.350)	(7.655)	(0.293)	(14.25)	(0.324)	(16.930)	(0.304)
Bid-ask spread (%)							**4.398**	**0.174**	**5.531**	**0.218**	**4.022**	**0.154**	**-30.28**	**-0.665**	**-20.920**	**-0.361**
							(27.490)	(1.087)	(28.140)	(1.108)	(28.760)	(1.096)	(24.68)	(0.534)	(31.460)	(0.542)
6 Months share run up									**0.096**	**0.004**	**0.126**	**0.005**	**0.228**	**0.005**	**0.261**	**0.005**
									(0.096)	(0.004)	(0.110)	(0.005)	(0.170)	(0.004)	(0.214)	(0.004)
Market-to-book ratio											**-0.059***	**-0.002***	**-0.0162**	**-0.001**	**-0.013**	**-0.000**
											(0.034)	(0.001)	(0.024)	(0.001)	(0.027)	(0.000)
Relative offer (%)													**13.61*** **	**0.299*** **	**0.606*** **	**0.010** **
													(2.247)	-0.0822	(0.183)	(0.004)
Ln (Market capitalisation)															**15.91*** **	**0.274*** **
															(2.479)	(0.086)
Year Dummies	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Country Dummies	Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Observations	553		553		553		553		553		553		553		553	
R^2	0.439		0.4649		0.4649		0.462		0.463		0.469		0.5794		0.5953	

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

7.3.3 Analysis of offer type choice

Analysing the descriptive statistics in Chapter 7.3.1 we find that firms conducting accelerated offers have significantly higher analyst following and have been publicly listed significantly longer. In addition, we find that firms conducting fully-marketed offers have a significantly higher stock volatility and bid-ask spread. By applying a logit regression in Chapter 7.3.2, we find that firms with lower analyst following and younger public age are more likely to choose a fully-marketed offer. The other information asymmetry proxies are not significant. We consider the empirical results as sufficient evidence to accept Hypothesis 3. We argue that the reason that firms with high information asymmetry tend to choose a fully-marketed offer is to reduce the offer price discount and reduce the probability of an unsuccessful offer.

Our results indicate that firms and underwriters consider information asymmetry to be of importance when choosing the most appropriate offer type, which is in line with Fama and French (2005). Our results are consistent with Bortolotti et al. (2008) who argue that firms with larger market capitalisation have lower information asymmetry and are therefore more likely to opt for a fully-marketed offer. If one considers inelastic stock prices to be analogous to high information asymmetry, our results are also in line with Gao and Ritter (2010) as they find that firms with relatively inelastic stock prices are more likely to choose a fully-marketed offer. Our findings contribute to extant research by specifically analysing the effect of information asymmetry on offer type choice and by including multiple proxies for information asymmetry in a logit regression. In addition, we analyse the relation by using a sample of offers in the European Union, where the factors affecting the choice between fully-marketed and accelerated offers are less studied than in the US.

8. Conclusion

During the last decade accelerated seasoned equity offerings have risen considerably, passing fully-marketed offers as the most popular public equity issue method. Nonetheless, accelerated offers are a fairly neglected topic in academic literature (Gao and Ritter, 2010). Industry professionals note that the benefits of accelerated offers are the shorter time frame, the avoidance of a negative stock price reaction following the announcement of the offer and reduced marketing expenses. Though the amount of fully-marketed offers have declined, some firms still consider the fully-marketed offers as the preferred equity issue method.

In this thesis we investigate the differences in accelerated and fully-marketed offers in light of prior findings on seasoned equity offerings. We hypothesise that information asymmetry between the firm and investors has an impact on the indirect costs in public SEOs and consequently affects the choice of issue method. We find that accelerated and fully-marketed

offers have similar abnormal returns around announcement, but fully-marketed offers have a negative abnormal price drift throughout the SEO process. Consequently, the cumulative abnormal return over the SEO window is significantly larger for fully-marketed offers than for accelerated offers. However, we do not find supporting evidence for the hypothesis that information asymmetry has a more pronounced effect for fully-marketed offers than for accelerated offers.

Moreover, we investigate the effect of information asymmetry on the offer price discount for accelerated and fully-marketed offers. We find that measurements of information asymmetry prior to the offer do not have an effect on the discount for fully-marketed offers. This finding is in line with our hypothesis, as we argue that information asymmetry is reduced during the marketing period between the announcement and offer day in fully-marketed offers. In contrast, we find that information asymmetry has an effect on the discount in accelerated offers. This observation is consistent with the hypothesis that limited reduction of information asymmetry takes place prior to pricing of accelerated offers. As a result, investors are compensated for information asymmetry in the offer price discount.

Finally, we find evidence for the hypothesis that the level of information asymmetry between the firm and public influences the choice of equity issue method. We find that firms with high information asymmetry are more likely to choose a fully-marketed offer than an accelerated offer. Therefore, we argue that for firms with high information asymmetry the marketing period is expected to reduce the indirect cost sufficiently in order to offset the higher underwriter fees and a potentially more negative abnormal return.

In this thesis, we add three further contributions to the research on SEOs, which, to our knowledge, have not been examined earlier. First, we find that fully-marketed offers have similar cumulative abnormal return to accelerated offers when only considering the announcement window. However, we find that fully-marketed offers have a higher cumulative abnormal return when considering the entire SEO window due to negative abnormal returns between announcement and offer. Second, we establish that information asymmetry has an effect on the offer price discount in accelerated offers. Third, we find that information asymmetry affects the choice between accelerated and fully-marketed offers by using a sample from countries in the European Union.

However, our research may have some potential sources of error. There is no completely accurate measurement of information asymmetry. We have based our measurements for information asymmetry on proxies established by prior research. In addition, the proxies for information asymmetry are correlated, which may cause potential measurement errors in the

OLS regressions. This problem has also been noted by Corwin (2003). In addition, our sample might suffer from selection bias, as we had to dismiss observations for which data on the information asymmetry proxies was not available.

For further research we believe a more thorough investigation of accelerated offers is of relevance. In this context, it might be interesting to investigate how the usage of the offer affects announcement effect and offer price discount. As Bortolotti et al. (2008) show that indirect costs of accelerated offers vary across markets, an analysis on other markets than the European market might be of additional interest.

References

Periodicals

Aboody, David and Baruch Lev, 2000, Information Asymmetry, R&D, and Insider Gains, The Journal of Finance 55, 2747–2766.

Akerlof, George A., 1970, The Market for "Lemons": Quality Uncertainty and the Market Mechanism, The Quarterly Journal of Economics 84, 488-500.

Altinkilic, Oya, and Robert S. Hansen, 2003, Discounting and Underpricing in Seasoned Equity Offers, Journal of Financial Economics 69, 285–323.

Asquith, Paul and David W. Mullins, 1986, Signalling with Dividends, Stock Repurchases, and Equity Issues, Financial Management 15, 27-44.

Autore, Don M., Irena Hutton and Tunde Kovacs, 2008, Accelerated equity offers and firm quality, European Financial Management 17, 835–859.

Barners, Edel and Martin Walkers, 2006, The Seasoned-Equity Issues of UK Firms: Market Reaction and Issuance Method Choice, Journal of Business Finance & Accounting 33, 45–78.

Bethel, Jennifer E. and Laurie Krigman, 2008, Managing the Costs of Issuing Common Equity: The Role of Registration Choice, Quarterly Journal of Finance & Accounting 47, 57-71.

Bhagat , Sanjai and Peter A. Frost, 1986, Issuing costs to existing shareholders in competitive and negotiated underwritten public utility equity offerings, Journal of Financial Economics 15, 233-259.

Bortolotti, Bernado, William Megginson and Scott S. Smart, 2008, The rise of accelerated seasoned equity underwritings, Journal of Applied Corporate Finance 20, 35–57.

Burton, Bruce M., A. Alasdair Lonie and David M. Power, 2000, The Impacts of Corporate Growth Opportunities on the Market Response to New Equity Announcements, Applied Financial Economics 10, 27–36.

Chen, Hsuan-Chi, Na Dai and John D. Schatzberg, 2009, The choice of equity selling mechanisms: PIPEs versus SEOs, Journal of Corporate Finance 16, 104–119.

Chloe, Hyuk, Ronald W. Masulis and Vikram Nanda, 1993, Common Stock Offerings Across the Business Cycle: Theory and Evidence, Journal of Empirical Finance 1, 3-31.

Corwin, Shane A., 2003, The Determinants of Underpricing for Seasoned Equity Offers, Journal of Finance 58, 2249-2279.

Cronquist, Henrik and Mattias Nilsson, 2005, The Choice between Rights Offerings and Private Equity Placements, Journal of Financial Economics 78, 375-407.

Denis, David J., 1994, Investment opportunities and the market reaction to equity offerings, Journal of Financial and Quantitative Analysis 19, 159-177.

Dierkens, Nathalie, 1991, Information asymmetry and equity issues, Journal of Financial and Quantitative Analysis 26, 181-199.

D'Mello, Ranjan and Stephen P. Ferris, 2000, The Information Effects of Analyst Activity as the Announcementof New Equity Issues, Financial Management, 29, 78-95.

Eckbo, B. Espen, Ronald W. Masulis and Oyvind Norli, 2007, Security Offerings, Tuck School of Business Working Paper No. 2005-28.

Fama, Eugene F. and Kenneth R. French, 2005, Financing decisions: Who Issues Stock?, Journal of Financial Economics, 76, 549-582.

Gajewski, Jean-Francois and Edith Ginglinger, 2002, Seasoned Equity Issues in a Closely Held Market: Evidence from France, European Finance Review 6, 291-319.

Gomes, Armando and Gordon Philips, 2012, Why do public firms issue private and public securities?, Journal of Financial Intermediation, 21, 619–658.

Gao, Xiaohui and Jay R. Ritter, 2010, The marketing of seasoned equity offerings, Journal of Financial Economics, 97, 33-52.

Huang, Rongbing and Donghang Zhang, 2011, Managing underwriters and the marketing of seasoned equity offerings, Journal of Financial and Quantitative Analysis 46, 141-170.

Hull, Robert M., Sungkyu Kwak and Rosemary L. Walker, 2009, Signalling and proceeds usage for seasoned equity offerings, Investment Management and Financial Innovations 6, 50-51.

Jeppson, Hans, 2013, Information asymmetry, R&D disclosures and the choice between private and public equity, University of Gothenburg.

Kalay, Avner, & Adam Shimrat, 1987, Firm Value and Seasoned Issues of Equity: Price Pressure, Wealth Redistribution. Journal of Financial Economics 1, 109-126.

Kim, Kenneth A. and Hyun-Han Shin, 2004, The puzzling increase in the underpricing of seasoned equity offerings, Financial Review 39, 343-365.

Kim, Yongtae and Myung Seok Park, 2005, Pricing of Seasoned Equity Offers and Earnings Management, The Journal of Financial and Quantitative Analysis 40, 435-463.

Korwar Ashok N. and Ronald W. Masulis, 1986, Seasoned Equity Offerings: An Empirical Investigation, Journal of Financial Economics 15, 91-118.

MacKinlay, A. Craig, 1997, Event Studies in Economics and Finance, Journal of Economic Literature 34, 13-39.

Majluf, Nicolas S. and Stewart C. Myers, 1984, Corporate Financing and Investment Decisions when firms have information that investors do not have, Journal of Financial Economics 13, 187-221.

Mikkelson, Wayne H. and M. Megan Partch, 1986, Valuation Effects of Security Offerings and the Issuance Process, Journal of Financial Economics 15, 31-60.

Mola, Simona and Tim Loughran, 2004, Discounting and clustering in seasoned equity offering prices, Journal of Financial and Quantitative Analysis 39, 1-31.

Rhodes-Kropf, Matthew, S. Viswanathan and David T. Robinson, Valuation waves and merger activity: The empirical evidence, Journal of Financial Economics77, 561-603.

Rinne, Kalle and Matti Suominen, 2009, Value Uncertainty, Price Impact and The Choice of the Equity Issuing Method, Helsinki School of Economics.

Saffieddine, Assem and William J. Wilhelm, 1996, An empirical investigation of short-selling actitivity prior to seasoned equity offerings, Journal of Finance 51, 729-749.

Scholes, Myron S, 1972, The Market for Securities: Substitution Versus Price Pressure and the Effects of Information on Share Prices, The Journal of Business 45, 179-211.

Slovin, Myron B and Marie E. Sushka, 2000, Alternative flotation methods, adverse selection, and ownership structure: evidence from seasoned equity issuance in the UK. Journal of Financial Economics 57, 157-190.

Smith Jr., Clifford W, 1977, Alternative methods for raising capital: Rights versus underwritten offerings, Journal of Financial Economics, 5, 273–307.

Welch, B.L., 1947, The Generalization of Student's Problem when Several Different Population Variances are Involved, Biometrika 34, 28-35.

Wu, Yi Lin, The choice of equity-selling mechanisms, 2004, Journal of Financial Economics 74, 93–119.

Databases
Datastream, 2014, Thomson Reuters Datastream, retrieved on March 17th, 2014 fromhttp://wrds-web.wharton.upenn.edu/wrds/

Dealogic PLC, 2014, ECM Analytics, retrieved on March 20th, 2014 from http://www.dealogic.com/

Dealogic PLC, 2014, ECM EMEA league tables, retrieved on March 20th, 2014 from http://www.dealogic.com/

I/B/E/S, 2014, Lynch, Jones & Ryan and Technimetrics, Inc, retrieved on March 17th from https://wrds-web.wharton.upenn.edu/wrds/

Monograph (Books)
Geddes, R., 2003, IPOs & Equity Offerings (Elsevier Finance)

Hillier, David and Stephen A. Ross, 2013, Corporate Finance (McGraw Hill Higher Education)

Woolridge, Jeffrey, 2008, Introductory Econometrics: A Modern Approach (South Western College

Other sources
Broude, Paul and Rick Cronklin, 2009, Incite: Raising equity can be an 'overnight' success, CFO Zone, http://www.cfozone.com/index.php/Deals/Incite-Raising-equity-can-be-an-overnight-success.html

Latham & Watkins Capital Group, 2012, The Bought Deal Bible: A User's Guide to Bought Deals and Block Trades, http://www.lw.com/

Appendix A: Literature Review

Additional Table I

Empirical findings on announcement returns

Abbrevatons: RI (Rights issues), PO (public offers), FM (fully-marketed offers), AO (Accelerated offers), CAR (cumulative abnormal returns), SEO (seasoned equity offering)

Authors	Issue type	Market	Sample Period	Sample size	Estimation model	Window	Abnormal Return	Dependent variable	Independent variables
Asquith & Mullins (1986)	Primary offers (incl rights)	US	1963-1981	531	Market model with non-synchroneous data	(-1,0)	-3,0%	CAR	(-) Size, (+) 1yr CER
Masulis & Korwar (1986)	PO	US	1963-1980	972	Comparison period return	(0,1)	-3,25% for industrials	CAR	Relative change in outstanding shares for industrials(-), + for utilities, Offering induced leverage change (+), Sharerunup (-), Market run up (-)
Mikkelson &Partch (1986)	PO (common stock)	US	1972-1982	80	Market model	(0,1)	-3,56%	CAR	(-) Relative offer
Kalay & Shimrat (1987)	PO(industrial)	US	1970-1982	455	Market model	(-1,0)	-3,36%	CAR	
Dierkens (1991)	Primary issues	US	1980-1983	197	Mean market model	(-1,0)	-2,4%	CAR	MTB (+), relative size (+), few earnings announcements dummy(-), earnings announcement reaction (-), residual volatility (-), trading volume (+)
Eckbo & Masulis (1992)	PO	US	1963-1981	1057	Market model	(-1,0)	-3,34% (industrials) -0,8% (Public utilitites)	CAR+ Direct floation cost	Including rights issues: ln(assets) (-), stock volality (+), share run up (-), D/E (insignificant), rights or firm commitment dummy
Choe, Masulis and Nanda (1993)	Primary offers (incl rights)	US	1963-1983	1456	Market model	(0,1)	- 2,62% (industrials) -0,75% (utilities)	CAR	D/E change (-), relative offer (-), shareholder concentration (-), share run up (-), market run up (+)
Denis (1994)	PO	US	1977-1990	435	Market model	(-1,1)	-2,49%	CAR	Growth opportunities proxy (+)Share run up (-), market run up (+), residual variance of stock (+)
Bethel & Krigman (2009)	PO	US	1992-2001	670	Mean market model	(-1,2)	-2.07% (shelf registered) -2,3% (traditional)	CAR	Bid ask spread (+), analyst coverage (ins.), share turnover (ins.), investment opportunities (ins.), FCF(+), volatility(+), leverage(+), log(assets)(-), proceeds(+)
D'Mello et.al (2011)	Primary offers	US	1982-2006	3093	Market model	(-1,1)	-1,4%	CAR	Institutional Shareholders % (+), size (-), relative offer (-), share run up (-), residual variance (+), firm age (+), leverage (insignificant)
Slovin ans Shushka(2000)	Primary offers and RI	UK	1986-1994	220 (RI) 76 (PO)	Market model	(-1,0)	-3,09% (RI) +3.31% (PO)	CAR	For PO: Relative offer (+), Proceeds used for acquisition dummy(+), proceeds used for debt repayment dummy(ins.), log(Market value) (-)
Altinkilic & Hansen (2003)	PO by industrial firms	US	1990-1997	1703	Mean market model	NA	-2.23%	CAR	Expected discount (+), firm size (+), relative offer size (ins)
Barnes & Walker (2006)	Primary offers and RI	UK	1989-1998	600 (RI) 268 (PO)	Market model	(-1,1)	-0,98 % (RI) +0,64% (PO)	CAR	
Gajewski & Ginglinger (2002)	Primary offers and RI	France	1986-1996	197 (RI) 40 (PO)	Market model	(0,1)	-0.85% (RI) - 0,38% (PO)	CAR	Ln (Proceeds) (-), Share run up (-), acquisition dummy (+)
Cronqvist & Nilsson (2005)	RI and PP	Sweden	1986-1999	160 (RI) 136 (PP)	Market model	(-1,1)	+0.37% (RI) +7,27% (PP)	CAR	
Wu et.al (2005)	PO and PP	Hong Kong	1989-1997	99 (PP) 306 (PO	Augmented Fama French 3-factor	(-1,1)	+3,51% (PP) +3,14% (PO)	CAR	Ownership concentration (-), Ln (Market value) (-), mtb (-), ROE (-), Turnover (-), Leverage (ins.), Share run up (-), market run up (ins.)
Bortolotti (2008)	All SEOs	Global	1991-2004	31242	Market Model	(-1,1)	US: -1,34% (AO) -3,08% (FM) European: -0,79% (AO) +0,06% (FM)	CAR	
Gao & Ritter (2010)	PO	US	1996-2007	567 (AO) 2710 (FM)		(-1,0)	-1.49% (BD) -2,55% (AO) -1,66% (FM)	CAR	
Autore , Hutton & Kovacs	PO	US	1997-2005	359 (FM) 269 (AO)		(0,1)	-1,7% (FM) -2,57% (AO	CAR	

Additional Table II
Empirical findings on offer price discount
Abbrevatons: RI (Rights issues), PO (public offers), FM (fully-marketed offers), AO (Accelerated offers), CAR (cumulative abnormal returns), SEO (seaoned equity offering)

Authors	Issue type	Market	Sample Period	Sample size	Discount	Dependent variable	Independent variables
Smith (1977)	PO and RI	US	1971-1975	328	-0.5%		
Bhagat & Frost (1986)	PO (utility companies)	US	1973-1980	552	-0,25%	Total issue costs	Beta (+), Standard error (+), Market Standard Deviation (+), Issue size (+)
Loderer, Sheehan & kadlec (1991)	PO	US	1980-1984	1608	-1,41%		Find no evidence for discounting
Eckbo & Masulis (1992)	PO	US	1963-1981	1057	-0,64% (industrials) -0,41% (utilities)		Find no evidence for discounting
Saffieddine & Wilhelm (1996)	PO	US	1980-1991	356	-0.55%	Discount	NYSE dummy (ins), underwriter rank (-), stock with options dummy(+ sign after adoption), standard deviation of returns (ins), utilities dummy (-)
Kim & Shin (2004)	All	US	1983-1998	3304	1983-1988: -1,31% (UP 1,71%) 1988-1998: -2.99% (UP 3,26%)	Discount	Nasdaq dummy(ins), underwriting spread (+), relative offer size (ins), standard deviation of stock returns (+), underwriter prestige (-), integer price dummy (ins), IPO underpricing (ins)
Altinkilic & Hansen (2003)	PO by industrial firms	US	1990-1997	1703	-2.47% (UP 2,58%)	Discount	Relative offer (+), 1/5 days prior stock price (+), volatility (+), nasdaq dummy(+), underwriter reputation (-), probability of offer withdrawal (-), Announcement effect (-)
Corwin (2003)	PO	US	1980-1998	4454	-2,21% (1993-1998: -3,06%)	Discount	ln(market cap)(-), stock price volatility(+), relative offer size (+), close to offer returns (+), ln(price) (-), Rule 10b-21 (ins), IPO underpricing (+), stock exchange dummy (-)
Mola & Loughran (2004)	PO	US		4814	-3.0%	Discount	Nasdaq dummy (+), relative offer size (+), utility dummy(-), tech dummy(+), ln(price)(-), gross spread (+), prior SEO dummy (-), underwriter reputation (-), top tier analyst (-), price rounding dummy(+)
Kim & Park (2005)	All	US	1989-2000	1040	3,45% (UP)	Discount	Accruals/assets (-), CAR between announcement and offer(+), volatility of stock returns(ins), IPO underpricing(-), Nasdaq dummy(+), ln (price) (-), price rounding dummy (+) ln(market cap.) (-), bid ask spread % (-)
Bortolotti et al. (2008)	All	Global	1991-2004	31242	Europe: 7.07 % (FM) 3.46 % (AO) US: 2.53% (FM) 3.10% (AO)		
Huang & Zhang (2011)	Primary PO	US	1995-2004	2281	3.02% (FM) 2.57%(AO) 4,67% (BD)	Discount	ln (number of underwriters)(-), ln(analyst reports)(-), ln (market cap)(+), relative offer size (+), ln (prior closing price), cluster integer dummy (+), NYSE/AMEX dummy(ins.), stock price volatility (+), ln (number of prior SEOs or IPOs)(-), institutional ownership % (-), bookrunner prestige dummy (-), utility dummy(-), tech dummy (ins), biotech dummy (+)
Ritter & Gao (2010)	Primary PO	US	1996-2007	567 (AO) 2710 (FM)	2,43% (ABB) 2,66% (FM) 3,93% (BD)		

Appendix B: Additional regressions

Additional Table III

Ordinary Least Squares regression on CARs around SEO window for fully-marketed offers

The regression is a supplement to H1b. The dependent variable is the cumulative abnormal return starting three days before the announcement date and ending three days after the trade date. The sample is derived from the Dealogic database and comprised of all public SEOs in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1. Log transformation is applied for the number of analysts following a stock, the public firm age and market capitalisation. Year and country dummies are added to every regression in order to control for country specific fixed effects as well as time fixed effects. Standard errors are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable: CAR (-3,+3)										
Constant	**-0.136***	**-0.157**	**-0.0789**	**-0.274****	**-0.272****	**-0.241***	**-0.217***	**-0.173**	**0.115**	0.163
	(0.080)	(0.104)	(0.116)	(0.118)	(0.120)	(0.127)	(0.127)	(0.123)	(0.519)	(0.488)
Ln (1+Analyst following)	**0.049****	**0.046***	**0.028***	**0.053****	**0.055****	**0.038**	**0.038**	**0.031**	**0.040**	**0.033**
	(0.024)	(0.027)	(0.024)	(0.024)	(0.026)	(0.025)	(0.025)	(0.027)	(0.027)	(0.026)
Ln (1+Public firm age)		**0.008**	**0.002**	**0.000**	**0.000**	**0.003**	**-0.004**	**-0.003**	**0.000**	**0.017**
		(0.024)	(0.028)	(0.021)	(0.022)	(0.022)	(0.023)	(0.023)	(0.025)	(0.024)
Stock volatility			**-3.605***	**-4.711****	**-4.728****	**-2.567**	**-2.367**	**-2.395**	**-2.533**	**-1.911**
			(2.069)	(2.035)	(2.047)	(1.569)	(1.502)	(1.502)	(1.553)	(1.320)
Bid-ask spread (%)				**5.897*****	**5.874*****	**4.727*****	**4.375*****	**4.841*****	**4.643*****	**5.442*****
				(1.785)	(1.817)	(1.627)	(1.618)	(1.563)	(1.698)	(1.760)
Prestigious Bookrunner					**-0.012**	**-0.028**	**-0.040**	**-0.031**	**-0.019**	**0.003**
					(0.053)	(0.046)	(0.047)	(0.046)	(0.053)	(0.049)
6 month share run up						**-0.031****	**-0.030****	**-0.032****	**-0.031****	**-0.029****
						(0.014)	(0.015)	(0.014)	(0.014)	(0.014)
Market-to-book value							**-0.01**	**-0.01**	**-0.01**	**-0.008**
							(0.005)	(0.006)	(0.006)	(0.005)
Relative offer size (%)								**-0.221***	**-0.274***	**-0.278***
								(0.115)	(0.162)	(0.167)
Ln (Market capitalisation)									**-0.014**	**-0.012**
									(0.026)	(0.024)
Ln (1+Time lag)										**-0.088****
										(0.034)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	111	111	111	111	111	111	111	111	111	111
R-squared	0.133	0.133	0.218	0.311	0.311	0.388	0.408	0.426	0.429	0.481

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

Additional Table IV

Ordinary Least Squares regression on CARs around SEO window for accelerated offers

The regression is a supplement to H1b.The dependent variable is cumulative abnormal returns starting three days before the announcement date and ending three days after the trade date. The sample is derived from the Dealogic database comprised of all public SEOs in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1.Log transformation is applied for the number of analysts following a stock, the public firm age and market capitalisation. Year and country dummies are added to every regression in order to control for country specific fixed effects as well as time fixed effects. Standard errors are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable: CAR (-3,+3)										
Constant	**-0.020**	**-0.026**	**-0.022**	**-0.023**	**-0.021**	**-0.018**	**-0.017**	**0.001**	**0.010**	0.002
	(0.023)	(0.024)	(0.027)	(0.028)	(0.028)	(0.027)	(0.027)	(0.029)	(0.096)	-0.095
Ln (1+Analyst following)	**0.011****	**0.009**	**0.009**	**0.009**	**0.011**	**0.007**	**0.007**	**0.005**	**0.006**	**0.005**
	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	-0.008
Ln (1+Public firm age)		**0.003**	**0.003**	**0.003**	**0.003**	**0.002**	**0.002**	**0.001**	**0.001**	**0.001**
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	-0.005
Stock volatility			**-0.124**	**-0.125**	**-0.12**	**0.21**	**0.214**	**0.255**	**0.255**	**0.246**
			(0.449)	(0.454)	(0.449)	(0.488)	(0.490)	(0.451)	(0.454)	-0.436
Bid-ask spread (%)				**0.068**	**0.033**	**-0.046**	**-0.060**	**0.180**	**0.173**	**0.150**
				(0.540)	(0.539)	(0.525)	(0.529)	(0.542)	(0.557)	-0.573
Prestigious Bookrunner					**-0.006**	**-0.005**	**-0.005**	**-0.005**	**-0.005**	**-0.004**
					(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	-0.009
6 month share run up						**-0.0185***	**-0.0182***	**-0.0175***	**-0.0175***	**-0.017***
						(0.010)	(0.010)	(0.009)	(0.009)	-0.009
Market-to-book value							**0.000**	**0.000**	**0.000**	**-0.001**
							(0.001)	(0.001)	(0.001)	-0.001
Relative offer size (%)								**-0.119****	**-0.120****	**-0.104***
								(0.052)	(0.055)	-0.055
Ln (Market capitalisation)									**0.000**	**0.000**
									(0.005)	-0.005
Ln (1+Time lag)										**-0.039*****
										-0.012
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	442	442	442	442	442	442	442	442	442	442
R-squared	0.06	0.061	0.062	0.062	0.063	0.082	0.083	0.094	0.094	0.122

Additional Table V

Mean difference of CARs between accelerated offers and fully-marketed offer

The t-test is a supplement to H1a. The tested variable is the mean of cumulative abnormal return around announcement (-2,2) The sample is comprised of all public offers in the European Union from 2000 to 2013 excluding Closed-End Funds, REITs, issue sizes smaller than $25m and the observations discussed in 5.1.

Group	Observations	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
Accelerated offers	442	-0.0132	0.0033	0.0689	-0.0196	-0.0067
Fully-marketed offers	111	-0.0120	0.0091	0.0954	-0.0300	0.0059
Combined	553	-0.0129	0.0032	0.0749	-0.0192	-0.0067
Difference		-0.0011	0.0096		-0.0202	0.0179

difference = mean (accelerated offer) - mean(fully-marketed offer) t=-0.1166

df = 140.677

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) =0.4537 Pr(|T| > |t|) = 0.9074 Pr(T > t) = 0.5463

Additional Table VI

Correlation Matrix

The table shows the correlation between the different independent variables deployed.

	Analyst Following	Public Firm Age	Bid-ask Spread	Stock Volatility	Prestigious Bookrunner	6M Share Run up	Market-to-book ratio	Relative Offer	Market Cap
Analyst Following	1.00								
Public Firm Age	0.44	1.00							
Bid-ask Spread	-0.38	-0.28	1.00						
Stock Volatility	-0.13	-0.22	0.21	1.00					
Prestigious Bookrunner	0.39	0.15	-0.20	0.00	1.00				
6M Share Run up	-0.18	-0.18	0.13	0.47	-0.08	1.00			
Market-to-book ratio	-0.06	-0.16	0.03	0.20	-0.03	0.23	1.00		
Relative Offer	-0.30	-0.25	0.36	0.13	-0.13	0.04	-0.11	1.00	
Market Cap	0.41	0.20	-0.19	-0.04	0.26	-0.07	0.06	-0.20	1.00

Additional Table VII

Mean difference of offer price discount between accelerated offers and fully-marketed offer

The t-test is a supplement to H2a+2b. The tested variable is the mean of the offer price discoun. The sample is comprised of all public offers in the European Union from 2000 to 2013 excluding Closed-End Funds, REITs, issue sizes smaller than $25m and the observations discussed in 5.1.

Group	Observations	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Accelerated offers	442	0.0306	0.0017	0.0362	0.0272	0.0339
Fully-marketed offers	111	0.0515	0.0058	0.0612	0.0399	0.0630
Combined	553	0.0347	0.0018	0.0432	0.0311	0.0384
Difference		0.0209	0.0061		0.0018	0.0432

difference = mean (accelerated offer) - mean(fully-marketed offer) t=-3.4486

df = 130.257

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0

Pr(T < t) =0.0004 Pr(|T| > |t|) = 0.0008 Pr(T > t) = 0.9996

Additional Table VIII

Ordinary Least Squares regression on offer price discount with interaction terms

The regression is a supplement to H2a and H2b. The dependent variable is offer price discount. The sample is derived from the Dealogic database comprised of all public SEOs in the European Union from 2000 to 2013 excluding Closed-End Funds, REIT, issue sizes smaller than $25m and the deleted observations discussed in 5.1.Log transformation is applied for the number of analysts following a stock, the public firm age, market capitalisation and time lag. AO is a dummy and used as an abbreviation for accelerated offer. Interaction terms are added to the model, multiplying the information asymmetry variables with the fully-market offer dummy. Year and country dummies are added to every regression in order to control for country specific fixed effects as well as time fixed effects. Standard errors are reported in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable: Offer price discount									
Constant	**0.0650*** **	**0.0627*** **	**0.0514*** **	**0.0654*** **	**0.0716*** **	**0.0720*** **	**0.0732*** **	**0.0561*** **	**0.120*** **
	(0.016)	(0.016)	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.037)
AO	**-0.00891**	**-0.000805**	**0.00144**	**-0.0295**	**-0.0337***	**-0.0345***	**-0.0344***	**-0.0291***	**-0.0315***
	(0.014)	(0.014)	(0.019)	(0.018)	(0.018)	(0.018)	(0.019)	(0.017)	(0.017)
Ln (1+Analyst following)	**-0.00412**	**-0.00505**	**-0.00435**	**-0.00689**	**-0.00267**	**-0.00218**	**-0.00205**	**6.32E-05**	**0.00177**
	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
AO*Ln (1+Analyst following)	**-0.00391**	**-0.00117**	**-0.00121**	**0.00629**	**0.00387**	**0.00364**	**0.00344**	**0.00284**	**0.00379**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)
Ln (1+Public firm age)		**0.00331**	**0.00454**	**0.00333**	**0.00279**	**0.00269**	**0.00212**	**0.000689**	**0.00177**
		(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
AO* Ln (1+Public firm age)		**-0.00664**	**-0.00696**	**-0.00542**	**-0.00522**	**-0.00508**	**-0.00464**	**-0.00258**	**-0.0029**
		(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Stock volatility			**0.312**	**0.536***	**0.521***	**0.414**	**0.424**	**0.465**	**0.429**
			(0.275)	(0.283)	(0.267)	(0.309)	(0.309)	(0.305)	(0.302)
AO*Stock volatility			**-0.0637**	**-0.319**	**-0.294**	**-0.215**	**-0.215**	**-0.293**	**-0.252**
			(0.296)	(0.300)	(0.288)	(0.313)	(0.314)	(0.307)	(0.303)
Bid-ask spread (%)				**-0.886***	**-0.920** **	**-0.871***	**-0.872***	**-1.059** **	**-1.063** **
				(0.490)	(0.456)	(0.455)	(0.455)	(0.468)	(0.467)
AO*Bid-ask spread (%)				**1.666*** **	**1.656*** **	**1.617*** **	**1.595*** **	**1.655*** **	**1.609*** **
				(0.513)	(0.485)	(0.485)	(0.488)	(0.495)	(0.497)
Prestigious Bookrunner					**-0.0223** **	**-0.0214** **	**-0.0219** **	**-0.0246** **	**-0.0216** **
					(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
AO*Prestigious Bookrunner					**0.0149**	**0.014**	**0.0143**	**0.0171***	**0.0165**
					(0.011)	(0.011)	(0.011)	(0.010)	(0.010)
6 month share run up						**0.00158**	**0.0017**	**0.00192**	**0.00209**
						(0.002)	(0.002)	(0.002)	(0.002)
Market-to-book value							**-0.000364**	**-0.000202**	**-0.00016**
							(0.000)	(0.000)	(0.000)
Relative offer size (%)								**0.0712*** **	**0.0601** **
								(0.022)	(0.024)
Ln (Market capitalisation)									**-0.00330***
									(0.002)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	553	553	553	553	553	553	553	553	553
R-squared	0.172	0.175	0.187	0.219	0.233	0.234	0.236	0.255	0.259

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