The Marketing of Seasoned Equity Offerings

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Abstract

Accelerated seasoned equity offerings (SEOs), which include bought deals and accelerated bookbuilt offers, have increased dramatically in the U.S. and globally recently. Accelerated offers are cheaper than traditional fully marketed offers in terms of direct issue costs. To explain why some issuing firms choose a fully marketed offer instead of an accelerated offer, we develop a model in which marketing flattens the issuer's demand curve. Empirical analysis shows that the pre-issue elasticity of the issuing firm's demand curve and the offer size are important determinants of the offer method. For an issuing firm that is average in other ways, if it has an above average relative issue size of 30% and an inelastic demand curve at the 90th sample percentile, the probability of using an accelerated SEO is only 0.8%. On the other hand, if the issuer has a below average relative issue size of 10% and an elastic demand curve at the 10th sample percentile, the probability of an accelerated offer increases significantly to 28.4%. In our analysis, the elasticity of demand at the time of issuance is endogenous.

1. Introduction

Seasoned equity offerings (SEOs), also known as follow-on offerings, can be categorized into three major types by their offer methods: fully marketed offers, accelerated offers, and rights offers.[1] The academic literature on the issue method for SEOs has focused on rights versus underwritten (bookbuilt) offers, although rights offers are virtually nonexistent in the U.S.[2] In contrast, there is no theoretical or empirical treatment of the choice between accelerated offers and traditional bookbuilt offers, also known as fully marketed offers.

Fully marketed SEOs are issued in much the same way as bookbuilt initial public offerings (IPOs). Firms wishing to raise cash issue primary shares and current shareholders wishing to sell existing shares issue secondary shares, and a prospectus is printed. The issuer negotiates with one or more investment banks to market the offer and then set the price. The lead underwriter or underwriters conduct a due diligence investigation and "certify" the quality of the company. As part of the marketing effort to develop interest in the offer, the bookrunner usually conducts a road show. In a typical road show, the issuer's management meets with selected institutional investors, analysts, and securities sales personnel over a two week period. At the same time, the bookrunner assesses investors' demand and builds an order book, which is used to help determine the offer price. A syndicate of underwriters, led by the bookrunner, then distributes the shares, although for some of the underwriters, their only involvement may be in providing subsequent research coverage, or even less.

Accelerated offers include bought deals and accelerated bookbuilt offers. They are usually shelf registered offers.[3] These accelerated deals, especially accelerated bookbuilt offers, have become common during the last decade. Bortolotti, Megginson, and Smart (2007) provide an excellent review of the history and development of accelerated offers.[4] Bought deals started in the mid-1980s. With a bought deal, the issuing firm announces the amount of stock it wishes

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[1] Throughout this paper, the following terms: fully marketed, fully underwritten, regular, firm commitment, bookbuilt, and conventional offers, are used interchangeably unless noted otherwise.

[2] Previous studies on rights offers versus bookbuilt offers include Smith (1977), Heinkel and Schwartz (1986), Eckbo and Masulis (1992), Eckbo and Oyvind (2004), and Rinne and Suominen (2007).

[3] Some previous studies exclude shelf registered offers (Altinkilic and Hansen, 2003, 2006) and some pool shelf and non-shelf offers together (Corwin, 2003).

[4] Bortolotti, Megginson, and Smart's (2007) terminology of bought deals is slightly different from ours. They refer to bought deals in Canada as bought deals and bought deals in the US as block trades. We define US block trades as bought deals.

to sell and investment banks bid for these shares, usually by submitting bids shortly after the market's close. The bank that offers the highest net price wins the deal. The winning bank then re-sells the shares on the open market or to its investors, usually within 24 hours. Because of this timing, bought deals are also known as overnight deals. Bought deals are essentially auctions to underwriters followed by open market sales.

Accelerated bookbuilt offers emerged in the late 1990s.[5] During the last decade, accelerated offers have gained market share quickly both in the US and around the world. In 2004, more than a third of issues in the rest of the world were accelerated SEOs, according to Table 2 in Bortolotti, Megginson, and Smart (2007). Unlike bought deals, in accelerated bookbuilt offers, banks do not initially purchase the whole issue from the issuing company. They submit proposals, usually specifying a gross spread but not necessarily an offer price, for the right to underwrite the sale of the shares. The winning bank then usually forms a small underwriting syndicate and begins marketing the shares to institutional investors. The offer price is then negotiated between the issuing firm and the bank. The bookbuilding procedure is "accelerated" in the sense that no road show is conducted and the underwriting procedure is typically completed within 48 hours.[6]

Before the late 1990s, the US equity market was dominated by fully marketed SEOs. In contrast, many Asian, Australian, and European SEOs used rights offers. In a rights offer, current shareholders are given short-term warrants to purchase newly issued shares on a pro rata basis at a discount relative to the current market price of the stock.

The major difference between a fully marketed offer and an accelerated offer, aside from the speed of completing the deal, is the extent of the underwriter's marketing of the issue. We develop a model of the role of marketing in seasoned equity offerings to explain the issuing firm's choice between a fully marketed offer and an accelerated offer. In the model, marketing flattens the demand curve of the issuer's stock. The underwriter's marketing effort, i.e. a road show, can change the issuing firm's stock demand elasticity, which is reflected in a higher stock price after the issue. This marketing effort does not come for free, however. The issuing firm

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[5] Dealogic's ECM Analytics Database identifies the first accelerated bookbuilt offer in 1997, which is consistent with the first usage of the term 'accelerated book-building' in July 1997 (Warn (1997)).

[6] This is confirmed in our sample where 96% of accelerated offers, including bought deals and accelerated bookbuilt offers, are completed within two days.

needs to balance the gain from a higher stock price with the extra underwriting expenses associated with greater marketing effort.

To the best of our knowledge, this is the first time this marketing paradigm has been used in the finance literature. The bookbuilding literature has focused on the acquisition of information by underwriters about the state of the demand, e.g., Benveniste and Spindt (1989). In contrast, we posit that an important feature of traditional bookbuilding is the marketing of the issue. While many studies have assumed that a negatively sloped demand curve exists, these papers have assumed that the elasticity of demand is exogenous. This paper not only explicitly adopts a supply and demand framework to analyze SEOs, but posits that the demand curve that an issuing firm faces is affected by the choice of issue methods. In other words, the short-run demand curve that an issuing firm faces is an endogenous choice variable.

The marketing effort can change the elasticity and helps the issuer to achieve a higher offer price and post-issue market price. The benefits of marketing are larger if the demand curve is more inelastic or if the offer size is higher. Therefore, our model predicts that an issuing firm is more likely to pay the higher fees and choose the fully marketed offer method the more inelastic is its demand curve prior to the offer. The fully marketed offer method is also preferred if the offer size is large.

Our empirical results support the model's predictions. We use two measures to proxy for the demand elasticity. The first measure is an order flow inverse demand elasticity, the ratio of the average daily absolute returns to the average daily turnover. The second measure is the arbitrage risk measure used in Wurgler and Zhuravskaya (2002), the variance of daily market model residual returns. We document that firms that face a relatively inelastic demand curve prior to the offer, raise a large amount of capital, or offer a large number of shares compared to the number of shares outstanding before the offer, are more likely to conduct a fully marketed SEO.

For an issuing firm that is average in other ways, if it has an above average relative issue size of 30% of the pre-issue shares outstanding and ex ante has a relatively inelastic demand curve, with an $\text{Ln}(A_1)$ value of 4.06 (the 90^{th} percentile of the order flow inverse demand elasticity), the probability of using an accelerated offer is only a miniscule 0.8%. On the other hand, if the issuer has a relative offer size of 10% and is in the 10^{th} percentile of the order flow

inverse demand elasticity (with an $Ln(A_1)$ value of 0.84), the probability of using an accelerated offer is a sizeable 28.4%. We also find that a smaller market capitalization, a smaller fraction of primary shares, and less analyst coverage all increase the probability of using a fully marketed offer, which indicates that firms with high information asymmetry favor fully marketed offers.

Our framework is not mutually exclusive with those in previous studies on information asymmetry and information production. The downward-sloping demand curve can arise from asymmetric information (Benveniste and Spindt 1989), differences of opinion among investors (Miller 1977), or a limited number of investors who are paying attention to the stock (Merton 1987, Zhang 2004). If the issuing firm faces high information asymmetry in these models, it has a relatively inelastic demand curve and it can benefit from fully marketing the offer. During the underwriting process, the bookrunner produces information about the market demand for the SEO and then sets the offer price. More syndicate members, including co-managers and non-managing underwriters, can reach out to more investors. These additional underwriters can also provide more information to the bookrunner about market interest in the offer.

Corwin and Schultz (2005) examine the role of syndicate members in IPOs and find strong evidence of information production. Huang and Zhang (2008) find that, for SEOs, more managing underwriters result in a smaller offer price discount, defined as the percentage price change from the previous market price to the offer price. They attribute this to the managing underwriters' pre- and post-issue marketing efforts. Consistent with these two studies, we find that fully marketed offers tend to have more co-managers and larger syndicate groups compared to accelerated offers. In our sample, 66% of the accelerated SEOs do not hire a co-manager. In contrast, only 6.1% of the fully marketed offers do not have a co-manager.

Our study supports the argument that demand curve elasticity has a significant impact on corporate financial decisions. Two other papers reach the same conclusion. Hodrick (1999) studies tender offer choice in share repurchases and finds that firms that choose Dutch auctions instead of the fixed price tender offers tend to face more elastic demand curves. Baker, Coval, and Stein (2007) argue that for acquiring firms that face downward-sloping demand curves, investor's inertial behavior (i.e. the tendency to react passively) mitigates the negative merger announcement effect, and increases the benefit of a stock-for-stock merger relative to a cash acquisition.

The rest of the paper is organized as follows: In section 2, we review the related literature on marketing and stock demand elasticities. Section 3 develops a model of the role of marketing in seasoned equity offerings. Section 4 discusses the sample construction and presents univariate patterns. Section 5 estimates two demand elasticity proxies and analyzes the determinants of the offer method using a binomial logistic model. Section 6 concludes.

2. Related Literature

2.1 Marketing

Figure 1 illustrates and compares the SEO process associated with the three offer methods: bought deals, accelerated bookbuilt, and fully marketed SEOs.

In a fully marketed offer, a preliminary prospectus is distributed and lead underwriters together with the issuing firm's executives hold a traditional road show. They visit large institutional investors to create interest and build the demand schedule of the offer. During the road shows, institutional investors acquire more information regarding the issue. The road show process usually lasts for two weeks, so investors have plenty of time to investigate and make their investment decisions.

In a bought deal, in contrast, the winning bank buys all the shares and re-sells them immediately, usually overnight. In an accelerated bookbuilt SEO, the winning bank assembles at most a small underwriting syndicate and usually sells the whole issue within 48 hours. Therefore, there is little marketing effort involved in an accelerated underwriting and investors have little time to evaluate the offer.

Marketing increases the number of investors paying attention to a given stock. Both theoretical and empirical research shows that attention plays an important role in investor's trading behavior and stock prices. In Merton (1987), investors have a positive demand for only those stocks with which they are familiar. Busse and Green (2002) report that trading volume for Nasdaq-listed stocks increases by an average of 300,000 shares in the four minutes after an analyst mentioned a stock favorably on CNBC's Midday Call segment. Barber and Odean (2008) test and confirm the hypothesis that individual investors are net buyers of attention-grabbing stocks, described as those that are in the news, have high trading volume, or have extreme one-

day returns. In addition, Yuan (2008) finds that high attention also influences both the aggregate market price level and the trading behavior of institutional investors.

2.2 Downward Sloping Demand Curves

In a classical efficient market framework, demand curves for stocks are horizontal. At any point in time, market prices reflect all available information. Therefore, a shock in the demand or supply should not move the stock price if it does not change the expectation of the underlying value. Empirical evidence from many sources, however, suggests that demand curves for common stocks are actually downward sloping.

A number of studies that look at price changes when stocks are added to or deleted from an index distinguish between short-run and long-run demand curves. Index additions and deletions represent a clean test of demand curve slopes because in most cases they are per se informationless. The early studies of the stock price reaction to additions or deletions from the S&P 500 index are discussed in Lynch and Mendenhall (1997), who find evidence of both temporary and permanent return components, which supports the notion of different short-run and long-run elasticities. Wurgler and Zhuravskaya (2002) document that stocks without close substitutes experience a larger price jump when added to the S&P 500, implying less elastic short-run demand curves for these stocks. Braun and Larrain (2008) present related evidence from IPOs in emerging markets.

Similar results are reported for the stocks that are added to or deleted from other indices. Madhavan (2003) and Biktimirov, Cowan, and Jordan (2004) report that stocks added to or deleted from the Russell 2000 in its annual reconstitution experience significant returns. Liu (2000) finds positive price changes when stocks are added to the Nikkei 500 Index, with no significant post-event reversals. In addition, Kaul, Mehrotra, and Morck (2000) examine stock price changes in response to the re-weighting of the Toronto Stock Exchange 300 Index in 1996, finding strong support for downward sloping demand curves for common stocks.

Greenwood (2005) studies the redefinition of the Nikkei 225 index in April 2000. He finds that not only do additions and deletions experience significant price changes, but securities that are not directly affected by the substitution of securities also experience abnormal returns due to their correlation with securities undergoing changes in demand. Furthermore, he shows

that the short-run effects are partly reversed over the following 20 weeks, implying a more elastic long-run demand curve than in the short run.

The studies examining index changes universally find price effects, but they rarely estimate the implied elasticity because the change in quantity demanded by index funds and other portfolio managers that are benchmarked to the index is difficult to quantify. Wurgler and Zhuravskaya's (2002) study, however, is a notable exception. When shares are issued by the company, however, it is possible to estimate an elasticity in some circumstances. Kandel, Sarig, and Wohl (1999) analyze the full demand schedules of 27 Israeli IPO auctions and estimate that the average elasticity is -37, indicating that a 37% increase in shares issued is associated with a 1% fall in price. Degeorge, Derrien, and Womack (2008) analyze 19 U.S. IPO auctions and estimate an elasticity of -34.

Seasoned equity offerings result in an increase in the supply of shares to the public. In the U.S., but not all countries, the announcements are associated with stock price falls. After the SEO announcement, the stock usually continues to experience a negative abnormal return until the offer. The negative returns have been interpreted in the literature as due to a combination of information (Myers and Majluf, 1984) and price pressure caused by downward sloping demand curves. The information effects normally make estimating an elasticity problematic. Loderer, Cooney, and Van Drunen (1991) study the announcement effect of seasoned offerings by regulated firms. Their event study is a direct test on price elasticity of common stocks because regulated firms' equity issues are less likely to suffer from information effects. They estimate a median elasticity of -4.3 in their Table 4. Meidan (2005) use instrumental variables to separate out information effects and find support for the existence of temporary price pressure.

Share repurchases represent a decrease in the supply of shares to the public. A positively sloped supply curve for buyers is analogous to a negatively sloped demand curve for sellers. Bagwell (1992) documents that firms face upward-sloping supply curves when they repurchase shares in a Dutch auction. Hodrick (1999) confirms the existence of an inelastic demand curve and concludes that the expected stock elasticity is an important determinant of the tender offer choice. She measures the inverse elasticity as the price premium above the market price before the announcement divided by the fraction of shares tendered. She finds an average inverse elasticity of 1.27 for Dutch auction firms and 0.99 for fixed price tender offer firms. Her study is

similar to ours in that she focuses on differences in elasticities determining corporate choices. Unlike our analysis, however, she takes the elasticity as exogenous.

In the market microstructure literature, the depth of the limit order book determines the short-run elasticity of demand. Larger sell orders get executed at progressively lower prices because investors assume that larger sell orders are more likely to be motivated by negative information (O'Hara, 1995). Trades that are not motivated by private information, however, face a larger price impact the larger the trade. In equilibrium, the short-run elasticity reflects the market's expectations of the mix of informed and uninformed trades.

To summarize, there is widespread evidence that both the short-run and long-run demand curves for stocks are negatively sloped. Furthermore, Bagwell (1992), Hodrick (1999), and Baker, Coval, and Stein (2007) also link the demand elasticity to corporate financial decisions.

2.3 Securities Offerings and Marketing

The vast majority of academic studies on the announcement effects associated with SEOs have focused on information releases either explicitly or implicitly. One of the few exceptions is Huang and Zhang (2008), who posit that the use of multiple managing underwriters is motivated by marketing considerations. Huang and Zhang (2008) report that if one more managing underwriter is hired, the offer price discount is reduced by 0.26%. They argue that the smaller price discount results from the additional managing underwriter's marketing efforts, which reduce the price pressure and the downside price risk. Huang and Zhang (2008) focus on the gross spread and offer price discount to examine the impact of hiring additional managers on direct and indirect issue costs. Our study has a different focus. We examine the issuing firm's pre-issue demand elasticity and analyze the determinants of the offer method.

Another concurrent paper that also views marketing as an important function of securities underwriting is Chanine, Ljungqvist, and Michaely (2008), who focus on IPOs and analyst coverage.

3. A Model of the Marketing of SEOs

3.1 The Model

In this section, we develop a model to study the economics of the underwriter's marketing effort. Our model starts with a downward-sloping demand curve. In Wurgler and

Zhuravskaya's (2002) model, the demand curve's slope is more negative when (i) the stock does not have close substitutes (more arbitrage risk), (ii) the risk aversion of arbitrageurs is high, (iii) the heterogeneity of non-arbitrageurs' beliefs is high, and (iv) the number of arbitrageurs is small. Here, we focus on the issuer's short-term demand curve around the seasoned offering.

Figure 2 illustrates the model. Suppose that there is a group of N investors with homogeneous beliefs about the issuing firm's fundamental value. Each investor has a downward sloping demand curve X(p). Then the aggregate short-run demand curve, the solid line in Figure 2, is NX(p). Before the offer, the market equilibrium price is P_1 , which is jointly determined by the aggregate demand and supply of shares. P_1 also represents the price that the stock will converge to in the long-run as the demand curve rotates from the steep short-run relation to the more elastic long-run relation. The offering represents an increase in supply from X_1 to X_2. If there is no marketing, the short-run demand curve remains the same throughout the offering and as a result of the movement along the demand curve, the stock price drops from P_1 to P_2.

If the issuing firm decides to market the offering, the marketing efforts will attract new investors into the issue, as modeled in a product market context by Dixit and Norman (1978) and Shapiro (1980). For simplicity, we assume that M new investors with the same demand curve become aware of the issue and decide to participate. The new aggregate demand curve is (M+N)X(p) , represented by the dashed line in Figure 2. The new demand curve is now flatter than the old curve NX(p). Therefore, the new post-issue stock price will be higher due to the higher demand at each price. Our model is also similar to the one in Merton (1987). In Merton's model, a larger investor base increases the equilibrium price, although Merton does not explicitly model the demand curve in his study.

The new demand curve results in the issuer facing a different elasticity of demand and a higher offer price P^*. With the increase in the offer price from P_2 to P^*, the shaded rectangular area represents the issuer's gross gain from marketing. For a given supply increase, the gain from marketing will be larger the more inelastic is the pre-offer demand curve. If this gain is sufficiently large and exceeds the direct cost saving from switching to an accelerated offer, the issuing firm would prefer the fully marketed offer.

Also, note that the size of the shaded rectangle will be larger when there is a larger supply increase. A larger offer size represents a larger move along the short-run demand curve, which

implies a larger price drop for any given negatively sloped demand curve. If the issue significantly increases the public float, resulting in greater price pressure, a fully marketed offer is preferred.

3.2 Model Predictions and Testable Hypotheses

Given that the costs of conducting a road show are largely fixed costs, our model predicts that the benefits of a fully marketed offer exceed the costs if

1. The ex ante demand curve of the issuing firm's stock is relatively inelastic, and
2. The offer size is large.

The two predictions yield two testable hypotheses:

1. The issuing firm's ex ante demand elasticity is an important determinant of the offer method.
2. The offer size is an important determinant of the offer method.

We want to point out that we do not attempt to estimate the dollar value of the gain from marketing because it is difficult to find both the post-issue price with marketing, P^*, and the post-issue market price without marketing, P_2. For a fully marketed offer, it is hard to estimate the counterfactual price P_2 had there been no marketing. To find P^* is also a challenge. On the day of the SEO announcement, market efficiency suggests that the market price should immediately adjust to anticipate any price pressure effects associated with the increase in supply on the issue day. At the same time, the market price should also immediately incorporate the information released by the announcement. Therefore, the observed closing price on the announcement day is the combination of the information effect and the anticipated price pressure effect. To find P^* requires isolating the information effect from the price pressure effect, which is difficult to implement empirically. Furthermore, the observed announcement day closing price may still deviate from the expected post-issue price due to transaction costs and arbitrage limitations, as well as uncertainty about whether the deal will be completed.

In our model, the demand curve should become more elastic after the offer due to the marketing effort if a fully marketed rather than an accelerated offer method is used. To estimate the effect of the issue method on the change in elasticities requires controlling for other determinants of the elasticities that have changed, such as the increased number of shares

outstanding and any price runup before the SEO. In our empirical analysis, we find that fully marketed offers experience the largest increase in demand elasticity.

3.3 Extensions of the Model

Two assumptions in this model can be relaxed to make it more general.

First, investors can have heterogeneous beliefs. Even if the new investors are less optimistic than current shareholders, their participation will still flatten the demand curve, as pointed out in Shapiro (1980). In fact, Bagwell (1992), Kandel, Sarig, and Wohl (1999), and Degeorge, Derrien, and Womack (2008) have demonstrated that investors have heterogeneous reservation prices.

Second, the marketing of an SEO can shift the demand curve even if it does not change the elasticity. The announcement of the SEO may convey information to the market. Myers and Majluf (1984) show that under certain conditions, the market interprets the announcement of a seasoned offer as a negative signal that the issuing firm is overvalued. The demand curve is shifted downward in parallel and results in the price drop upon the announcement of the offer. After the announcement, the underwriter's marketing efforts may reduce the information asymmetry so the demand curve will be flattened and shifted upward in parallel. In our empirical study, we do not attempt to disentangle the information asymmetry and the price pressure. However, we predict that if a firm faces high information asymmetry prior to the issue, it may benefit more from fully marketing the offer.

4. Sample and Descriptive Statistics

4.1 Sample Selection

We select all US common stock seasoned equity offerings in the Dealogic Equity Capital Markets (ECM) Analytics Database between January 1st, 1996 and December 31st, 2007. To identify the offer method, we mainly rely on Dealogic's classification, supplemented by the length of time between the filing day and the trade day. In the Appendix we compare Dealogic's classification with the Thomson Financial Securities Data Company's (SDC) new issues database's classification of the offer method and discuss some details regarding the accuracy of the classification of the offer method. We find that Dealogic's classifications are much more accurate.

We apply the following data restrictions:

1) The issuer must be a US-based public company (ADRs and ADSs are excluded).
2) The issuer's stock must be listed on the NYSE, AMEX, or NASDAQ.
3) Offers on a best efforts basis are excluded. [7]
4) NonSEC-registered offers and offers under SEC Rule 144A are excluded.[8]
5) Private placements, rights offers, and unit offers are excluded. [9]
6) SEOs of closed-end funds and REITs are excluded.
7) Pure secondary offerings are excluded. [10]
8) The issuing firm must be present on the University of Chicago Center for Research in Security Prices (CRSP) database on the last trading day prior to the announcement day, the offer day, and the first trading day after the issue.
9) Accelerated offers that are either identified as non-shelf offers or spend more than 3 days from the filing to the offer are excluded.[11]

Pure secondary SEOs are offerings in which all of the shares are being sold by existing shareholders. We exclude pure secondary offerings because they are similar to large sales (block trades) in the open market. Our empirical results are robust to including these pure secondary SEOs, and tables are available upon request.

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[7] We excluded 1,213 offers issued on a best efforts basis. The majority of these best efforts are private placements, usually by small firms. Dealogic does not report the final proceeds or fees for these deals and the prospectuses usually only list the maximum proceeds and placement agent fees.

[8] 630 non SEC registered offers and one SEC registered Rule 144A offer are excluded. SEC Rule 144A applies to private sales of securities to qualified institutional investors.

[9] Dealogic-identified private placements include Private Investment in Public Equity (PIPEs), PIPOs and 'registered direct' offers. The best efforts screening catches most PIPEs and after that, 1 PIPO, 1 rights offer and 223 unit offerings are excluded.

[10] 846 pure secondary offerings, in which all of the shares are being sold by existing shareholders, are excluded. Among the 846 pure secondary offerings, 262 are bought deals, 46 are accelerated bookbuilt offers, and 538 are fully marketed offers.

[11] Generally speaking, only companies that are eligible for shelf registrations are eligible for accelerated SEO offers. There are exceptions and possible data mistakes. For example, the offer by First Republic Bank on August 15th, 2005, is exempted from registration under Section 3(a)(2) of the Securities Act of 1933. MBNA filed a shelf registration on March 29th, 1999 and conduct a bought deal on August 14th, 2000. But Dealogic reports this as a non-shelf takedown. Most of these deals are small offers with less than $100 million in proceeds so we exclude all 35 non-shelf accelerated offers. 10 accelerated SEOs that spend more than 3 days from the filing to the offer are dropped. Inclusion of these 10 deals has little impact on our analysis results. Five bought deals spend more than 100 days from the filing to the offer. For example, Rowan Companies filed the registration on Oct 13th, 1999 and completed the offer on Feb 16th, 2000 so there are 126 days between the filing and the offer.

In addition to the other selection criteria, we require that an issuer has a pre-issue market capitalization of $75 million. An issuer needs to file a shelf registration prior to conducting an accelerated SEO.[12] This requires the issuer to have at least $75 million in market capitalization.[13] This market capitalization requirement reduces our sample size from 3,614 to 3,276 SEOs for our empirical analysis.

4.2 Offer Methods

Our sample includes 3,276 US SEOs during January 1st, 1996 to December 31st, 2007.[14] Panel A of Table 1 reports the number of offers with each offer method by year. The number of SEOs fluctuates over the twelve year sample period, although the fluctuation in volume from year to year is much smaller than for IPOs. The number of bought deals and accelerated bookbuilt offers has increased substantially after 2000. In 1996, there was only 1 bought deal and there were no accelerated bookbuilt offers. In 2007, there were 27 bought deals and 46 accelerated bookbuilt offers. Bought deals and accelerated bookbuilt offers also have gained market share in terms of proceeds raised over time. In 2007, these accelerated offers account for 25% of the total proceeds raised in seasoned equity offerings.

The offer proceeds fluctuate with the overall market valuation. In our sample, an average SEO raises $108 million in 1996, $282 million in 2000, and $196 million in 2007.[15] To control for the time-series variation in valuations, in our empirical work we adjust the nominal proceeds via scaling by the nominal year-end value of the Standard and Poor's 500 Index. The normalized proceeds, expressed in terms of 1996 valuations, is given by

$$\text{Nominal Proceeds} \times \frac{\text{S\&P 500 Index}_{1996}}{\text{S\&P 500 Index}_{\text{SEO Year}}}.$$

[12] The shelf registration process allows issuing firms to file a single all-encompassing registration statement once every two years rather than filing individual registration statements for every security offering. Once its shelf registration statement is approved by the SEC, a firm can issue securities without further disclosure requirements or regulatory delays. In practice, even for bought and accelerated bookbuilt deals, firms normally issue a prospectus.

[13] There are other requirements in addition to the market capitalization requirement. For details, see Bethel and Krigman (2006).

[14] Our sample is smaller than Bortolotti, Megginson, and Smart's (2007) because we exclude ADRs, private placements, and pure secondary offerings.

[15] The total proceeds include the exercised overallotment value. Unlike the SDC New Issues Database, Dealogic reliably reports the exercised amount.

Panel B of Table 1 compares shelf-takedown and non-shelf takedown offers within each offer method. Over the twelve-year sample period, there are 1,332 shelf-takedown SEOs. 766 of those shelf-takedown SEOs are fully marketed. 290 shelf-takedowns are bought deals and 276 are accelerated bookbuilt offers. All of the 1,944 non-shelf takedown offers are fully marketed.

Shelf-registered issuers do not seem to have any dominating preference between accelerated offers and fully marketed offers. Almost sixty percent of the shelf-takedown SEOs are fully marketed offers. Autore, Kumar, and Shome (2008) also conclude that neither method dominates among shelf issuing firms. Therefore, we do not consider the issuer's endogenous decision on shelf registration as an explanatory variable in our empirical tests.

4.3 Offer Characteristics

Table 2 compares offer characteristics among the three offer methods. The first column lists results for the entire sample of SEOs, while the second, third, and fourth columns compare among bought deals, accelerated bookbuilt SEOs, and fully marketed SEOs. For each offer characteristic variable, Table 2 reports mean and median values. The last column reports the p-values from the Kruskal-Wallis (KW) test on the means and the Chi-squared test on the medians to test for a distribution difference between accelerated SEOs, which include bought deals and accelerated bookbuilt SEOs, and fully marketed SEOs.[16] Our analysis focuses on mean values but results based upon medians are similar.

We normalize the market capitalization and the offer proceeds by the nominal S&P 500 Index level with 1996 being the base year.[17] The average issuing firm in our sample has a normalized market capitalization of $1.2 billion before the offer. On average, the issuer is raising $113 million in normalized proceeds and increases the shares outstanding by 22.5%, as measured by the relative offer size, defined as the ratio of the offered shares to the total shares outstanding prior to the issue. The average percentage increase is much larger than the average proceeds as a percentage of the average pre-issue market capitalization because larger companies typically issue a much smaller fraction of shares than smaller companies do. Primary shares,

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[16] The Kruskal-Wallis (KW) test does not require the dependent variables to be normally distributed.

[17] The market capitalization is calculated on the last trading day before the announcement of the offer and is normalized in the same fashion as for the deal proceeds. For firms with dual class shares, the market cap is restricted to the publicly traded shares reported on the CRSP tapes.

which are shares offered by the issuing firm, are on average 85% of the total number of shares offered, with most SEOs having 100% of the issue coming from the company rather than existing shareholders.

As revealed in columns 2, 3, and 4 in Table 2, bought deals, accelerated bookbuilt offers, and fully marketed offers differ substantially from each other. Test statistics indicate that the difference between accelerated SEOs and fully marketed SEOs in most of the offer characteristics is statistically significant. Furthermore, frequently there is a monotonic relation in the means among the three groups, with accelerated bookbuilt offers in between. This indicates that accelerated bookbuilding may be an alternative method for marginal issuers in the bought deals and fully marketed deals groups.

Accelerated bookbuilt SEOs tend to be chosen by larger firms and bought deals are chosen by the largest firms. Compared to an average issuer of a fully marketed offer, the average accelerated bookbuilt issuer is three times larger and the average bought deal issuer is almost four times larger.

The offer proceeds, however, show only modest differences across offer methods. As a result, the relative offer size for fully marketed deals is on average much larger since the relative offer size is approximately the ratio between the proceeds and the market capitalization. In Figure 3, we show a scatter diagram of the relation between the issuing firm's market capitalization prior to the offer and the relative offer size across offer methods, for SEOs in 2007.[18] Among the 211 SEOs in 2007, 91% of firms issuing more than 15% of their equity (72 out of 79) use fully marketed offers, whereas only 27% of firms issuing less than 10% (13 out of 49) do so.

Figure 3 shows that firms choosing fully marketed offers tend to be small firms selling a relatively large amount of shares. The larger relative offer size for fully marketed offers is consistent with our model prediction: Firms that may suffer from a larger price decline due to a larger move along the pre-issue demand curve prefer to fully market the offer because the marketing effort flattens the demand curve and helps to achieve a higher offer price. The smaller market capitalization for fully marketed deals is also consistent with our model's prediction:

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[18] Other years show the same pattern. Only one year's data is used to avoid obscuring the pattern by plotting too many points.

Small firms tend to have less elastic demand curves because of lower institutional ownership, and thus receive greater benefits from marketing.

Table 2 also shows that accelerated bookbuilt offers tend to hire slightly more bookrunners, with prestigious underwriters (as measured by Carter-Manaster ranking) predominating among all three of the offer methods. Bought deals and accelerated bookbuilt offers, as suggested by the offer method, have a very short underwriting process. On average, bought deals and accelerated bookbuilt SEOs are offered within one day of the filing. In contrast, fully marketed offers spend 31 days on average to complete after the filing, although there is considerable dispersion.[19] A longer underwriting process requires more resources and input from both the issuer and the lead manager, which also explains why fully marketed offers are the most expensive.

Fully marketed offers pay the highest gross spreads, 5.10% on average. Bought deals pay 2.28% and accelerated bookbuilt offers pay 4.23% on average.[20] These results are comparable to those reported in previous studies, including Bortolotti, Megginson, and Smart (2007).

The difference in gross spread among the three offer methods is significant and important. In a bought deal, the underwriter commits to purchase all of the shares for resale to the secondary market. There is no book-building nor road show involved. The underwriter of a bought deal faces greater uncertainty about the price at which the shares can be resold because in general the market has not had a prior opportunity to react to the offer announcement. In an accelerated bookbuilt offer, the lead manager collects price/quantity pairs from institutional investors and underwriters, and then sets the price of the shares in agreement with the issuer using the order book. In fully marketed offers, the lead manager conducts a road show while building the order book so the bookbuilding process is longer. In accelerated bookbuilt offers and fully marketed offers, the offer price is not set until after the market knows about the issue and has reset the stock price, so the underwriter does not assume as much price risk as in bought deals. The risk is

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[19] Note that the average is affected by several extreme cases. 14 fully marketed offers spend more than 180 days. The longest case is the offer by Carmike Cinemas Inc in 2004. This offer is announced on Jun 7th, 2002 with an expected pricing date of August 5th, 2002, revised on July 17th, 2002, revised on Nov 18th, 2003, revised on Dec 16th, 2003, and revised on Jan 14th, 2004, and eventually took place on Jan 29th, 2004. So there are 601 days between the announcement and the offer.

[20] Some bought deals are sold for a net price with no reported gross spread. The gross spread on these deals is assigned a value of zero for computing the average.

smaller in fully marketed offers because the market has more time to value the deal and the underwriter has more time to build the order book.

The evidence in Table 2 suggests that a higher gross spread is associated with bookbuilding and expensive marketing efforts, even though the underwriter is exposed to more resale price risk on bought deals. Unreported multivariate analysis confirms that after controlling for various offer and firm characteristics, fully marketed offers pay an average 3% higher gross spread than accelerated SEOs. Despite the lower gross spread, an accelerated SEO can still be very lucrative for the underwriter. A typical accelerated deal with $200 million in proceeds and a 3% gross spread generates $6 million in revenue for the investment bankers in return for just a few days work.

In Table 2, we also report the pre-offer stock return, announcement effect, price discount, and underpricing. The pre-offer stock return is the buy-and-hold stock return (BHR) calculated over the 250 trading days before the announcement. The announcement effect is the cumulative market-adjusted return (CMAR) estimated over the two-day window [-1, 0], $\sum_{t=-1}^{0}\left(r_{i,t}-r_{m,t}\right)$, ending with the announcement date (day 0).[21] On average, our sample offers experience a significant stock price run-up (total return) of 108% in the year prior to the SEO announcement and a -1.72% cumulative market adjusted return around the announcement of the offer. If we expand the CMAR to a three-day window, [-1,1], the average return is -2.1%, which is comparable to the numbers presented in previous studies.[22] Our results remain qualitatively the same if we use the three-day window.

The pre-offer stock run-up and announcement effects vary among the three groups. Fully marketed offers experience the largest pre-offer BHR, an average of 118%. Bought deals and accelerated bookbuilt offers experience a smaller average stock price increase, 73% and 45%

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[21] Dealogic reports the number of days from the announcement to the offer. We checked several offers and find that if the announcement is made after the market closes and the offer takes place on the next day, Dealogic reports 0 between the announcement date and the offer date. So the announcement day should be the actual day that the stock price reacts to the announcement. Therefore, unlike some previous studies on the announcement effect, we exclude the return on the day after the announcement.

[22] See Table 5 in Ritter (2003) and Table 13 in Eckbo, Masulis, and Norli (2007), which summarize the announcement effects from different studies.

respectively. But note that accelerated issuers tend to be big firms, so they are less likely to have a huge price run-up.

Bought deals suffer the least amount of negative market reaction, an average of -1.49%, and accelerated bookbuilt offers experience an average of -2.55%. But note that bought deals and accelerated bookbuilt offers are often announced and underwritten on the same day. So the CMAR includes both the announcement effect and price pressure caused by an inelastic demand curve. Fully marketed offers experience an average announcement effect of -1.66%, but fully marketed deals tend to have a larger relative size, which would, everything else the same, result in a more negative average market reaction.

Denoting the closing price on the previous trading day of the offer by MP_{t-1}, the offer price by OP, and the closing price on the offer day by MP_t, the discount is the percentage price change from the closing price on the previous trading day of the offer to the offer price, $\left(\frac{OP - MP_{t-1}}{MP_{t-1}}\right)\times 100\%$. Underpricing is the percentage price change from the offer price to the closing price on the offer day, $\left(\frac{MP_t - OP}{OP}\right)\times 100\%$. The absolute value of the discount and underpricing are similar in magnitude on average. The average SEO in our sample is sold at a 2.76% price discount and experiences 3.11% underpricing on the offer day, which is generally consistent with the numbers reported in Altinkilic and Hansen (2003), Corwin (2003), and Mola and Loughran (2004). Both the discount and underpricing levels remain stable during the sample period.

These averages, however, hide important differences across offer methods. Fully marketed offers experience an average discount of -2.66% and the largest underpricing of 3.43%. On average, bought deals have the largest price discount of -3.93% and the smallest underpricing of 1.09%. This large difference (in absolute values) between the price discount and underpricing suggests that the price discount for bought deals is capturing the negative announcement effect. Accelerated bookbuilt offers experience an average discount of -2.43% and underpricing of 2.1%.

If an accelerated offer is priced and offered in a manner such that the announcement effect occurs on the offer date, the two-day announcement effect, [-1,0], can be decomposed into the return on the last trading day before the offer, the discount, and the underpricing. 241 of the

290 bought deals and 137 of the 276 accelerated offers are either announced and offered on the same trading day or are announced after the market closes and offered on the next trading day. For this subset of accelerated offers, it is interesting to notice that on average, in unreported results, bought deals experience a positive return of 1.6% on day -1 while accelerated bookbuilt offers experience a negative return of -2.6%. One potential explanation is that issuers may wait for a 'good' day, i.e. with positive stock return, to conduct a bought deal after the market closes. For accelerated bookbuilt offers, there may be some information leakage prior to the announcement of the offer as the deal is discussed with potential underwriters.

The last two rows in Table 2 examine the number of analysts who are following the issuer's stock and the stock's average bid-ask spread. An analyst is included if he or she posts at least one recommendation within 12 months prior to the offer. The analyst recommendations are obtained from the Institutional Brokers' Estimate System (I/B/E/S) database (early 2008 download). During the year before each SEO, the average number of analysts that follow an SEO is 5, which is comparable to the number reported in Huang and Zhang (2008).[23] Accelerated issuers, which tend to be larger companies, receive significantly more analyst coverage, with an average of 7 to 9 analysts following the stock while fully marketed issuers only have 4 analysts on average. If an issuing firm receives little analyst coverage prior to the offer, it may decide to do a road show to reach more investors and promote the stock.

The bid-ask spread is the average daily bid-ask spread, scaled by the closing stock price on that day, over the 250 trading days prior to the announcement of the SEO. Accelerated issuers tend to have a smaller proportional bid-ask spread, an average of 0.64%, compared to fully marketed offers with an average of 1.65%. However, the bid-ask spread exhibits a sharp declining trend in the sample period, from an average of 2.69% in 1996 to an average of 0.31% in 2007. This coincides with the increase in accelerated SEOs during our sample period and may lead to spurious results between the bid-ask spread and the SEO method selection. Therefore, we detrend the bid-ask spread in our multivariate regressions in Section 5.

The univariate results show that accelerated SEOs tend to be conducted by large firms, and the relative offer sizes are smaller than fully marketed offers. Next, we examine proxies for

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[23] Huang and Zhang (2008) look at the number of recommendations issued prior to an SEO. We find comparable numbers for SEOs in our sample: on average, there are 7 recommendations issued within 12 months prior to an SEO.

the issuer's pre-offer demand elasticity and conduct a multivariate analysis of the offer method choice.

5. Price Elasticity Proxies and Determinants of Offer Method

5.1 Price Elasticity Proxy Estimation

The definition of elasticity of demand is the percentage change in quantity demanded corresponding to a percentage change in price, formally, $\frac{\left(\Delta q / q\right)}{\left(\Delta p / p\right)}$. In general, we cannot precisely construct the demand and supply schedules for individual stocks and directly measure the price elasticity. Due to data limitations that prevent us from identifying supply shifts along a given demand curve or vice versa, we adopt two measures to proxy for the elasticity of demand for the issuing firm's stock.

The first measure of price elasticity is an average daily order flow inverse price elasticity measure, A_1. The daily order flow inverse price elasticity on day T is defined as the ratio between the absolute value of the stock's raw return and its turnover, with turnover defined as the trading volume divided by the number of shares outstanding. This is called an inverse elasticity because for an elasticity, quantity is in the numerator rather than the denominator.[24] If the stock is listed on NASDAQ, we divide the trading volume in half to control for the double counting on NASDAQ relative to the AMEX and NYSE. A_1 is the average daily inverse elasticity over the 250 trading day window, [-250,-1], prior to the announcement date:[25]

$$A_1 = \frac{1}{250}\sum_{t=1}^{250}\left(\frac{\left|\text{Stock Raw Return}_t\right|}{\text{Number of Shares Traded}_t / \text{Number of Shares Outstanding}_t}\right)$$

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[24] We put the stock return in the numerator to avoid zeroes in the denominator.

[25] If the company is listed on CRSP for less than 250 trading days prior to the SEO, we start with the first date available on CRSP. For the 15 fully marketed offers for which there are more than 180 calendar days from the announcement to the offer, we estimate A_1 and A_2 over the 250 trading days ending 180 calendar days prior to the offer so that the estimation window is not too distant from the offer date. This treatment has no impact on our results.

If a stock has a -2% return on a day when 0.5% of its shares outstanding are traded, it would have an inverse elasticity of 4 on that day.

A_1 is not a precise measure of an individual stock's demand elasticity because the trading volume includes both buyer-initiated and seller-initiated trades. However, Kalay, Sade, and Wohl's (2004) study on all orders that are placed at the Tel Aviv Stock Exchange (TASE) empirically documents a positive relationship between the flow demand for the stock and its daily turnover. Therefore, using the total volume instead of just buyer-initiated volume in the denominator of A_1 still produces a proxy for the demand elasticity. Our estimated A_1 is negatively correlated with the demand elasticity since the price change is in the numerator, which is why it is termed an inverse price elasticity. A large A_1 reflects a large change in price if there is a big demand or supply shock, which implies an inelastic demand curve.

The second measure of price elasticity is an arbitrage risk measure, A_2, as used in Wurgler and Zhuravskaya (2002).[26] A_2 is the residual variance of a market model OLS regression over the 250 trading days prior to the announcement date:

$$\left(R_{i,t} - R_{ft}\right) = \alpha + \beta \times \left(R_{M,t} - R_{ft}\right) + \varepsilon_t \quad t = 1, 2, ..., 250$$

In Wurgler and Zhuravskaya (2002)'s model, the demand elasticity for a stock is determined by the arbitrage risk. Arbitrageurs keep the demand curves flat if the asset has perfect substitutes and the arbitrage risk is zero. On the other hand, if the asset does not have perfect substitutes, the demand curve is downward sloping because the arbitrage risk is nonzero and arbitrageurs are risk averse. The larger the arbitrage risk, A_2, the more inelastic the demand curve is. Their empirical analysis documents a positive relation between arbitrage risk and returns on the announcement day of S&P 500 additions, which suggests that stocks with greater arbitrage risk have less elastic demand.

The order flow inverse demand elasticity and arbitrage risk measures are proxies for the individual stock's demand elasticity. Both measures are negatively related to the issuing firm's stock demand elasticity prior to the offer, with a high value indicating inelastic demand.

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[26] Wurgler and Zhuravskaya (2002) use two arbitrage risk measures. The other arbitrage risk measure is the residual variance of a zero-net-investment portfolio with three substitute stocks. The three stocks are matched on industry and as closely as possible on market capitalization and book-to-market ratio. The two measures are highly correlated (.97) and all our results remain qualitatively unchanged with the other arbitrage risk measure.

Panels A and B in Table 3 reports means, medians, and standard deviations of A_1 and A_2. Our estimates of A_2 are comparable to what Wurgler and Zhuravskaya (2002) report. Comparing columns 2 and 3 with column 4, we find the same pattern for both measures. On average, fully marketed SEOs have inverse elasticity and arbitrage risk approximately twice as high as for bought deals and accelerated bookbuilt offers. This shows that fully marketed offers are dominated by issuers with relatively inelastic pre-announcement demand curves. The univariate results are consistent with our model's prediction: if the demand curve is more inelastic, the issuing firm is more likely to choose a fully marketed offer.

The inverse demand elasticity, A_1, has a highly skewed distribution, ranging from 0.03 to 1000. For A_1, roughly 1% of the sample takes an extreme value because the annualized turnover of the stock is less than 5%. For example, Centennial Communications Corp's average daily turnover in the year prior to its November 2003 SEO was 0.02%, corresponding to an annual turnover of 5%. This small turnover rate generates an A_1 of 840, almost 100 times the unconditional median of 9.02. To reduce the influence of extreme values such as this, we use a natural log transformation of A_1 and A_2 in our empirical work. The last three rows in Panels A and B report the log transformed values of A_1 and A_2, $\text{Ln}(A_1)$ and $\text{Ln}(A_2)$. As expected, the log transformation significantly reduces the skewness in A_1. The log transformation has a smaller impact on the level of A_2.

As a robustness check, we substitute the stock's raw return in A_1 by its market adjusted return using the CRSP value-weighted market index. The results remain qualitatively the same. Our results are also robust to the specification of the time window. We estimate $A_1$and A_2 over one-month, three-month, and six-month windows prior to the announcement date and all estimates are qualitatively similar across the different windows.

5.2 Determinants of Offer Method

Next, we examine the determinants of the choice of offer method in a multivariate framework.

5.2.1 Logistic Regression Results

Our univariate analysis shows that the choice of offer method is related to firm and offer characteristics. In the multivariate analysis, we include eight firm and offer characteristic variables as the explanatory variables. The five firm characteristics are our two proxies for the

elasticity of the short-run demand curve (the estimated inverse elasticity and the estimated arbitrage risk); the issuing firm's market capitalization prior to the announcement; the average bid-ask spread, scaled by the stock price, over the 250 trading days prior to the announcement; and the number of analyst recommendations within 12 months before the offer, obtained from the I/B/E/S database. We apply a natural log transformation on all of these variables, which have skewed distributions. To control for the strong declining trend in the bid-ask spread, we detrend the log transformed bid-ask spread by subtracting the mean value of this variable from SEOs in the same calendar year,

$$\text{Detrended Ln}\left(\frac{\text{bid-ask spread}}{\text{price}}\right) = \text{Ln}\left(\frac{\text{bid-ask spread}}{\text{price}}\right) - \text{year t average logged value}.$$ The three offer characteristics variables are the logarithm of the normalized offer proceeds, the relative offer size, and the fraction of the offer that is primary shares.[27]

We use a binomial logistic model to investigate the determinants of the SEO offer method. The dependent variable, offer method, is a dichotomous variable for which accelerated offers, including bought deals and accelerated bookbuilt offers, equal 1, and fully marketed offers equal 0. The reference group is fully marketed offers. The binomial logistic model is estimated as follows:

$$\Pr(\text{Method=Accelerated Deal}) = \frac{1}{1+e^{-u}},$$

$$\begin{aligned} \text{where} \quad u = {} & \gamma_0 + \gamma_1 \times \text{Ln}(A_1) + \gamma_2 \times \text{Ln}(A_2) + \gamma_3 \times \text{Ln(Market Cap)} + \gamma_4 \times \text{Ln(Proceeds)} \\ & + \gamma_5 \times \text{Relative Size} + \gamma_6 \times \text{Primary Fraction} + \gamma_7 \times \text{Ln(1+Number of Analysts)} \\ & + \gamma_8 \times \text{Detrended Ln}(\text{Bid-ask Spread}) + \varepsilon \end{aligned} \qquad (1)$$

Table 4 presents the binomial logistic regression results. The results are very similar if we include only one elasticity proxy, $\text{Ln}(A_1)$, the order flow inverse demand elasticity, or $\text{Ln}(A_2)$, the residual variance. As predicted, the coefficients on the two demand elasticity

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[27] The two elasticity proxies are moderately correlated (0.23) with each other. Both proxies are strongly correlated with the log of the issuing firm's market capitalization, the detrended bid-ask spread, and the number of analysts, indicating that small firms and firms with relatively high information asymmetry have relatively inelastic demand curves. The relative offer size is highly negatively correlated (-0.47) with firm size because of the tendency of large firms to not raise enormous amounts of money. Although the market capitalization and the proceeds are highly correlated with each other, our results are qualitatively unchanged if we drop either the market capitalization or the proceeds.

measures are reliably negative. Larger order flow inverse elasticity or arbitrage risk indicates a more inelastic demand curve, and this inelasticity encourages issuers to choose a fully marketed offer instead of an accelerated offer.

Our model also predicts that, ceteris paribus, a large offer size increases the gain from marketing, so the issuing firm is more likely to choose a fully marketed offer. Both the normalized proceeds and the relative offer size have a significantly negative impact on the probability of an accelerated offer. This indicates that if the issuer is raising a large amount of capital or is increasing the number of shares outstanding by a large fraction, a fully marketed offer is more likely. The likelihood-based pseudo R-squared is 28%, which indicates that the model fits well and can explain at least 28% of the total variance. The model correctly predicts almost 90% of the sample offer method, although it should be noted that 83% of the offers are fully marketed.

The logistic model applies a logistic transformation to the probability of an accelerated offer, making the coefficient estimates hard to interpret. In Table 4, we report two marginal effects to better illustrate the magnitude of each explanatory variable's contribution to the probability of choosing an accelerated offer. The first marginal effect is calculated at the sample medians. Take $Ln(A_1)$ for example. Holding the rest of the explanatory variables at their sample median levels, we calculate the two probabilities of an accelerated offer when $Ln(A_1)$ is ± 0.5 standard deviations higher than its median. The difference between the two probabilities is the marginal effect for $Ln(A_1)$ at the medians, which represents the change in the probability of an accelerated offer given a one standard deviation change in $Ln(A_1)$. The rest of the marginal effects at the medians are calculated in a similar way. Table 4 shows that a one standard deviation increase in $Ln(A_1)$ or $Ln(A_2)$ decreases the probability of an accelerated offer by 10.5% and 2.8% respectively.

The marginal effects at the medians are modest, reflecting the fact that the median firm in our sample has a high probability of using a fully marketed offer. The unconditional probability is 83%, suggesting that the median firm has a high probability of using a fully marketed offer whether or not one of the variables is within one-half standard deviation of its median value. If we evaluate the marginal effects for a similar change in a variable when the values of this and other variables are in a region for which there are greater sensitivities, the marginal effects are

much stronger, reflecting the nonlinear nature of the logit specification in equation (1). In Table 4 we also report the marginal effects at the 25th or 75th percentile, depending on whether a variable has a negative or positive coefficient. We hold $Ln(A_1)$, $Ln(A_2)$, the offer proceeds, and the relative size, at the 25th percentile and the market capitalization, the primary fraction, the bid-ask spread, and the number of analysts at the 75th percentile.

A firm at the bottom 25th percentile of the order flow inverse demand elasticity, which has a value of $Ln(A_1)$ equal to 1.44, has a more elastic demand curve than 75 percent of the sample. We hold the residual variance $Ln(A_2)$, the normalized offer proceeds, and the relative size at the 25th percentile, and the market capitalization, the primary fraction, the bid-ask spread, and the number of analysts at the 75th percentile. If we increase and decrease $Ln(A_1)$ by one-half standard deviation (0.63), the probability of an accelerated offer decreases from 75.7% to 55.7%, a marginal effect of 20%. Similarly, a one half standard deviation increase and decrease in $Ln(A_2)$ (0.53) decreases the probability of an accelerated offer from 69.1% to 63.6%, a marginal effect of 5.5%. For these values of the explanatory variables, both the offer proceeds and the relative offer size have a large impact on the offer method choice. For the same values of the variables, a one half standard deviation increase and decrease in the log normalized offer proceeds or relative offer size decreases the probability of an accelerated offer, respectively, from 75.1% to 56.4% or from 88.8% to 34.1%.

The multivariate regression results support our first and second hypotheses. Both the pre-issue demand elasticity and the offer size, measured as either the absolute size or the relative size, are important determinants of the offer method. Firms facing a more inelastic demand curve are more likely to fully market the offer, as are issuers raising large amount of capital or issuing large number of shares comparing to the number of shares outstanding prior to the offer.

The results in Table 4 reveal other important determinants of the offer method. A larger firm size increases the probability of an accelerated offer. This is consistent with the univariate pattern in Figure 3, which shows that larger firms are more likely to do an accelerated offer. Table 4 also shows that a smaller fraction of primary shares or fewer analysts covering the stock lowers the probability of an accelerated offer. Both market capitalization and analyst coverage can be viewed as proxies for information asymmetry and the elasticity of demand. The smaller fraction of primary shares is associated with a higher probability of overvalued stock, e.g. Lee

(1997), which is also related to the information asymmetry. Therefore, an issuing firm with high information asymmetry is more likely to choose a fully marketed offer. The detrended log bid-ask spread is positively related to the likelihood of an accelerated offer. This is a surprising result, since we would expect that stocks with a high bid-ask spread would be more likely to use a fully marketed offer.

5.2.2 Endogeneity Issues

One issue is whether the offer size is determined jointly with the choice of the offer method, or whether the size is predetermined. For a fully marketed offer, if the stock price drops too much after the announcement, or there is little demand for the issue, the issuing firm may reduce the offer size or cancel the offer. Similarly, the issuer sometimes increases the offer size if the demand is strong. For an accelerated offer, the underwriter has little time to assess investors' demand but may still increase or decrease the offer size according to the demand information collected in a very short time period. We compare the offer proceeds initially stated in the preliminary prospectus and the actual offer size. Between 31% and 34% of firms using each offer method reduce the number of shares offered.

For our empirical analysis, the question is whether this potential endogeneity problem biases our results. To examine this, we replace the actual offer size with the initial offer size in the regression. The relative offer size is redefined as the ratio between the initial deal size, announced at the filing, and the issuing firm's market capitalization prior to the announcement. Our results remain virtually identical, so this potential endogeneity problem does not affect our conclusions.

5.2.3 Robustness

During our twelve-year sample period, 1,573 firms conduct only one follow-on offering and 660 firms conduct more than one SEO. Among the multiple issuers, the average time between two issues is 34 months. Among the 660 repeat issuers, 24 conduct more than five offers with the most frequent issuers being financial firms.[28] We identify 265 SEOs for which the offer method is different from the most recent SEO by the same issuer. Among the 58 SEOs that switched from an accelerated offer to a fully marketed offer, 48 have a larger relative offer

[28] Two firms, Allied Capital and American Capital Strategies (ACAS), did more than 10 offers. ACAS, which invests in buyouts, had 26 SEOs in 1999-2007.

size compared to the previous accelerated offer. Among the 207 SEOs that switched from a fully marketed offer to an accelerated offer, 172 have a smaller relative offer size. These results suggest that issuers are consciously choosing among the offer methods rather than just following a time trend.

In each of the first five years of our 1996-2007 sample period, as shown in Table 1, less than 10% of SEOs use an accelerated offer, whereas in each of the last seven years, at least 20% of SEOs do so. Thus, we rerun the binomial regression for the sub-period 2001 to 2007 and the results are qualitatively the same. The sub-period results are stronger in the later sample period as most of the marginal effects are larger, although the counterintuitive coefficient on the bid-ask spread becomes insignificant in the later sample period.

5.3. Does Speed Rather than Marketing Determine the Issue Method?

Next, we discuss an alternative explanation of the choice between accelerated and fully marketed offers. The choice of an accelerated offer may indicate the issuing firm's preference for speed in the raising of equity capital. Firms usually conduct SEOs after a substantial price run-up, as we have seen in Table 2. If the issuing firm thinks that the high stock price may not be sustained by the time that a fully marketed SEO is completed, it might prefer an accelerated offer to raise the money quickly. To test this alternative hypothesis, we use two proxies to measure the issuing firm's preference for speed. The first measure is the BHR, the buy-and-hold stock return during the 250 trading days (one year) prior to the SEO announcement. The second measure is the stock return variance during the same time period. Under the alternative hypothesis, firms that have experienced an enormous price appreciation or that have a volatile stock price would prefer an accelerated offer to avoid a possible sharp decline in the stock price before the deal is consummated.

Table 5 presents the regression results of a binomial logit model similar to that in Table 4. The log of the buy-and-hold return and the variance of daily stock returns over the 250 trading days prior to the SEO announcement are added as explanatory variables, and elasticity measure $\text{Ln}(A_2)$ is removed because it is very highly correlated (0.99) with the logged stock return variance. The alternative hypothesis is not supported by the results. The lagged return and the return variance are both reliably negatively related to the probability of doing an accelerated offer.

It is worth noting that during our sample period, there is a monotonic downtrend in the median time between the announcement and completion of fully marketed deals. In 1996, the median time is 31 days, decreasing to only 9 days in 2007. Therefore, the speed advantage of an accelerated deal may have become less important in recent years.

5.4 Post-issue Demand Elasticity

In our model, the underwriter's marketing efforts flatten the issuer's demand curve. A direct implication is that the demand curve should become more elastic after the SEO for fully marketed offers, ceteris paribus. Because SEOs usually occur after large stock price run-ups, resulting in increased analyst coverage, and the issue itself increases the market value, we would expect to see an increase in the elasticity measures for all offer methods. To test the prediction that the change is biggest for fully marketed offers, we estimate the two demand elasticity proxies over the 250 trading days after the offer. If less than 250 trading days are available in the CRSP files, we use all the available trading days until Dec 31st, 2007.

In Table 6, Panel A reports the post-issue order flow inverse demand elasticity, $\text{Ln}(A_1)$, and compares the post-issue values to the pre-issue values.[29] Both accelerated and fully marketed SEOs experience a significant decrease in $\text{Ln}(A_1)$, which indicates that the demand curve becomes more elastic after the issue. Fully marketed offers have the largest decline of 0.57, compared to an average decline of 0.28 for accelerated offers. Despite the larger decline, fully marketed issuers still have higher levels of $\text{Ln}(A_1)$ after the issue, indicating that their post-issue demand curves are more inelastic on average than accelerated issuers.

Next, we examine the change in $\text{Ln}(A_1)$ with an OLS regression estimated as follows:

$$\begin{aligned}\text{Ln}(A_1)_{\text{pre-issue}} - \text{Ln}(A_1)_{\text{post-issue}} = {} & \alpha + \beta_1 \times \text{Fully Marketed Dummy} + \beta_2 \times \text{Ln}(\text{Pre-offer Stock Return}) \\ & + \beta_3 \times \text{Ln}(\text{Pre-offer Normalized MV}) + \beta_4 \times \text{Ln(Normalized Proceeds)} \\ & + \beta_5 \times \text{Relative Size} + \beta_6 \times \text{Primary Fraction} \\ & + \beta_7 \times \left(\text{Ln}(1+\text{Analysts})_{[-125,-1]} - \text{Ln}(1+\text{Analysts})_{[-250,-126]}\right) \\ & + \beta_8 \times \left(\text{Ln}(\text{Bid-ask Spread})_{[-125,-1]} - \text{Ln}(\text{Bid-ask Spread})_{[-250,-126]}\right) + \varepsilon\end{aligned}$$

[29] The results for $\text{Ln}(A_2)$ are qualitatively the same. We focus on $\text{Ln}(A_1)$ because it is a more important determinant of the offer method, as we can see in Table 4.

The dependent variable is the difference between pre-issue Ln(A_1) and the post-issue Ln(A_1). Because A_1 is the inverse elasticity, we measure the difference so that a positive value represents an increase in the (absolute value of the) elasticity of demand from before to after the issue. The fully marketed offer dummy variable equals 1 if the SEO is fully marketed and equals 0 if it is an accelerated offer. Since the dependent variable is the change in Ln(A_1), we include as explanatory variables the increase in the number of analysts and the increase in the issuer's bid-ask spread. The change in the logged bid-ask spread is measured as the logged average daily bid-ask spread over the trading day window of [-125, -1] minus the logged bid-ask spread over [-250, -126] prior to the SEO announcement (the announcement day is day 0).[30] The change in the logged number of analysts that cover the stock is measured as the logarithm of 1 + the number of analysts that post at least one report on the issuer over the trading day window of [-125, -1] minus the logged value over [-250, -126] prior to the announcement.

We do not include the change between the pre-issue and post-issue bid-ask spread or the change between the pre-issue and post-issue number of analysts because these changes should be affected by marketing. Marketing can attract more investors, increase the stock liquidity, and increase investors' demand for analyst coverage. Instead, we use the increase from days [-250, -126] to [-125,-1] as an instrument for the increase from [-250, -1] to [+1, +250].

Panel B of Table 6 reports the OLS regression results. The fully marketed offer dummy is positively related to the change in Ln(A_1), indicating that if the SEO is fully marketed, the increase in the (absolute value) of the demand elasticity would be greater. The coefficient of 0.08 suggests that holding everything else constant, marketing decreases the post-issue Ln(A_1) by 8.33% ($e^{0.08} - 1 = 0.0833$) more comparing to no marketing. The fully marketed dummy becomes an insignificant 0.06 if we include the pre-offer stock run-up.

There are other factors that affect the changes in Ln(A_1). A larger market capitalization after the issue may increase the stock liquidity, get more analysts to cover the stock, and therefore result in a more elastic demand curve. The change in the number of analysts is

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[30] We lose 268 observations for computing the average bid-ask spread on trading days [-250,-126] prior to the announcement because we exclude SEOs whose bid-ask spread data is not available on CRSP for any of these trading days. Since, especially in the early years of our sample, most SEOs were announced approximately two months before the offer date, very few SEOs that occurred within eight months of the IPO date are included in the regressions.

positively related to the change in $Ln(A_1)$, indicating an increase in elasticity. The number of analysts increases from an average of 2.7 over trading days [-250, -126] to an average of 3.3 over trading days [-125, -1] prior to the announcement. The increase in analyst coverage is not surprising, given the stock price run-up that normally occurs before an SEO. Table 6 also shows that a decline in the bid-ask spread prior to the offer results in an increase in the elasticity.

6. Conclusion

The recent rise in accelerated SEOs in the U.S. and globally provides the opportunity to study the determinants and economics associated with alternative offer methods. We analyze three major SEO offer methods: bought deals, accelerated bookbuilt offers, and fully marketed offers.

The main differences between an accelerated offer, including bought deals and accelerated bookbuilt offers, and a fully marketed offer is that there is no marketing for an accelerated offer and an accelerated offer results in raising equity capital faster. We find evidence suggesting that marketing is an important determinant of the offer method. In contrast, we do not find evidence supporting the desire for speed as being an important determinant.

We first develop a model of the demand and supply curves for the issuing firm's stock. The issuance represents an increase in the supply. With a downward sloping demand curve, the stock price decreases due to this increase in supply. Marketing flattens the demand curve and helps to achieve a higher price after the offer. Marketing is not costless, however. Only when the benefits are sufficiently large will a firm choose a costly fully marketed deal in order to increase the elasticity of demand. Therefore, the elasticity of demand is endogenous. The model predicts that a fully marketed SEO has greater benefits to the issuing firm when it ex ante faces a highly inelastic demand curve and when the issue size is large.

Our empirical analysis supports the model predictions. We use two measures, the order flow inverse demand elasticity A_1 and the arbitrage risk measure A_2, to proxy for the demand elasticity. Logit regression results show that the ex ante elasticity of the issuing firm's demand curve and the offer size (both in absolute and relative terms) are important determinants of the offer method. For an issuing firm that is average in other ways, if it has an above average relative issue size of 30% of the pre-issue shares outstanding and ex ante has a relatively inelastic

demand curve, with an $Ln(A_1)$ value of 4.06 (the 90^{th} percentile of the order flow inverse demand elasticity), the probability of using an accelerated offer is only a miniscule 0.8%. On the other hand, if the issuer has a below average relative offer size of 10% and is in the 10^{th} percentile of the order flow inverse demand elasticity (with an $Ln(A_1)$ value of 0.84), the probability of using an accelerated offer is a sizeable 28.4%.

Appendix A

Classification of SEO offer method

Our main database is the Dealogic Equity Capital Markets (ECM) database. Dealogic identifies three major SEO offer methods: accelerated bookbuilt, bought deal, and fully marketed offers. The Thomson Financial Securities Data Company's (SDC) new issues database is more commonly used in academic studies. As pointed out in Bortolotti, Megginson, and Smart (2007), SDC's method of classifying the offering technique is sometimes confusing because it gives multiple designations to the same offer. For example, some offers are classified as "block trade/negotiated sale", "accelerated bookbuilt/firm commitment", "firm commitment/auction". Dealogic gives a single designation to each offer, so we think its classification is less ambiguous.

Compared to SDC, Dealogic is more accurate with the filing date and is more consistent with its classification of the offer method. We investigate 519 US seasoned equity offerings during Jan 1st, 2004 to Dec 31st, 2005 listed by both Dealogic and SDC. We first hand-checked 35 random offers' filing dates in Dealogic with Factiva and all of them are correct. Dealogic's classification of the offer method is mostly consistent with the time length from filing to offering. Accelerated bookbuilt offers and bought deals are almost always completed within 3 calendar days from filing with the SEC.

Fully marketed offers take a longer time, ranging from 3 calendar days to more than 150 calendar days. All 68 accelerated bookbuilt offers are completed within 3 calendar days from filing with the SEC. Among the 119 bought deals, only 2 offers have a time span longer than 3 calendar days. One is the offer by Trinity Industries Inc, filed on Dec 1st, 2004, which began trading on Dec 9th, 2004. The Dealogic filing date is consistent with what we find in Factiva. This is a pure secondary offer so it is not included in our study. The other is by Monster Worldwide Inc, offered on Jan 5th, 2004. Monster Worldwide filed several S-3/As during the three months prior to the offer and the last one is filed on Jan 1st, 2004. Among the 331 fully marketed deals, four offers have a time span exceeding 150 calendar days. Two of these four offers' filing dates are consistent with Factiva. Dealogic is apparently wrong with one offer's filing date and it is reclassified as a bought deal. Another offer has an amended file date 10 days before the offer so it is still classified as a fully marketed deal. Therefore, we feel comfortable to

rely mainly on the length of time from filing to the offering, supplemented by Dealogic's classification of the offer method.

Next, we focus on discrepancies between SDC's classification and Dealogic's classification of the offer method. Among the 519 offers, 416 issues' offer methods are classified consistently and 103 are inconsistent. Among the 103 inconsistent offers, 86 offers have consistent offering dates and 17 offers have inconsistent offering dates. If the offering date is consistent, we find that Dealogic's offer method classification is more accurate because all accelerated offers are completed within 3 days and all fully marketed offers take more than 3 days to complete. For the 17 offers for which the offering dates are inconsistent, Dealogic's offering dates are correct for 14 out of the 17, where SDC is correct for only 3 of these cases.

Overall, we conclude that Dealogic is a more reliable database for our study.

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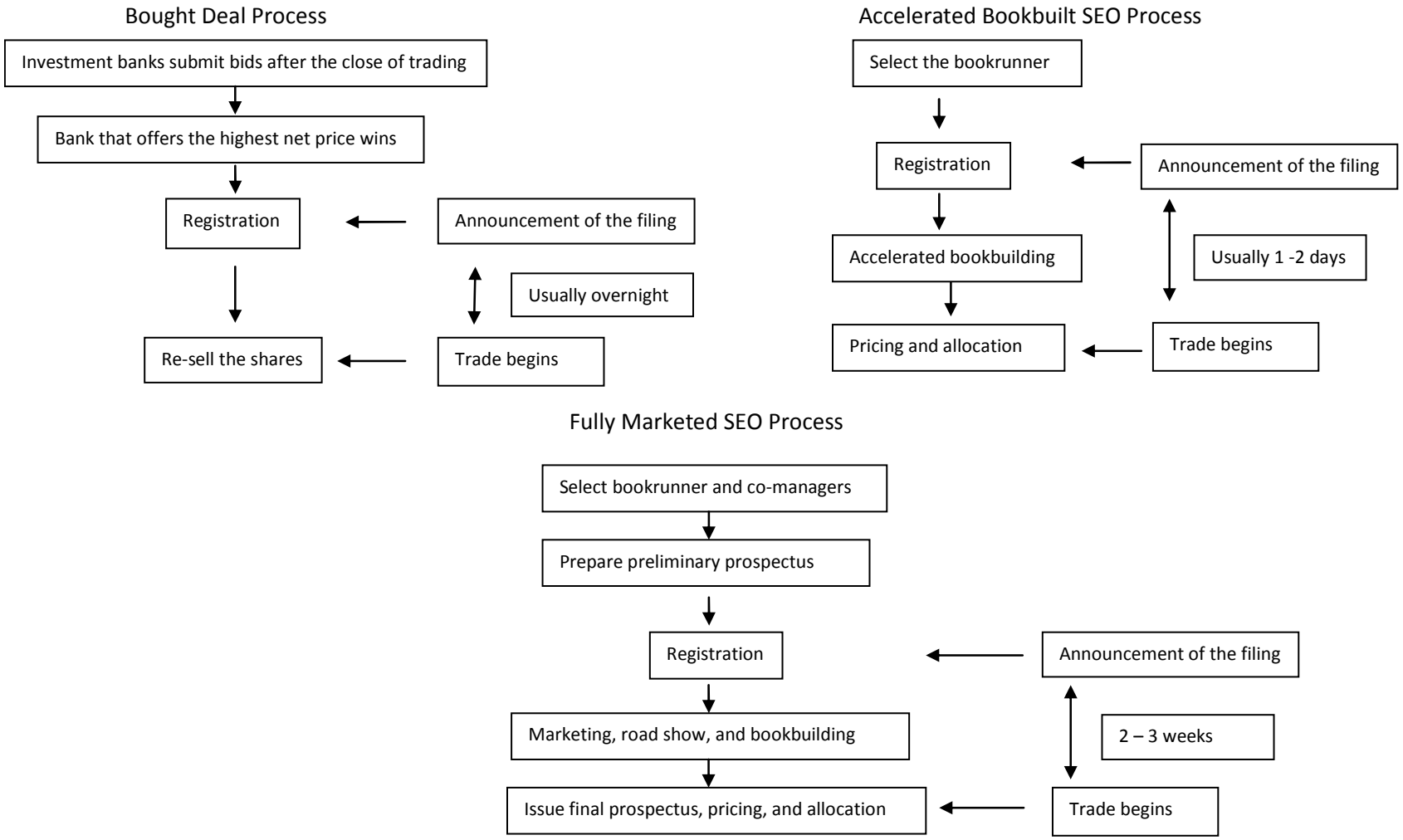

Figure 1. Description of the SEO Process Associated with the Three Offering Methods

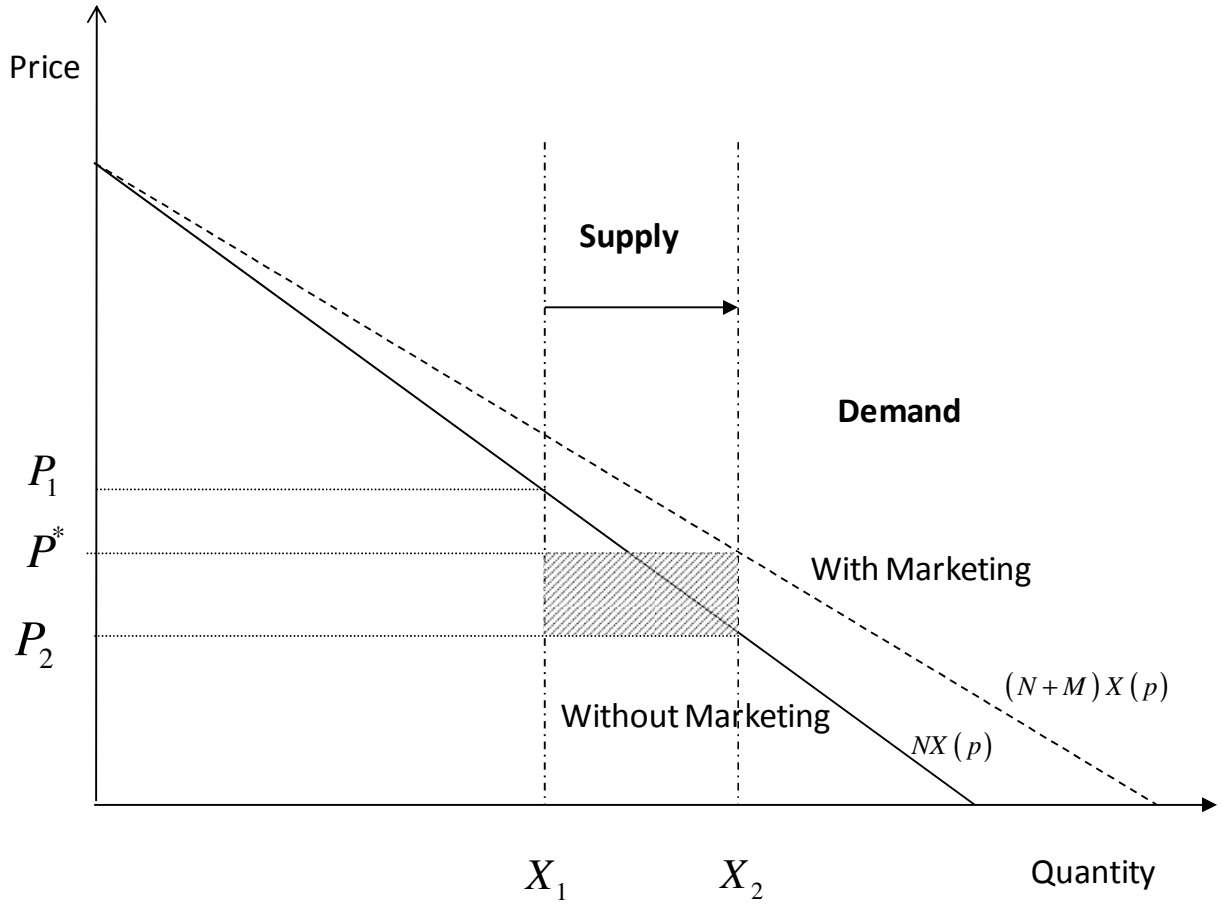

Figure 2. Comparison of Demand Curves with and without Marketing

The solid line is the issuing firm's demand curve before the offer. The dashed line represents the issuing firm's demand curve if the offer is fully marketed. It becomes more elastic than the ex ante demand curve because marketing flattens the demand curve. Therefore, the post-issue price is higher at P^* instead of P_2 if there is no marketing. The shaded rectangular area represents the issuer's gross gain from marketing the offer.

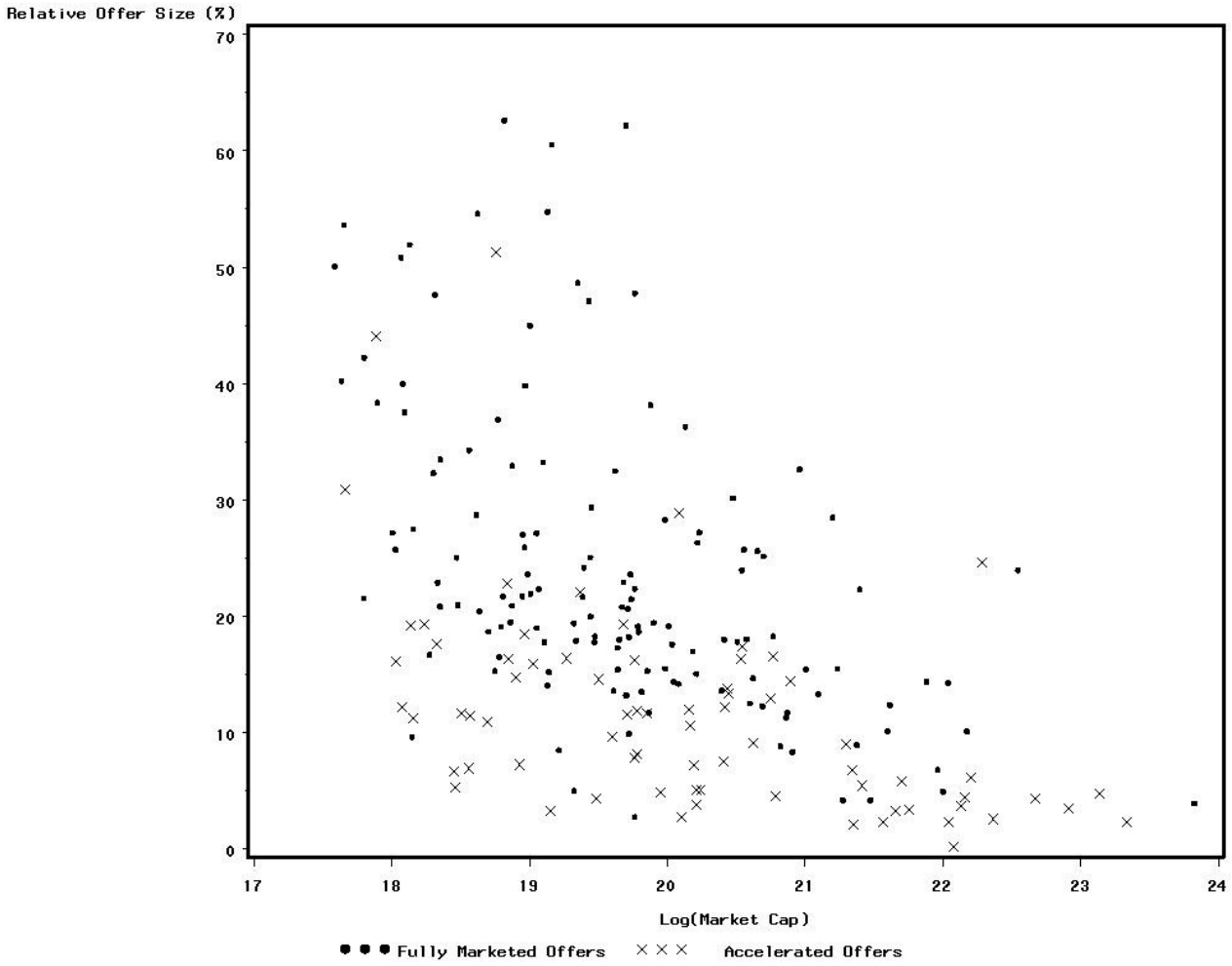

Figure 3. Scatter Diagram Relating Relative Offer Size to Ln(Market Capitalization)

The sample consists of 211 SEOs in 2007. Market capitalization is computed as the actual pre-issue market cap of equity multiplying by0.52, the ratio of the S&P 500 Index level in 1996 and that in 2007. Ln(Market Capitalization) ranges from \$40.4 million, $e^{17.51}$, to \$21.9 billion, $e^{23.81}$. The relative offer size is the number of shares offered divided by the number of shares outstanding prior to the offer and is measured as a percentage. The farthest lower right dot represents Schering-Plough Corp's fully marketed SEO in August, 2007. It had an actual market cap of \$42 billion prior to the offer, normalized to \$21.9 billion, and a relative offer size of 3.86%.

Table 1

Sample Summary Statistics

The sample includes 3,276 seasoned equity offerings in Dealogic's ECM Analytics Database during 1996 to 2007. The issuer must be a US-based company listed on NASDAQ, the American Stock Exchange (AMEX), or the New York Stock Exchange (NYSE). ADRs and ADSs, private placements, rights offers, best efforts, non SEC registered offers, Rule 144A offers, units, closed-end funds, REITs, and pure secondary offerings are excluded. We also exclude 35 non-shelf takedown offers that are identified by Dealogic as bought deals or accelerated bookbuilt offers. The issuer must have more than a $75 million market capitalization before the offer. Furthermore, the issuing firm must be present on the University of Chicago Center for Research in Security Prices (CRSP) database on the day before the announcement day, the offer day, and the first trading day after the issue. Panel A reports the number of SEOs and aggregate proceeds by year and offering method. Total proceeds is the total amount of dollars (in billions) raised globally including exercised overallotment shares in all tranches. Total proceeds are for each year and are multiplied by the ratio between the year-end values of 1996 S&P 500 index and the SEO year's S&P 500 index. Panel B lists the number of shelf takedown and non-shelf takedown offers that are bought deals, accelerated offers, and fully marketed offers.

Panel A: Number of Seasoned Equity Offerings (SEOs) and Aggregate Proceeds by Year and Offering Method

	Sample SEOs		Bought Deals		Accelerated Bookbuilt SEOs		Fully Marketed SEOs	
Year	Number	Total Proceeds ($ billion)	Number	Total Proceeds ($ billion)	Number	Total Proceeds ($ billion)	Number	Total Proceeds ($ billion)
1996	400	43.38	1	0.06	0	0.00	399	43.32
1997	359	32.30	2	0.45	8	1.40	349	30.45
1998	250	24.52	8	1.40	2	0.03	240	23.05
1999	298	32.03	19	2.51	2	0.32	277	29.20
2000	311	49.16	27	2.94	2	0.07	282	46.15
2001	232	32.18	35	6.34	17	1.47	180	24.38
2002	223	37.86	25	5.48	41	10.36	157	22.02
2003	254	28.25	36	6.09	42	5.15	176	16.88
2004	283	28.06	35	4.51	51	6.58	197	16.90
2005	219	21.95	32	3.91	29	3.17	158	14.87
2006	236	19.37	43	3.73	36	6.58	157	11.88
2007	211	20.91	27	1.99	46	3.17	138	14.52

Panel B: Shelf Takedown SEOs versus Non-shelf Takedown SEOs

	All SEOs	Bought Deals	Accelerated Bookbuilt SEOs	Fully Marketed SEOs
Shelf-takedowns	1,332	290	276	766
Non-shelf Offers	1,944	0	0	1,944

Table 2

Mean and Median Offer Characteristics of SEOs, 1996 to 2007

Table 2 lists means (medians in brackets) of offer characteristics. Market capitalization is the total market capitalization of equity on the last day prior to the announcement of the offer. Proceeds is the total amount of dollars (in millions) raised globally including exercised overallotment shares in all tranches. Normalized market capitalization and proceeds are normalized by multiplying ratio between the year-end 1996 S&P 500 index level and the SEO year's S&P 500 index level. Relative offer size equals offered shares divided by total shares outstanding prior to the issue. Fraction of primary shares equals primary (new) shares divided by total number of shares offered. Number of bookrunners is the number of bookrunners on the issue. Bookrunner reputation is the bookrunner's Carter-Manaster ranking obtained from Jay Ritter's webpage. If there are multiple bookrunners, we use the maximum ranking among all the bookrunners. Number of days from filing to offer is the number of days between the filing date and the offer date. Gross spread is the disclosed gross fee paid as percentage of the offer price. Pre-offer return is the buy-and-hold stock return during the 250 trading days, [-250, -1], ending with the announcement date (trading day 0). Announcement effect is the cumulative market-adjusted return during the two-day window, [-1,0], ending with the announcement date . Discount is the percentage decrease from the closing price day before the offer to the offer price. Underpricing is the percentage increase from the offer price to the closing price on the offer day. The number of analysts following the issuer's stock is obtained from the I/B/E/S database. We include analysts who post a recommendation within 12 months before the offer. Bid-ask spread (%) is the average daily bid ask spread, scaled by the stock price, over 250 trading days prior to the announcement date. We use the non-parametric t-test (Kruskal-Wallis test) to test the hypothesis that the average of the bought deals and accelerated bookbuilt SEOs is equal to the average for fully marketed deals. K-W test does not require the dependent variables to be normally distributed. The test for the medians is the non-parametric median Chi-squared test (Brown-Mood test). P-values from the KW and the median Chi-squared statistics are reported in the last column.

	All SEOs	Bought Deals	Accelerated Bookbuilt SEOs	Fully Marketed SEOs	P-values from KW/Median Statistics
Number	3,276	290	276	2,710	
Nominal Market Capitalization ($M)	1,888	4,588	4,272	1,356	0.00
	[549]	[1,636]	[1,067]	[465]	[0.00]
Normalized Market Capitalization ($M)	1,183	2,795	2,718	855	0.00
	[360]	[977]	[674]	[315]	[0.00]
Nominal Proceeds ($M)	176	220	208	168	0.09
	[97]	[129]	[88]	[95]	[0.08]
Normalized Proceeds ($M)	113	136	134	108	0.94
	[64]	[81]	[54]	[64]	[0.64]
Relative Offer Size (%)	22.5	9.3	11.4	25.1	0.00
	[18.9]	[7.5]	[9.9]	[21.5]	[0.00]
Fraction of Primary Shares (%)	85.0	98.8	98.6	82.1	0.00
	[100]	[100]	[100]	[100]	[0.00]

Table 2 (Continued)

Offer Characteristics of SEOs, 1996 to 2007

	All SEOs	Bought Deals	Accelerated Bookbuilt SEOs	Fully Marketed SEOs	P-values from KW/Median Statistics
Number of Bookrunners	1.19 [1]	1.06 [1]	1.49 [1]	1.17 [1]	0.00 [0.01]
Bookrunner Reputation	8.25 [9]	8.35 [9]	7.98 [9]	8.27 [9]	0.67 [0.88]
Number of Days from Filing to Offer	26 [21]	0 [0]	1 [1]	31 [25]	0.00 [0.00]
Gross Spread (%)	4.82 [5.00]	2.28 [1.70]	4.23 [4.20]	5.10 [5.15]	0.00 [0.00]
Pre-Offer Return (%)	107.76 [57.47]	72.63 [26.21]	45.21 [20.75]	117.89 [65.66]	0.00 [0.00]
Announcement Effect (%)	-1.72 [-1.53]	-1.49 [-1.48]	-2.55 [-1.99]	-1.66 [-1.48]	0.29 [0.18]
Discount (%)	-2.75 [-1.93]	-3.93 [-3.44]	-2.43 [-0.90]	-2.66 [-1.89]	0.00 [0.00]
Underpricing (%)	3.11 [1.51]	1.09 [0.24]	2.10 [0.94]	3.43 [1.87]	0.00 [0.00]
Number of Analysts	5.08 [4]	8.64 [8]	7.21 [6]	4.48 [4]	0.00 [0.00]
Bid-ask Spread (%)	1.47 [1.03]	0.68 [0.35]	0.61 [0.40]	1.64 [1.29]	0.00 [0.00]

Table 3

Summary Statistics for Demand Elasticity Proxies

The sample includes 3,276 seasoned equity offerings during 1996 to 2007. The average daily order flow inverse demand elasticity, A_1, is defined as the daily raw return divided by the daily turnover, averaged over 250 trading days before the announcement date. The turnover is the trading volume divided by the number of shares outstanding. Nasdaq-listed stocks' trading volumes are divided by two to eliminate double counting. The arbitrage risk measure, A_2, is constructed similar to that in Wurgler and Zhuravskaya (2002). A_2 is the residual variance, expressed as a squared percentage of a market model OLS regression estimated over 250 trading days before the announcement date. We report means, medians, and standard deviations of the raw values and natural log transformed values of A_1 and A_2. In the last column, the KW test and median test p-values for the means and the medians are the same as in Table 2.

Panel A: Order Flow Inverse Demand Elasticity A_1					
	All SEOs	Bought Deals	Accelerated Bookbuilt SEOs	Fully Marketed SEOs	P-values from KW/Median Statistics
Number	3,276	290	276	2,710	
Raw Value Mean	28.24	10.08	10.17	32.03	0.00
Raw Value Median	8.54	3.72	4.03	10.17	0.00
Raw Value STD	93.12	56.96	27.22	99.89	
Ln Value Mean	2.31	1.40	1.59	2.48	0.00
Ln Value Median	2.14	1.31	1.39	2.32	0.00
Ln Value STD	1.26	0.86	1.00	1.26	
Panel B: Arbitrage Risk Measure A_2 (% variance)					
	All SEOs	Bought Deals	Accelerated Bookbuilt SEOs	Fully Marketed SEOs	P-values from KW/Median Statistics
Number	3,276	290	276	2,710	
Raw Value Mean	16.93	11.21	10.72	18.17	0.00
Raw Value Median	10.57	6.74	4.99	11.64	0.00
Raw Value STD	20.81	14.03	15.35	21.68	
Ln Value Mean	2.31	1.82	1.71	2.42	0.00
LnValue Median	2.36	1.91	1.61	2.45	0.00
Ln Value STD	1.06	1.14	1.15	1.00	

Table 4

Determinants of Offering Method for SEOs

Table 4 presents the results from the binomial logistic regressions. The dependent variable, offering method, is a dichotomous variable for which accelerated deals, including bought deals and accelerated bookbuilt offers, equal 1, and fully marketed offers equal 0. We apply log transformation on the normalized market cap, the normalized proceeds, the bid-ask spread, and the number of analysts to control for extreme values in these variables. We detrend the log bid-ask spreads by subtracting the sample average log bid-ask spread within the same calendar year. Rest of the explanatory variables are defined the same as in Tables 2. Note that the relative offer size and the fraction of primary shares are ratios, not percentages. We report two marginal effects to the right of the estimates. The first is calculated at the sample medians. For each explanatory variable, it is the difference in the two probabilities when we increase and decrease the variable's value by 0.5 standard deviation from the median and hold the rest of the variables at their median levels. The second is calculated in a similar way but instead of the sample medians, we hold $Ln(A_1)$, $Ln(A_2)$, the offer proceeds, and the relative offer size at the 25th percentile, and the market capitalization, the primary fraction, the bid-ask spread, and the number of analysts at the 75th percentile. The chi-squared statistics are reported in parentheses below. *, **, and *** indicate significance at the 10, 5, and 1 percent levels, respectively. We report the medians, the 25th/75th percentile values, and the standard deviations in the last three columns. The R-square is the likelihood-based pseudo R-square measure.

	Logistic Regression Results $\Pr(Accelerated\ Deal = 1)$			Values Used to Calculate the Marginal Effects		
		Marginal Effect (%)				
	Estimate	At the Medians	25/75th Percentile	Median	25th/75th Percentile	Standard Deviation
$Ln(A_1)$	-0.72 ***	-10.46	-20.02	2.14	1.44	1.26
	(82.66)					
$Ln(A_2)$	-0.23 ***	-2.80	-5.48	2.36	1.63	1.06
	(17.76)					
Ln(Normalized MV)	0.36 **	5.11	9.95	19.70	20.54	1.24
	(3.97)					
Ln(Normalized Proceeds)	-0.87 ***	-9.71	-18.65	17.98	17.38	0.97
	(21.54)					
Relative Offer Size	-8.19 ***	-18.09	-33.29	0.19	0.12	0.19
	(26.61)					
Fraction of Primary	4.67 ***	13.61	25.69	1.00	1.00	0.25
Shares	(46.89)					
Ln(1 + Analysts)	0.63 ***	5.19	10.10	1.61	2.08	0.72
	(34.30)					
Detrended	0.38 ***	3.08	6.02	0.03	0.49	0.72
Ln(Bid-ask Spread)	(12.91)					
Intercept	4.61 ***	-	-	-	-	-
	(7.95)					
Number of SEOs	3,276					
R-squared	0.28					

Table 5
Offering Methods and Pre-offer Stock Price

Table 5 presents the results from a binomial logistic regression similar to the one in Table 4. To test the preference of speed alternative hypothesis, we include the logged buy-and-hold stock return and the return variance during the 250 trading days prior to the SEO announcement. The rest of the variables are defined the same as in Tables 4. The marginal effects are calculated in the same way as those reported in Table 4. In addition, the marginal effects at the 25th/75th percentile are calculate at the 25th percentile values for the pre-offer stock return and the return variance. The chi-squared statistics are reported in parentheses below. *, **, and *** indicate significance at the 10, 5, and 1 percent levels, respectively. The medians, 25th/75th percentile values, and the standard deviations are reported in the last three columns. The R-square is the likelihood-based pseudo r-square measure.

	Dependent Variable $\Pr(Accelerated\ Deal = 1)$			Values Used to Calculate the Marginal Effects		
	Estimate	Marginal Effect (%)		Median	25th/75th Percentile	Standard Deviation
		At the Medians	25/75th Percentile			
Ln(Pre-offer stock return)	-0.19 *** (16.68)	-2.89	-5.79	-0.54	-1.31	1.37
Ln(Return Variance)	-0.11 * (2.99)	-1.24	-2.49	2.44	1.75	1.02
Ln(A_1)	-0.72 *** (83.22)	-10.35	-20.32	2.14	1.44	1.26
Ln(Normalized MV)	0.34 * (3.44)	4.72	9.43	19.70	20.54	1.24
Ln(Normalized Proceeds)	-0.80 *** (18.15)	-8.84	-17.46	17.98	17.38	0.97
Relative Offer Size	-8.48 *** (28.13)	-18.55	-34.80	0.19	0.12	0.19
Fraction of Primary Shares	4.62 *** (47.31)	13.30	25.75	1.00	1.00	0.25
Ln(1 + Analysts)	0.59 *** (29.00)	4.74	9.47	1.61	2.08	0.72
Detrended Ln(Bid-ask Spread)	0.34 *** (10.88)	2.79	5.59	0.03	0.49	0.72
Intercept	3.64 *** (4.90)	-	-	-	-	-
Number of SEOs	3,276					
R-squared	0.29					

Table 6

Change in Demand Elasticity

Table 6 reports the change in $Ln(A_1)$, the order flow inverse demand elasticity, from pre-issue to post-issue. The post-issue $Ln(A_1)$ is estimated during the 250 trading days after the offer, or if less than 250 trading days are available, all available days on CRSP ending Dec 31st, 2007. Panel A compares the pre- and post-issue values of $Ln(A_1)$. The Kruskal-Wallis (KW) statistic tests the hypothesis that the average change of 0.28 for the bought deals and accelerated bookbuilt SEOs combined is equal to the average change of 0.58 for fully marketed deals. Panel B reports the OLS regression results on the change in $Ln(A_1)$. The dependent variable is the difference between pre-issue $Ln(A_1)$ and post-issue $Ln(A_1)$. A large increase in the absolute value of the elasticity (a decrease in the inverse elasticity) from the pre-issue to the post-issue period is measured as a positive number. Fully Marketed Offer is a dummy variable that equals 1 for a fully marketed offer and equals 0 for an accelerated offer. The change in the logged number of analysts that cover the stock is measured as Ln(1+analysts) in [-125,-1] - Ln(1+analysts) in [-250,-126] prior to the announcement. The change in logged average bid-ask spread is measured as Ln(bid-ask spread) in [-125,-1] - Ln(bid-ask spread) in [-250,-126]. We do not detrend the bid-ask spread as in Table 4 and 5. The rest of the variables are defined the same as in Table 4 and 5. The sample size in Panel B is 8.2% smaller than in Panel A because we exclude SEOs whose bid-ask spread data is not available on CRSP files on trading days [-250,-126] prior to the announcement. Since, especially in the early years of our sample, most SEOs were announced approximately two months before the offer date, very few SEOs that occurred within eight months of the IPO date are included in the regressions. We lose 268 observations for this and related reasons that are needed for computing the difference between trading days [-250,-126] and [-125,-1]. The t-statistics are reported in parentheses below. *, **, and *** indicate significance at the 10, 5, and 1 percent levels, respectively.

Panel A: Comparison of Pre- and Post-issue values of $Ln(A_1)$

	All SEOs	Bought Deals	Accelerated Bookbuilt SEOs	Fully Marketed SEOs	P-values from KW-test Statistics
Number	3,276	290	276	2,710	
Pre-issue $Ln(A_1)$ Median	2.14	1.31	1.39	2.32	-
Post-issue $Ln(A_1)$ Median	1.71	1.12	1.11	1.83	-
Pre-issue $Ln(A_1)$ Mean	2.31	1.40	1.59	2.48	-
Post-issue $Ln(A_1)$ Mean	1.79	1.15	1.27	1.91	-
Change in Means	0.52	0.24	0.32	0.58	80.08
	(33.58)	(9.50)	(9.28)	(31.62)	

Table 6 (continued)

Panel B: OLS Regression Results

	Dependent Variable	
	Pre-issue Ln(A_1) - Post-issue Ln(A_1)	
	Estimate	
Fully Marketed Dummy	0.08 **	0.06
	(1.97)	(1.56)
Ln(Pre-offer Stock Return)	-	0.03 ***
		(2.65)
Ln(Pre-offer Normalized MV)	-0.27 ***	-0.26 ***
	(-9.98)	(-9.81)
Ln(Normalized Proceeds)	0.18 ***	0.18 ***
	(6.04)	(5.86)
Relative Offer Size	-0.08	-0.07
	(-0.75)	(-0.62)
Fraction of Primary Shares	-0.45 ***	-0.45 ***
	(-7.49)	(-7.44)
Change in Ln(1 + Analysts)	0.06 ***	0.06 ***
	(2.97)	(2.79)
Change in Ln(Bid-ask Spread)	-0.46 ***	-0.43 ***
	(-14.27)	(-12.68)
Intercept	2.87 ***	2.91 ***
	(10.41)	(10.55)
Number of SEOs	3,008	3,008
R-squared	0.18	0.18