Chapter 2

Offer price discounting of shelf-registered and traditional seasoned equity offerings

1. Introduction

Offer price discounts of seasoned equity offerings (SEOs) have increased substantially over time.[1] The literature attributes at least a portion of this increase to the implementation of Rule 10b-21, effective as of August 25th 1988, which prohibits short sellers from covering short positions with shares purchased in an equity offering if the position was established between the filing and offering dates.[2] Specifically, the received wisdom in the literature is that the rule not only eliminates the potential for artificial price distortions arising from manipulative pre-offer short sales[3], but also restricts informative pre-offer short sales, thus compromising market efficiency and forcing underwriters to price offerings at larger discounts (Gerard and Nanda, 1993). Consistent with this, Kadlec, Loderer and Sheehan (1997) find an increase in offer price discounts after the adoption of Rule 10b-21, and Corwin (2003), Kim and Shin (2004), and Mola and Loughran (2003) report an increase in SEO discounts from approximately 1% during the 1980s to 3% during the 1990s. Corwin (2003) argues that the rule partially explains the increase in SEO discounting, while Kim and Shin (2004) claim it is the key determinant.

I re-examine the impact of Rule 10b-21 on discounting using a control sample consisting of shelf-registered offerings, which were exempt from Rule 10b-21 until

[1] Seasoned offer discounts are typically calculated as the percentage return from the prior day's closing price to the offering price (e.g. Loderer, Sheehan, and Kadlec, 1991, Safieddine and Wilhelm, 1996, and Corwin, 2003), reflecting the reduction in the offering price relative to the last prevailing market price.

[2] In 1997 the SEC replaced Rule 10b-21 with Rule 105 of Regulation M. Under Rule 105, the restricted period is limited to the five business days prior to the offering.

[3] This was the SEC's original intent.

September 2004.[4] The shelf exemption and its subsequent elimination provide a setting for two natural experiments. In the first I use the shelf exemption to the 1988 rule implementation as a control. I find that offer discounting of shelf and non-shelf offerings increase similarly following the 1988 adoption of the rule from a median of zero to roughly 2%. Moreover, after controlling for other factors, the rule appears to have a similar or even stronger effect on shelf discounts in pooled and time-series estimations even though they were exempt from the rule. In the second experiment I use the elimination of the shelf exemption in 2004 as an additional test of the rule's effect. The evidence suggests that shelf offer discounts become *smaller* after shelf offers come under the purview of the rule. Overall, these "out-of-sample" tests raise questions about the received wisdom in the literature that the increase over time in seasoned offer discounts is associated with the implementation of Rule 10b-21. Rather they suggest that the increase in discounting is due to some other factor(s). One potential caveat to using shelf offers as a control is that short sale restrictions are not a binding constraint since there is often little advance notice of a shelf offering.

However, I justify the use of shelf offerings as a control by illustrating the common features of discounting across registration procedures. First, shelf offerings are associated with offer price discounts that are similar in magnitude to traditional SEOs. During 1982 - June 2004 the average discounting of shelf and traditional offerings is 2.35% and 2.29%, respectively. Second, I find that many known determinants of traditional SEO discounting (e.g. Corwin, 2003, Altinkilic and Hansen, 2003, and Mola and Loughran, 2004) have a similar influence on shelf offer discounting. Moreover, underwriter pricing practices such as offer price rounding and pricing at the bid quote also apply to shelf offers.

Why have discounts risen sharply over time? Prior studies often use pooled or Fama-MacBeth estimations. These methods provide information about which factors contribute to differences in discounting across firms, although they are less useful in explaining the time-series of seasoned offer discounting. I use two methods to gain

[4] In July 2004 the SEC adopted a regulation that eliminates the shelf exemption from Rule 105 of Regulation M (formerly Rule 10b-21), effective as of September 7th, 2004. See SEC Release No. 34-50103 for details. For expository purposes, I refer to the rule as Rule 10b-21 throughout the paper.

insight into the time-series of discounting. The first follows the general approach of Fama and French (2001) who examine the time-series of dividend paying firms. Specifically, I examine how the composition of seasoned issuers has changed over time and, holding constant firm characteristics, how discounting has changed. I group issuers into quartiles based on firm characteristics using the entire period 1982 – June 2004, and then split the sample into four sub-periods while maintaining the original quartile breakpoints. The evidence suggests that the increase in traditional SEO discounting is largely due to a shift over time in the composition of issuers towards two firm characteristics that are associated with greater discounting: greater stock volatility and pre-offer price uncertainty. For example, the percentage of issuers that have above median stock volatility increases from 44% during 1988-93 to 59% during 1994-99 and finally to 74% during 2000-04, although within this group of issuers (i.e. above median volatility) there is little change in discounting across sub-periods.[5] This shift in composition more than offsets trends over time that might be expected to decrease discounting, namely increasing issuer size and stock prices. For shelf offers, issuer composition also shifts towards greater stock volatility and pre-offer price uncertainty. Shelf offers, however, are additionally associated with an increase over time in relative offering size and a decrease in stock price. Thus many traits of shelf issuers have shifted over time in the direction that would be expected to increase discounts, potentially explaining the marginally greater growth over time in shelf relative to non-shelf offer discounts.

The second approach in examining the time-series of discounting involves the estimation of time-series regressions in which each variable is aggregated across firms at the quarterly frequency. The results are generally consistent with the descriptive evidence that a change in firm composition towards higher stock volatility and pre-offer price uncertainty is responsible for the increase over time in discounting. The results also indicate that, after controlling for other factors, there is no time-series relation between traditional offer discounting and offer price clustering at whole dollars. This suggests the

[5] It is possible that the universe of all public firms has also experienced a shift in composition towards these characteristics. In this case there may be little or no change over time regarding the composition of seasoned issuers in a relative sense (i.e. over time there is no change in where seasoned issuers lie in the distribution of all public firms). In either case, it remains that seasoned issuers have experienced an increase in stock volatility and pre-offer price uncertainty, which should be expected to cause an increase in discounting.

finding in prior studies that whole dollar pricing is associated with greater discounting (e.g. Corwin, 2003; Mola and Loughran, 2003) is largely a cross-sectional effect and does not explain the increase over time in discounting.

In the final part of the paper I examine cross-sectional differences in discounting between registration methods. Differences in discounting between shelf and traditional offers during the 1980s and early 1990s are explained by differences in firm traits, although discounting remains greater for shelfs in the late 1990s and 2000s after controlling for firm traits. The remaining difference in recent years is partially explained by the greater sensitivity of shelf discounting to pre-offer stock price increases, and may also be related to differences in institutional participation of shelf versus traditional offerings.

The paper is organized as follows. Section 2 discusses the sample selection and characteristics. Section 3 provides descriptive evidence on discounting. Section 4 examines the effect of Rule 10b-21 on discounting. Section 5 analyzes the increase in discounting over time, and section 6 examines differences in discounting across registration procedures. Finally, section 7 concludes.

2. Sample selection and characteristics

The sample of seasoned offerings is obtained from Securities Data Company's (SDC) Global New Issues Database and consists of traditional and shelf equity offerings during the period 1982 – June 2004. Excluded are initial public offerings, rights offers, unit offers, ADRs, offers by financials (SIC code 6000-6999), and offerings by non-U.S. firms. To be included in the sample, firms must be listed on the NYSE, Amex, or Nasdaq, and must have at least 30 days of prior stock return data available from the Center for Research in Securities Prices (CRSP) and financial data available from COMPUSTAT. Consistent with previous studies, sample offerings must have at least some primary shares and the offer price must be between $3 and $400. I exclude observations for which a stock split occurred during the 11-day window surrounding the offer. The final sample contains 5316 observations, consisting of 4554 SEOs and 762 shelf offers.

Following Corwin (2003) and others, I apply a volume based offer date correction. In particular, if trading volume on the day following the SDC offer date is

more than twice the volume on the SDC offer date, and is more than twice the average daily volume during the prior 250 trading days, then I assign the offer date as the day following the SDC offer date.

I also collect intraday transaction and quote data from NYSE's Trades and Quotes (TAQ) database during 1993 - June 2004 and from ISSM (only NYSE-Amex) during 1983 – 1992. This data is used to calculate the average relative quoted bid-ask spread during the five days prior to the offering. Finally, I collect analyst coverage data from IBES, and institutional holdings form Thomson Financial 13f data.

Table 1 provides statistics for the full sample of shelf and non-shelf offers. The non-shelf sample statistics are qualitatively similar to those reported by Corwin (2003). In comparison, shelf offers are associated with significantly higher offer prices and offering proceeds, although the relative offer size is smaller because the typical shelf issuer's market value is 4-5 times greater than the average non-shelf issuer. Additionally, shelf issuers' bid-ask spread is less than one-half that of traditional issuers due to the majority of sample shelf offers taking place after the introduction of stock price decimalization.[6]

3. Descriptive evidence on discounting

Table 2 reports statistics on seasoned offer discounting during 1982 – June 2004. Issue discounting is defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. This choice is intuitive since seasoned issuers have observable secondary market prices prior to the offer and underwriters typically price offerings with respect to this reference point. Measuring the discount relative to the closing price on the offer date is arguably less appropriate since offer day closing prices can and often do differ markedly from the reference point that underwriters use in setting the offer price.[7] Panel A of Table 2 reports that the magnitude of discounting is similar across registration procedures. The mean (median) non-shelf discount is 2.29% (1.24%)

[6] During 2000 - June 2004 the mean [median] bid-ask spread of SEO issuers' stock is 0.38% [0.32%], which is similar in magnitude to the bid-ask spread of shelf issuers.

[7] For example, Altinkilic and Hansen (2003) report that the amount of discounting provides information that is reflected in the stock price during the offer day.

and the corresponding shelf discount is 2.35% (1.11%). On the NYSE / AMEX, shelf offers are associated with slightly larger discounts than non-shelf offers (1.65% versus 1.26%). On the NASDAQ, however, shelf discounts are more than a percent greater than non-shelf discounts.

Panel B provides statistics for four sub-periods: 1982-87, 1988-93, 1994-99, and 2000-June 2004. The trend in the number of seasoned offers has varied considerably over time, with non-shelf offers increasing to a peak in the mid- to late 1990s and declining in the 2000s and shelf offers recently rebounding from a decade long drought. The evidence in Panel B shows that discounts have increased over time. The average discount of traditional offers increases from less than 1% in the early / mid 1980s to more than 3% in the mid /late 1990s, consistent with the evidence of Corwin (2003), Altinkilc and Hansen (2003), Mola and Loughran (2004), and Kim and Shin (2004). Corwin (2003) argues that this increase is partially attributable to Rule 10b-21, while Kim and Shin (2004) claim this increase is entirely explained by the rule. The panel also reports that shelf offers exhibit a similar increase in discounting, from a mere 0.16% during 1982-87 to 3.62% during 2000-June 2004.[8] This finding is interesting because shelf offers are exempt from Rule 10b-21 during the sample period. Thus one could reliably claim that the increase in shelf discounting is not linked to short sale constraints imposed by the rule.

Corwin (2003) finds that during 1993-1998 underwriters frequently set offer prices of exchange-listed firms at the previous day's closing transaction price and offer prices of Nasdaq firms at the previous day's closing bid quote. Table 3 provides evidence of these practices for shelf offers. The table reports issue discounts relative to the previous day's closing transaction price (as in Table 2) and relative to the previous day's closing bid quote and quote midpoint. I use Corwin's sample period (1993-1998) and find that shelf (non-shelf) offers of exchange-listed firms are priced at the closing transaction price approximately 40% (36%) of the time, and offers of Nasdaq firms are priced at the closing bid quote about 26% (41%) of the time.[9] These standard practices, however, have

[8] The percentage of offers that are discounted has increased steadily for non-shelfs (shelfs) from 43% (34%) during the 1980s to 75% (59%) during the 1990s, and finally to 87% (89%) during the 2000s. This increase is consistent with that reported by Altinkilic and Hansen (2003) for non-shelf offers through the 1990s.

[9] The non-shelf statistics are qualitatively similar to that reported by Corwin (2003).

recently become less common. During 1999 – June 2004 only 11% of non-shelf and 9% of shelf offers of exchange-listed firms are priced at the closing transaction price. Additionally, only about 15% of non-shelfs and 4% of shelfs of Nasdaq firms are priced at the closing bid quote, with most of the remainder priced below the closing bid quote. These changes are potentially a result of the reduction in bid-ask spreads due to the introduction of stock price decimalization.

The result in Table 3 also indicate that, for both offering methods, discounting measured relative to the closing bid-ask midpoint is similar to that measured using closing prices. Thus the estimates are not significantly affected by order imbalances prior to the offering, a concern raised by Lease, Masulis, and Page (1991).

4. Rule 10b-21 and seasoned offer discounting

The impact of Rule 10b-21 on the pricing of seasoned equity offers (SEOs) has received considerable attention in the literature. The intent of the rule is to eliminate artificial price distortions arising from manipulative pre-offer short sales that increase the costs to seasoned issuers. However, the existing literature suggests that the rule has unintended consequences. Specifically, Gerard and Nanda (1993) predict that the rule's restriction on informative pre-offer short sales could compromise market efficiency and consequently force underwriters to price offerings at larger discounts relative to current market value. Consistent with this, Kadlec, Loderer and Sheehan (1997) find an increase in offer price discounts after the adoption of the rule, and Corwin (2003), Kim and Shin (2004), and Mola and Loughran (2003) report an increase in SEO discounts from approximately 1% during the 1980s to 3% during the 1990s. Corwin (2003) argues that Rule 10b-21 partially explains the increase in SEO discounting, while Kim and Shin (2004) claim that the rule is the key determinant.

The inclusion of shelf-registered offers in this study allows for new tests of the rule's effect. Specifically, during the sample period 1982 - June 2004 shelf offers are exempt from Rule 10b-21. I use the shelf exemption as a control in testing the rule's effect, and the elimination of the exemption in September 2004 as an "out-of-sample" test.

The descriptive evidence indicates that the median discount for each offering type increases from zero before the implementation of the rule to about 2% after the rule. This initial evidence raises questions about the impact of the rule, given the shelf exemption. Below I test the rule's effect on discounting after controlling for several known determinants of discounting.

4.1 Factors that influence discounting

I include in the analysis several known determinants of seasoned offer discounts. Rock (1986) argues that discounting should be positively related to price uncertainty and information asymmetry. Recent evidence supports this hypothesis. For example, Corwin (2003) and Altinkilic and Hansen (2003) find that SEO discounts are larger for offers conducted by smaller firms and firms that have greater stock return volatility and larger bid-ask spreads. To capture the effects of asymmetric information, I use two proxies: MARKVAL, defined as the market value of equity on the day prior to the offering, and BAsprd defined as the average relative quoted bid-ask spread over the five days prior to the offering. I also include some analysis using two alternative proxies for asymmetric information: #ANAL defined as the number of analysts covering the firm in the month prior to the offering, and INSTHLD as the percentage of shares held by institutions during the quarter prior to the offering.[10] To proxy for price uncertainty, I define VOL as the standard deviation of daily stock returns over the 30 days ending 11 days prior to the offering[11], and PreCAR as the cumulative market-adjusted stock returns in the five days immediately prior to the offer. The magnitude of PreCAR is expected to be positively related to discounting since larger price swings in either direction imply greater uncertainty. Thus following Corwin (2003) I define PreCARpos as PreCAR when positive and zero otherwise, and PreCARneg as PreCAR when negative and zero otherwise.

[10] Analyst following and institutional holdings are highly correlated with other factors and thus I exclude them from the regression analysis. However, including these variables does not change the reported results.

[11] Alternatively, I calculate VOL as the residual volatility from the Scholes-Williams (1977) market model estimation using a 180-day estimation period ending 20 days prior to the offer. The results are consistent with those reported.

The price pressure hypothesis suggests that larger offers, holding firm size constant, should be associated with greater discounting. Corwin (2003) and Altinkilc and Hansen (2003) find that offer discounts are positively related to the relative offering size. I capture this effect with OFRSIZE calculated as the number of shares offered divided by the number of shares outstanding on the day prior to the offer.

Seasoned offer discounts also reflect the common practice used by underwriters of rounding offer prices to whole dollars. The effect of rounding should be more pronounced for issuers that have low stock prices. Corwin (2003) and Mola and Loughran (2003) report that offer prices tend to cluster on whole dollars, and that discounting is larger for offers priced at whole dollars and offers made by firms that have lower stock prices. I control for these effects by including INTEGER, which is a binary variable that equals one for offer priced at whole dollars and zero otherwise, and PRC defined as the closing stock price on the day prior to the offer.

The evidence of Corwin (2003) suggests that seasoned offer discounts are positively associated with the concurrent level of IPO underpricing, thus I include IPOunder defined as the level of IPO underpricing in the same month as the offering. The above variable definitions follow previous researchers.

4.2 Univariate evidence on the determinants of discounting

Table 4 reports the association between discounting and several firm and offer characteristics for traditional SEOs (Panel A) and shelf offers (Panel B). The panels report offer discounts by quartile during 1982 - June 2004. The univariate relations reported in Panel A for traditional SEOs are qualitatively similar to Corwin's (2003) findings. Panel B reports remarkably similar relations for shelf offers. Discounting of shelf and non-shelf offers is inversely related to firm size (MARKVAL) and stock price (PRC), and is directly related to stock price volatility (VOL), relative offer size (OFRSIZE) , and the bid-ask spread (BAsprd). Additionally, there is a U-shaped relation between the level of discounting and the market-adjusted returns in the five days prior to the offer (PreCAR), with a positive association between discounting and the magnitude of pre-offer returns.

Furthermore, I find that shelf offers cluster at whole and half dollars, consistent with the evidence of Corwin (2003) and Mola and Loughran (2003) for non-shelf offers. Figure 1 and 2 plot closing transaction prices on the day prior to the offer and offer prices for the sample of non-shelf and shelf offers, respectively. The figures show that closing transaction prices infrequently fall on either whole dollars or half dollars, although offer prices tend to cluster on whole and half dollars. The initiation of stock price decimalization has little impact on the portion of offers clustered at whole and half dollars.

Overall, the determinants of shelf offer discounting appear to mirror those of non-shelf discounting. This should be expected considering that, compared to other types of pubic equity offers (e.g. IPOs and rights offers), shelf and non-shelf SEOs are closely related methods of raising seasoned public equity.

4.3 The effect of Rule 10b-21

In the tests below I use the shelf exemption as a control in testing Rule 10b-21's effect, and the elimination of the exemption in September 2004 as an "out-of-sample" test.

Table 5 provides OLS estimations examining the differential impact of Rule 10b-21 on shelf versus non-shelf discounting. Model (1) includes a dummy variable that equals one for offers conducted after the adoption of Rule 10b-21 and zero before, a shelf dummy variable (SHELF) that equals one for shelf offers and zero for non-shelfs, and an interaction term of these two variables. Without the knowledge of the shelf exemption one could falsely interpret the estimates as evidence that Rule 10b-21 increased shelf discounts by a significant 0.70% more than it increased non-shelf discounts. Model (2) controls for other determinants of discounting. Specifically, it includes the natural log of market value on the day prior to the offer (Log MARKVAL), stock volatility (VOL), relative offer size (OFRSIZE), the natural log of the closing stock price on the day prior to the offer (Log PRC), the average IPO underpricing during the same month as the seasoned offer (IPOunder), a Nasdaq dummy variable, pre-offer returns (PreCARpos, PreCARneg), and an integer dummy variable (INTEGER). The estimates in model (2) indicate that discounting is positively associated with VOL, OFRSIZE, PreCARpos,

INTEGER, and the Nasdaq dummy, and is inversely related to Log (PRC) and IPOunder. The influence of these factors is generally consistent with prior studies, except that the inclusion of 2000s data reverses the previously reported positive association between seasoned offer discounting and the concurrent level of IPO underpricing.[12] Although further examination of this inverse relation is beyond the scope of this study, it is noteworthy since theories of underpricing often have similar predictions for IPOs and SEOs.

Importantly, after controlling for these factors the coefficient of the term SHELF * Rule10b-21 indicates no differential impact of the rule on shelf relative to non-shelf offers. It is also noteworthy that controlling for the average level of discounting during the quarter prior to each observation reduces the economic effect of Rule 10b-21. In particular, model (3) indicates that after accounting for the effect of discounting in the previous quarter the economic effect of Rule10b-21 is reduced by almost 40%, although other explanatory variables are unaffected.

In models (4) and (5) the determinants of discounting are estimated separately for traditional and shelf offers, respectively. Consistent with the descriptive evidence in Table 4, the determinants of shelf discounting mirror those of non-shelf discounting. After controlling for these factors, Rule 10b-21 has a similar statistical and economic impact on shelf offers (1.48%) as on non-shelf offers (1.35%). In unreported specifications I control for the average discounting in the previous quarter. The effect of the rule for shelf and non-shelf offers reduces to 0.98% and 0.78%, respectively.

These findings, together with the fact that shelf offers are exempt from Rule 10b-21, raise questions about the relation between the rule's restriction on manipulative and / or informative short sales and the level of discounting found in this study and in previous studies [e.g. Gerard and Nanda (1993), Safieddine and Wilhelm (1996), Kadlec, Loderer, and Sheehan (1997), Corwin (2003)].

Furthermore, the 2004 elimination of the shelf exemption appears to actually *reduce* shelf discounting. I manually collect an additional sample from Investment Dealer's Digest consisting of shelf offers completed during July 2004 – June 2005,

[12] Specifications over a sample period 1982-1998 indicate, similar to Corwin (2003), that there is a positive association between seasoned offer discounting and the concurrent level of IPO underpricing.

applying the same restrictions as before and manually verifying the offer date with SEC filings for each observation.[13] Table 6 provides evidence that during the 10 months following the removal of the shelf exemption offer discounts decrease by approximately 1% relative to the year prior to the removal. Certainly, the elimination of the shelf exemption has not increased offer discounts. This is inconsistent with the hypothesis that the rule restricts informative short selling and consequently increases issue discounts.

The above analysis demonstrates that assessing the impact of Rule 10b-21 by conducting long-term analyses can potentially be misleading. This analysis calls into question the findings of prior research that indicate the implementation of Rule 10b-21 increased offer discounts.

5. What explains the increase in discounting over time?

The analysis in the prior section suggests that Rule 10b-21 is not responsible for the increase in seasoned offer discounting. The purpose of this section is to examine what factors are associated with the time-series of discounting.

Although several studies examine the determinants of seasoned offer discounts, few distinguish between time-series and cross-sectional relations. Estimation techniques such as pooled and Fama-MacBeth regressions can provide information about which factors contribute to differences in discounting across firms, although these techniques are less useful in explaining time-series of seasoned offer discounting. For example, Corwin (2003) and Altinkilic and Hansen (2003) among others finds that larger firms and firms with higher stock prices experience smaller discounts. The data, however, indicate that the average traditional SEO issuer during 2000-04 is considerably larger and trades at a higher stock price than before, although the average discount is greater than before. Similarly, Bowen, Chen, and Cheng (2004) find that greater analyst coverage and institutional ownership reduce discounts. However, the data indicate increases over time in analyst coverage, institutional ownership, *and* discounting. Put another way, a particular factor may contribute to differences in discounting across firms, although it does not necessarily contribute to the observed increases in discounting over time.

[13] Issuers typically file a prospectus supplement that contains the offering details and identifies the date and stock price on the day before the offering. I assign the next day as the offer date. This classification almost unanimously agrees with the volume based adjustment.

Table 7 illustrates this by reporting Pearson correlation coefficients between discounting and selected variables for all observations (Panel A) and for a time-series of 90 quarterly observations, in which individual observations are aggregated at the quarterly frequency (Panel B). Panel A reports that, on aggregate, discounting is positively associated with volatility, relative offer size, PreCARpos, the bid-ask spread, and the binary integer variable, and is negatively associated with issuer market value, PreCARneg, stock price, institutional holdings, and analyst coverage.[14] In contrast, Panel B reports that in the time-series, market value, stock price, institutional holdings, and analyst coverage are *positively* associated with discounting. This highlights the importance of distinguishing between time-series and cross-sectional determinants of discounting. The objective of this section is to shed light on the time-series determinants of seasoned offer discounting.

I use two approaches. The first examines how the composition of seasoned issuers has changed over time and, holding constant firm characteristics, how discounting has changed. The second involves the estimation of time-series regressions in which each variable is aggregated across firms at the quarterly frequency.

5.1 The composition of seasoned issuers

In the first approach I group issuers (separately for shelf and non-shelf) into quartiles based on firm characteristics using the entire period 1982 – June 2004. Then I split the sample into four sub-periods, while maintaining the original quartile breakpoints. This approach allows us to (i) observe changes over time in the characteristics of seasoned issuers and (ii) compare discounting across sub-periods while holding firm traits constant. Table 8 reports the results for non-shelf (Panel A) and shelf offers (Panel B). Panel A provides evidence of a change in issuer composition toward firms with greater stock volatility and more extreme pre-offer returns. In the first sub-period (1982-87) issuers in the lowest quartile of volatility represent 39% of total issuers. In sub-periods 2, 3, and 4 the percentages decline to 30%, 17%, and 12%, respectively. The corresponding percentages in the highest quartile are 8.4%, 19%, 30%, and 52%.

[14] In contrast to non-shelfs, shelf discounts are not associated with institutional holdings or analyst following, and are negatively associated with the concurrent level of IPO underpricing.

Similarly, the percentage of firms in the most extreme PreCAR quartiles (1 and 4) represent 41% of total issuers during 1982-87, 44% during 1988-93, 56% during 1994-99, and 63% during 2000-04. Thus there is a monotonic shift in issuer composition toward greater volatility and more extreme pre-offer returns.

Furthermore, holding volatility and pre-offer returns (PreCAR) constant, the time-series of discounting flattens considerably. Seasoned offers in the top two quartiles of volatility experience little or no change in discounting from 1988 through 2004. In sub-periods 2, 3, and 4 the average discount is 3% for issuers in the third quartile and 4% for issuers in the fourth quartile. Likewise, seasoned offers in the extreme two quartiles of PreCAR are associated with little or no change in discounting since 1994. These findings illustrate that a substantial portion of the time-series increase of offer discounts is attributable to an increasing tilt of seasoned issuers toward greater volatility and more extreme pre-offer price swings. It should be noted, however, that discounting has increased for low volatility and middle PreCAR issuers, although the relative proportion of issuers with these traits has declined substantially.

The reduction over time of bid-ask spreads is another potential reason for the increase of discounting. Specifically, the compensation to investors for participating in an offering equals the sum of the discount and half of the bid-ask spread, since the expected purchase price in an offering is the midpoint of the bid-ask spread (assuming zero discounting) while the purchase price in the secondary market is the ask quote. It is possible that the overall compensation to investors has not changed over time, but that a reduction in bid-ask spreads over time has caused the increase in discounting. An examination of discounting within quartiles of BAsprd, however, reveals that: (i) spreads of seasoned issuers, on average, do not decrease until the 2000s and (ii) within each quartile of BAsprd there is an increase over time in discounting. Furthermore, the sum of discounting and half of the bid-ask spread increases substantially across the first three sub-periods. The sums across sub-periods are: 1.36%, 2.51%, 4.02%, and 3.52%. Thus the results do not support the hypothesis that the reduction in bid-ask spreads causes the increase in discounting. However, it does appear that the sharp reduction in bid-ask spreads after the introduction of stock price decimalization may have reduced investors' overall compensation.

The evidence on issuer size and stock price illustrates the distinction between cross-sectional and time-series determinants of discounting. In the most recent two sub-periods the composition of issuers tilts towards larger firms that have higher stock prices. This shift, all else equal, would be expected to cause a decrease over time in discounting. Finally, there is no clear time-series pattern with respect to the relative offer size.

The statistics in Panel B of Table 8 suggest that much of the time-series increase in shelf offer discounts is due to a shift in the composition of shelf issuers towards firms that have greater volatility, more extreme pre-offer returns, larger relative offer sizes, and lower stock prices. Shelf and non-shelf issuers exhibit similar changes in composition with respect to volatility and PreCAR, but opposite tilts in terms of stock prices. This can potentially explain why over time shelf discounting has caught and surpassed non-shelf discounting. This can also possibly explain why, in contrast to non-shelfs, shelf discounting has increased for the most volatile firms and for firms in the most extreme quartiles of PreCAR.

5.2 Time-series estimations

The second approach in explaining the time-series of discounting is estimating time-series regressions. I focus on temporal variation by creating a time-series of 90 observations in which I average each variable across firms at the quarterly frequency.

Table 9 reports the results of regressions that focus on temporal variation by using the quarterly aggregated time-series of 90 observations. In models (1) – (3) discounting of traditional SEOs is explained by quarterly averages of the natural log of market value (Log MARKVAL), volatility (VOL), relative offer size (OFRSIZE), cumulative market-adjusted abnormal returns in the five days prior the offering (PreCARpos, PreCARneg), and the natural log of the stock price (Log PRC). Additionally, I include the percentage of offers in the quarter that are priced at whole dollars (INTEGER), the average IPO underpricing in the quarter (IPOunder), and the percentage of offers in the quarter by Nasdaq firms (Nasdaq) and by utility firms (Utility). Also included is a dummy variable that equals one for offers during or after the third quarter of 1988 and zero otherwise (Rule 10b-21).

The time-series pattern of seasoned offer discounting is suggestive of positive serial dependence. Panel C of Table 7 reports significantly positive correlations between discounting and lagged (annual and quarterly) discounting. Several researchers have pointed out that conducting tests on an autocorrelated time-series without implementing a correction can potentially result in spurious relations between the explanatory and dependent variables.[15] I test for the presence of first-order autocorrelation by calculating the Durbin-Watson (DW) statistic for each time-series specification. The DW statistic in model (1) is 1.40, which indicates the presence of positive residual autocorrelation at the 1% level. Models (2) and (3) provide improved specifications by including the first and second lags of discounting, respectively, each entering the regression significantly. The DW statistic of 1.80 in model (3) indicates no significant evidence of residual autocorrelation. Thus I interpret the effect of the explanatory variables using this specification.

The findings support the evidence of the shift in composition reported in Table 8. The time-series of discounting is significantly explained by temporal variation in VOL, PreCARneg, and Log PRC. Over time greater stock volatility, larger pre-offer price declines, and lower prices are associated with greater discounting. In economic terms, a one standard deviation increase in VOL is associated with 0.57% greater discounting (time-series standard deviation = 0.01066), while a one standard deviation increase in Log PRC (PreCARneg) decreases discounting by -0.41% (-0.20%). It is notable that, after controlling for other factors, the time-series increase in non-shelf SEO discounting is not significantly associated with temporal variation in the proportion of offers that are priced at whole dollars. This implies that the effect of offer price clustering at integers, documented by Mola and Loughran (2003) and Corwin (2003), is due to differences across firms rather than over time. Indeed, in unreported univariate tests I find that discounting increases over time even for a restricted sample that includes only offers priced at whole dollars.

Model (4) of Table 9 presents the estimates of a similar time-series specification to explain shelf discounting. Changes over time in shelf discounting are explained by temporal variation in VOL, OFRSIZE, and INTEGER. Over time greater stock volatility,

[15] See, for example, Ferson, Sarkissian, Simin (2003) and Granger and Newbold (1974).

larger relative offer sizes, and an increase in the proportion of offers clustered at whole dollars are associated with greater discounting. In economic terms, a one standard deviation increase in VOL, OFRSIZE, and INTEGER are associated with 1.13% greater discounting (time-series standard deviation of VOL = 0.01036), 0.39% greater discounting, and 0.45% greater discounting, respectively.

It is noteworthy that the correction for residual autocorrelation in non-shelf discounting reduces the economic impact of Rule 10b-21 by almost one-third to 0.72%. This indicates that failing to control for the positive dependence in discounting can cause the importance of the implied structural break to be overstated. Moreover, the results indicate that the economic impact of Rule 10b-21 appears to be greater on shelf than non-shelf offerings (0.82% versus 0.72%) despite the shelf exemption. The results of these time-series estimations provide additional evidence that Rule 10b-21 has little association with seasoned offer discounting.

To what extent do changes in firm / offer characteristics explain the large increase over time in discounting? I provide a rough estimate by first averaging the quarterly aggregated variables within each sub-period and then multiplying the change between sub-periods 1 and 4 by the coefficient of the particular variable in Table 9. This provides some sense of the overall economic effect on discounting after controlling for other variables. From sub-period 1 (1982-87) to sub-period 4 (2000-04) traditional offer discounting increased by 2.33% (see Table 2), of which 0.87% is explained by changes over time in VOL, PreCARneg, and LNPRC. The relative effects are 0.95%, 0.27%, and -0.35%, respectively.

Could changes over time in the sensitivity of discounting to these variables explain any portion of the increase? I examine this by estimating pooled regressions using the full sample, and interacting the above variables with dummy variables that represent sub-period 1 and sub-period 4 (PER1, PER4). The results suggest that the sensitivity of discounting to VOL is much smaller in sub-period 1 than in later sub-periods. Specifically, in the pooled regression, the coefficient of VOL is 0.53 and the coefficient of the interaction term, VOL*PER1 is a highly significant -0.39. Multiplying this coefficient (which represents the difference in sensitivity between sub-period 1 and later sub-periods) by the average value of VOL in sub-period 1, I estimate that

discounting increases by 0.99% after sub-period 1 as a result of greater sensitivity to VOL. The sensitivity of discounting to other variables exhibits less change across sub-periods. The overall evidence suggests that much of the time-series increase in traditional offer discounts can be attributed to (ii) changes in issuer composition toward greater VOL and more extreme PreCAR, and (ii) an increased sensitivity after sub-period 1 of discounting to VOL. The sensitivity results reflect increases since 1987 in investors' required discount for a given level of VOL. One possible explanation is that the stock market crash of 1987 caused investors to become particularly sensitive to stock volatility.

Over the same interval shelf discounting increased by 3.48%, of which a substantial 2.84% is due to changes over time in VOL, OFRSIZE, and INTEGER. The relative effects of these changes are 1.95%, 0.59%, and 0.30%, respectively. Also, the sensitivity of shelf discounting to VOL is significantly greater in sub-period 4 than earlier sub-periods, and the estimates indicate that this increased sensitivity is associated with about 1% greater discounting in sub-period 4.

6. Differences in discounting across registration procedures

The evidence in Table 2 suggests that in the 1980s and the early / mid 1990s shelf offers were associated with smaller discounts relative to traditional SEOs, but that by the 2000s shelf discounts surpassed non-shelf discounts. Below I examine differences in discounting across registration procedures after controlling for firm and offer characteristics. This can shed light on whether the observed differences in discounting across procedures is due to the registration method or is simply due to differences in the types of firms that choose shelf versus traditional offers.

Table 10 reports OLS estimations that test for differences in discounting across procedures, after controlling for several known determinants of seasoned offer discounting: issuer size (Log MARKVAL), stock volatility (VOL), relative offer size (ROS), PreCARpos, PreCARneg, stock price (Log PRC), a binary integer variable (INTEGER), the concurrent level of IPO underpricing (IPOunder), and a Nasdaq indicator (Nasdaq). Models (1) and (3) – (8) are from pooled OLS estimations and include year fixed effects to emphasize cross-sectional variation. Model (2) reports estimates and t-statistics from Fama-MacBeth (1973) regressions, in which cross-

sectional regressions are estimated each year during 1982 - 2004, and the means (across years) of the regression intercept and slopes are reported with t-stats for the means in parentheses. The t-stats are defined as the mean divided by the standard error (standard deviation of the regression coefficient divided by the square root of the number of years in the period).

Every specification includes a shelf dummy variable (SHELF), which equals one for shelf offers and zero for non-shelf offers, and year fixed effects to emphasize differences across procedures rather than over time. Models (1) and (2) of Table 10 report that over the entire sample period (1982 - June 2004) the typical shelf offer is associated with a significantly larger discount, by roughly 0.6% - 0.8%, than the typical traditional SEO, all else equal. In light of the evidence in Table 2 of no statistical difference in discounting between procedures in the overall sample, the result in model (1) and (2) suggests that the average shelf issuer has firm traits that are associated with smaller discounting. This is consistent with the evidence in Table 1 that shelf offers are larger, make relatively smaller offers, and have lower stock price volatility and pre-offer price swings relative to traditional offerings.

Models (3) - (8) of Table 10 examine differences across procedures within sub-periods. Models (3) - (4) indicate that in sub-periods 1 and 2 the smaller magnitude of shelf discounting is due to differences in firm traits rather than offering type. Models (6) - (8), however, illustrate that differences in firm traits cannot explain differences in discounting on the Nasdaq during 1994-99 and 2000-2004 or on the NYSE/Amex during 2000-2004. After controlling for other factors, shelf discounts are almost one percent greater than non-shelf discounts.

Why are shelf discounts larger than non-shelf discounts during 2000-04? Shelf issuers can conduct offers with little or no delay and therefore can proceed with an offering immediately following short-term price increases. If underwriters take this into account when setting the offer price, we should observe greater discounting for offers that occur after larger price increases. This effect is likely to be most pronounced for non-integer offers, since it is these offers for which underwriters are most likely to make small pricing adjustments due to pre-offer price increases. The reasoning is best explained with an example. For a $25 stock, a 4% discount equals one dollar and thus pricing the offer to

a lower integer due to short-term price increases (e.g. from $24 to $23) would result in an additional 4% discount, or 8% total. Thus, the discounts of non-integer offers are more likely to reflect an adjustment for pre-offer price increases. In contrast to shelf issuers, traditional issuers have little ability to time the offering date and underwriters therefore have less incentive to penalize pre-offer price increases.

Based on these arguments, I expect that: (i) given an abnormal price increase prior to the offering (PreCAR > 0), shelfs, relative to non-shelfs, should be associated with a relatively greater proportion of non-integer offers, (ii) given a non-integer offering, shelf discounts should increase as PreCARpos increases, and (iii) controlling for the differential impact of PreCARpos across registration procedures should explain part of the remaining difference in discounting between shelf and non-shelf offerings in the past 5-10 years.

Tables 11 and 12 report results that are generally consistent with these expectations. Panel A of Table 11 reports that shelf offers are associated with greater discounting, relative to non-shelfs, only for non-integer offers. Panels B and C examine discounting (where PreCAR>0) for non-integer and integer offers, respectively. In each panel I split PreCARpos into three groups (low, medium, high) using all seasoned offerings (shelf and non-shelf) to form breakpoints. Comparing panels, roughly 75% of shelf offers, 164 of 219, are offered at non-integers, whereas only 56% of non-shelfs are offered at non-integers. Furthermore, there is a monotonic relation between PreCARpos and shelf discounts for non-integer offers. The mean (median) shelf discount in the highest third of PreCARpos, 5.19% (4.16%), is significantly greater than the shelf discount in the lowest third of PreCARpos, 1.92% (1.23%). There is no such relation in the sample of traditional SEOs, and for integer offers there is no relation for either offer type.

I report similar evidence after controlling for other factors. Panels A and B of Table 12 report OLS estimates during 2000-04 and Fama-MacBeth estimates during 1997-2004[16], respectively. Model (1) of each panel reports that shelf offers are discounted an additional percent relative to traditional SEOs. The second specification,

[16] The Fama-MacBeth statistics are estimated using 1997-04 to increase the reliability of the FM t-stats.

however, illustrates that the entire difference is explained by non-integer offers, consistent with the descriptive evidence in Panel A of Table 11. Non-integer shelf offers are discounted an additional 1-1.5% relative to non-integer traditional SEOs. The significantly positive coefficient on the interaction term SHELF * PreCARpos provides evidence of a statistically and economically large impact on shelf discounts. Adding the coefficients in Panel A of PreCARpos and this interaction term and multiplying by the standard deviation of PreCARpos across procedures (0.0662) indicates that a one standard deviation increase in PreCARpos increases shelf discounting by 0.58%. Model (4) shows that this effect is most pronounced for non-integer offers. In the model, Non-INTEGER * PreCARpos is insignificant, indicating that PreCARpos has no effect on the discounting of traditional SEOs even for non-integer offers. However, PreCARpos has a large effect for non-integer shelf offers. The coefficient of SHELF * Non-INTEGER * PreCARpos is statistically significant and implies that a one standard deviation increase in PreCARpos increases discounting of non-integer shelf offers by 1.30%.

After accounting for the differential impact of PreCARpos on shelf relative to non-shelf discounts, shelf discounts remain 0.6% - 0.7% greater than non-shelf discounts. One potential explanation for the remaining difference is related to institutional differences between registration methods. Shelf issuers often enter the market quickly without a lengthy book-building period. This may limit the scope of potential investors in the offering and thus decrease the bargaining power of the issuer, resulting in a larger demanded discount, everything else equal. An alternative explanation is related to institutional participation. In each sub-period, institutional ownership of shelf issuers is approximately 5-10% greater than non-shelf issuers. It is possible that institutions, on average, require a greater discount than retail investors. Thus offerings that are associated with greater institutional participation, all else equal, may have greater discounts. I test whether shelf offers have greater institutional participation relative to non-shelfs by comparing the change in the number of shares owned by institutions during the quarter prior to the offering to the quarter following the offering, relative to the number of shares offered. This is a rough approximation of the percentage of the offering allocated to institutions. The ratios are sometimes greater than one, demonstrating that this approach

is crude at best due to the limitations of using quarterly institutional data.[17] However, I find evidence of greater institutional participation in shelf relative to non-shelf offerings.

7. Conclusions

Relative to traditional SEOs, shelf offer discounting during 1982 - June 2004 is similar in magnitude, is influenced by the same factors, and has increased similarly over time. The literature attributes the increase of SEO discounting to the implementation of Rule 10b-21. The evidence indicates that the rule appears to affect the discounting of shelf and non-shelf offers similarly, despite the fact that shelf offerings are exempt from this regulation during the sample period. Further, the elimination of the shelf exemption in 2004 results in smaller shelf discounts. Overall, the inclusion of shelf offers as a control suggests that Rule 10b-21 is not responsible for the increase over time of seasoned offer discounting.

I provide insights about the time-series of seasoned offer discounting by following the general approach of Fama and French (2001) who examine the time-series of dividend paying firms. Specifically, I examine how the composition of seasoned issuers has changed over time and, holding constant firm characteristics, how discounting has changed. The evidence suggests that the increase in discounting is largely due to a shift over time in the composition of issuers towards two firm characteristics that are associated with greater discounting: greater stock volatility and pre-offer price uncertainty. The results from time-series regressions in which each variable is aggregated across firms at the quarterly frequency are generally consistent with the descriptive evidence regarding changes in firm composition.

Finally, I examine cross-sectional differences in discounting between registration methods. These differences can be explained by differences in firm traits during the 1980s and early 1990s, although after controlling for firm traits discounting remains greater for shelfs in the late 1990s and 2000s. The remaining difference in recent years is partially explained by the greater sensitivity of shelf discounting to pre-offer stock price increases, and may also be related to differences in institutional participation of shelf versus traditional offerings.

[17] For this reason I do not include this measure of institutional participation in the regressions.

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Table 1
Descriptive Statistics

This table provides means [medians] of firm and offer statistics for the sample of shelf and non-shelf equity offers during the period 1982 – June 2004. Offer proceeds equals the offer price times the number of shares offered. Relative offer size equals the number of shares offered divided by the number of shares outstanding on the day prior to the offer. Market value is the stock price times the number of shares outstanding on the day prior to the offer. Stock volatility is calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer. Residual volatility is calculated from the Scholes-Williams (1977) market model estimation using a 180-day estimation period ending 20 days prior to the offer. Adjusted daily volume is the mean daily share volume over the 250 trading days prior to the offer. Nasdaq daily volume is divided by two. The gross underwriter spread includes the management fee, underwriter fee, and selling concession and is scaled by the total proceeds of the offer. The bid-ask spread is calculated average relative quoted bid-ask spread during the five days prior to the offering and is available from TAQ during 1993-2004 and from ISSM (only NYSE-Amex) during 1983-1992. P-values for differences in means [medians] between non-shelf and shelf offers are based on standard t-tests [Wilcoxon sign-rank tests].

Variable	Non-shelf offers N = 4554	Shelf offers N = 762	P-values
	Mean [Median]	Mean [Median]	T-test [Wilcoxon]
Offer price	23.98 [20.00]	28.81 [25.00]	<0.0001 [<0.0001]
Offer Proceeds (mil.)	71.26 [42.8]	154.04 [90.15]	<0.0001 [<0.0001]
Relative offer size (%)	22.54 [19.20]	12.51 [9.78]	<0.0001 [<0.0001]
Market value (mil.)	708.50 [223.42]	3262.81 [1024.10]	<0.0001 [<0.0001]
Shares outstanding (mil.)	23.41 [10.99]	105.29 [40.10]	<0.0001 [<0.0001]
Stock volatility (%)	3.32 [2.95]	2.74 [2.34]	<0.0001 [<0.0001]
Residual volatility (%)	3.45 [3.18]	2.77 [2.33]	<0.0001 [<0.0001]
Adjusted daily volume (000)	93.55 [32.83]	499.03 [156.18]	<0.0001 [<0.0001]
Bid-ask spread (%) N=3130 and 639	1.10 [0.73]	0.40 [0.31]	<0.0001 [<0.0001]

Table 2
Descriptive evidence on offer price discounting

This table displays offer price discounts for shelf and non-shelf seasoned offerings. Discounting is defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. P-values for differences in means [medians] between SEOs and shelf offers are based on standard t-tests [Wilcoxon sign-rank tests].

Panel A: Offer price discounts (%) during 1982 – June 2004

	Non-shelf offers			Shelf offers			P-values	
	Number	Mean	Median	Number	Mean	Median	Mean (t-test)	Median (Wilcoxon)
Full sample								
All	4554	2.29	1.24	762	2.35	1.11	0.6714	0.8308
Industrial	4112	2.50	1.46	540	2.89	1.85	0.0195	0.0043
Utility	442	0.39	0.00	222	1.04	0.00	0.0014	<0.0001
NYSE / AMEX								
All	1730	1.26	0.00	540	1.65	0.64	0.0070	0.0004
Industrial	1370	1.54	0.53	326	2.05	1.10	0.0082	<0.0001
Utility	360	0.17	0.00	214	1.04	0.00	<0.0001	<0.0001
NASDAQ								
All	2824	2.93	1.97	222	4.06	3.17	0.0001	<0.0001
Industrial	2742	2.97	2.01	214	4.18	3.28	<0.0001	<0.0001
Utility	82	1.36	0.83	8	0.88	0.28	0.6195	0.6794

Panel B: Offer price discounts (%) by sub-period

	Non-shelf offers			Shelf offers			P-values	
	Number	Mean	Median	Number	Mean	Median	Mean (t-test)	Median (Wilcoxon)
Full sample								
1982 - 1987	1130	0.87	0.00	127	0.16	0.00	<0.0001	0.0002
1988 – 1993	1168	2.16	1.13	41	0.50	0.00	<0.0001	<0.0001
1994 – 1999	1665	3.03	2.03	196	1.58	0.57	<0.0001	<0.0001
2000 – June 2004	591	3.20	2.37	398	3.62	2.45	0.0896	0.1090
NYSE / AMEX								
1982 - 1987	642	0.60	0.00	126	0.17	0.00	0.0041	0.0785
1988 – 1993	532	1.13	0.00	37	0.46	0.00	0.0001	0.0807
1994 – 1999	408	2.06	0.99	145	1.36	0.41	0.0162	0.0003
2000 – June 2004	148	2.40	1.64	232	2.83	1.86	0.1941	0.1974
NASDAQ								
1982 - 1987	488	1.24	0.59	1	0.00	0.00	-	-
1988 – 1993	636	3.02	2.08	4	0.89	0.77	-	-
1994 – 1999	1257	3.34	2.30	51	2.22	1.41	0.0108	0.0105
2000 – June 2004	443	3.47	2.67	166	4.72	4.15	0.0006	0.0001

Table 3
Discounting relative to closing prices and closing quotes

Panel A provides statistics on discounting calculated relative to the prior day's closing transaction price, closing bid-ask quote midpoint, closing bid quote, and closing ask quote for the period 1993 – 1998 where TAQ data is available. Panel B provides these statistics for the period 1999 – June 2004. P-values for differences in means and medians between SEOs and shelf offers and between offers of exchange-listed and Nasdaq firms are based on standard t-tests and Wilcoxon sign-rank tests, respectively.

	1993-98				1999-2004			
	Non-shelf (N=1538)		Shelf (N=156)		Non-shelf (N=783)		Shelf (N=440)	
	Mean Discount	Percent zero	Mean Discount	Percent zero	Mean Discount	Percent zero	Mean Discount	Percent zero
Discount relative to the closing transaction price								
Full sample	2.94	18.1	1.38	33.3	3.00	8.2	3.45	5.9
NYSE Amex	1.80	36.4	1.18	40.0	2.31	11.2	2.69	9.3
NASDAQ	3.38	11.5	2.15	6.5	3.21	7.3	4.54	1.1
Discount relative to the closing bid-ask quote midpoint								
Full sample	2.83	3.6	1.38	6.4	3.01	0.3	3.43	1.8
NYSE Amex	1.76	8.6	1.23	7.2	2.37	0.6	2.64	1.9
NASDAQ	3.25	1.6	2.01	3.2	3.20	0.2	4.55	1.6
Discount relative to the closing bid quote								
Full sample	1.72	36.7	1.03	26.9	2.70	13.5	3.19	4.8
NYSE Amex	1.31	24.5	0.93	27.2	2.17	7.3	2.49	5.4
NASDAQ	1.88	41.4	1.44	25.8	2.86	15.4	4.17	3.8

Table 4

Factors that influence seasoned offer discounts

This table provides statistics on offer price discounts within quartiles of firm and offer characteristics for SEOs (Panel A) and shelf offers (Panel B). The sample period is 1982-June 2004. Discounting is defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. Market value (MARKVAL) is the stock price times the number of shares outstanding on the day prior to the offer. Stock volatility (VOL) is calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer. The bid-ask spread (BAsprd) is calculated average relative quoted bid-ask spread during the five days prior to the offering and is available from TAQ during 1993-2004 and from ISSM (only NYSE-Amex) during 1983-1992. Relative offer size (OFRSIZE) equals the number of shares offered divided by the number of shares outstanding on the day prior to the offer. PreCAR equals the cumulative market-adjusted stock returns in the five days immediately prior to the offer. Price (PRC) equals the stock price on the day before the offer.

Panel A: Discounting by quartile for non-shelf offers

	Quartile 1 (lowest)	Quartile 2	Quartile 3	Quartile 4
MARKVAL quartile	3.35	2.43	2.02	1.38
N=4554	(1.96)	(1.51)	(1.18)	(0.58)
VOL quartile	0.90	1.85	2.64	3.79
N=4554	(0.00)	(0.96)	(1.68)	(2.70)
BAsprd quartile	1.81	1.85	2.27	4.02
N=2569	(0.89)	(0.79)	(1.15)	(2.98)
OFRSIZE quartile	1.31	1.93	2.43	3.50
N=4554	(0.19)	(1.09)	(1.56)	(2.25)
PreCAR quartile	2.96	1.90	1.72	2.59
N=4554	(1.91)	(0.87)	(0.80)	(1.68)
PRC Quartile	3.84	2.13	1.62	1.58
N=4554	(2.70)	(1.37)	(0.87)	(0.75)

Panel B: Discounting by quartile for shelf offers

	Quartile 1 (lowest)	Quartile 2	Quartile 3	Quartile 4
MARKVAL quartile	3.21	2.57	1.93	1.70
N=762	(1.64)	(1.50)	(0.82)	(0.93)
VOL quartile	1.09	1.63	2.40	4.28
N=762	(0.00)	(0.92)	(1.17)	(3.28)
BAsprd quartile	2.27	2.71	2.52	3.59
N=621	(1.58)	(1.92)	(1.39)	(1.90)
OFRSIZE quartile	1.36	1.94	2.58	3.53
N=762	(0.78)	(0.68)	(1.14)	(2.08)
PreCAR quartile	2.83	1.82	1.49	3.27
N=762	(1.59)	(0.63)	(0.72)	(2.01)
PRC Quartile	4.01	2.26	1.65	1.48
N=762	(2.91)	(1.06)	(0.70)	(0.77)

Table 5
The effect of Rule 10b-21 on discounting

This table reports pooled cross-section and time-series regressions for the full sample of 4554 non-shelf offers and 762 shelf equity offers during the period 1982 – June 2004. The sample consists of offers that have at least some primary component and excludes financial issuers. The dependent variable is offer discounting, defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return) multiplied by negative one. Rule 10b-21 equals one for offers on or after August 25th, 1988 and zero otherwise. SHELF equals one for shelf offers and zero otherwise. Lag (discounting) equals the average level of seasoned offer discounting during the quarter prior to each observation. The control variables are: The log of market value (Log MARKVAL) defined as the natural log of the stock price times the number of shares outstanding on the day prior to the offer; Stock volatility (VOL) calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer; Relative offer size (OFRSIZE) defined as the number of shares offered divided by the number of shares outstanding on the day prior to the offer; the natural log of the closing stock price (Log PRC) on the day prior to the offer; the average IPO underpricing (IPOunder) during the same month as the seasoned offer; a Nasdaq dummy variable taking the value of one for offers made by Nasdaq issuers and zero for NYSE / AMEX listed firms; PreCARpos (PreCARneg) defined as the market-adjusted return in the five days immediately prior to the offer if positive (negative) and zero otherwise; and an Integer dummy variable equaling one for whole dollar offers and zero otherwise. Heteroskedasticity-adjusted standard errors based on White's (1980) method are in parentheses.

Table 5:
The effect of Rule 10b-21 on discounting

Dependent variable: Discounting

	Models (1) - (3) Shelf and non-shelf offers			Non-shelf offers	Shelf offers
	(1)	(2)	(3)	(4)	(5)
Intercept	0.0087*** (0.0006)	0.0341*** (0.0104)	0.0389*** (0.0106)	0.0376*** (0.0097)	0.0405*** (0.0217)
Rule 10b-21	0.0192*** (0.0008)	0.0133*** (0.0009)	0.0084*** (0.0012)	0.0135*** (0.0009)	0.0148*** (0.0023)
SHELF	-0.0069*** (0.0013)	0.0077*** (0.0015)	0.0090*** (0.0016)	-	-
SHELF * Rule 10b-21	0.0070*** (0.0021)	0.0023 (0.0020)	0.0006 (0.0021)	-	-
Log (MARKVAL)	-	-0.0002 (0.0005)	-0.0006 (0.0005)	-0.0003 (0.0005)	-0.0004 (0.0011)
VOL	-	0.4447*** (0.0399)	0.4263*** (0.0403)	0.4580*** (0.0434)	0.3290*** (0.0946)
OFRSIZE	-	0.0238*** (0.0062)	0.0223*** (0.0063)	0.0213*** (0.0052)	0.0320** (0.0150)
PreCARpos	-	0.0509*** (0.0119)	0.0497*** (0.0119)	0.0392*** (0.0123)	0.1257*** (0.0445)
PreCARneg	-	0.0157 (0.0114)	0.0159 (0.0114)	0.0192 (0.0121)	0.0029 (0.0340)
Log (PRC)	-	-0.0138*** (0.0010)	-0.0138*** (0.0010)	-0.0144*** (0.0011)	-0.0114*** (0.0025)
INTEGER	-	0.0105*** (0.0009)	0.0103*** (0.0009)	0.01111*** (0.0009)	0.0065** (0.0029)
IPOunder	-	-0.0062*** (0.0023)	-0.0043* (0.0023)	-0.0047*** (0.0025)	-0.0136** (0.0058)
Nasdaq	-	0.0035*** (0.0009)	0.0029*** (0.0009)	0.0031*** (0.0010)	0.0078** (0.0032)
Lag (Discount)	-	-	0.2686*** (0.0457)	-	-
Adj R^2	0.0637	0.2646	0.2670	0.2650	0.2720

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 6
Discounting around the 2004 elimination of the shelf exemption to Rule 10b-21

Panel A provides means [medians] of shelf offer discounts surrounding the elimination of the shelf-exemption to Rule 10b-21 in September 2004 and Panel B provides regressions of the effect of the elimination of the shelf-exemption on shelf discounting. The sample period is September 2003 – June 2005. Post June 2004 data is collected from Investment Dealer's Digest. Offer discounts are defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. Rule2004 equals one for offers on or after September 7th, 2004 and zero otherwise. The control variables are: The log of market value (log MARKVAL) defined as the natural log of the stock price times the number of shares outstanding on the day prior to the offer; Stock volatility (VOL) calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer; Relative offer size (OFRSIZE) defined as the number of shares offered divided by the number of shares outstanding on the day prior to the offer; the natural log of the closing stock price (Log PRC) on the day prior to the offer; a Nasdaq dummy variable taking the value of one for offers made by Nasdaq issuers and zero for NYSE / AMEX listed firms; PreCARpos (PreCARneg) defined as the market-adjusted return in the five days immediately prior to the offer if positive (negative) and zero otherwise; and an Integer dummy variable equaling one for whole dollar offers and zero otherwise. P-values for differences in means [medians] between pre- and post-rule periods are based on standard t-tests [Wilcoxon sign-rank tests].

Panel A: Shelf offers around 2004 rule

	Pre-rule Mean [Median]	**Post-rule** Mean [Median]	**P-value** Mean [Median]
Offer Discount (%)	3.25*** [2.49]***	2.40*** [1.54]***	0.0498 [0.0198]
Number of offers	151	76	

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Panel B: Regression analysis: 227 observations

	Dependent variable: discounting
Rule2004	-0.0098*** (0.0035)
Control variables	Yes

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 7
Pearson correlations

Panel A provides Pearson correlations between discounting and selected variables for the entire sample of shelf and non-shelf offers. The sample period is 1982 – June 2004. Panel B displays Pearson correlation coefficients between discounting and selected variables using a time-series of 90 observations, in which I average each variable across firms at the quarterly frequency. Panel C displays Pearson correlation coefficients between discounting and annual (quarterly) lagged discounting. Discounting is defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. Market value (MARKVAL) is the stock price times the number of shares outstanding on the day prior to the offer. Stock price volatility (VOL) is calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer. Relative offer size (OFRSIZE) equals the number of shares offered divided by the number of shares outstanding on the day prior to the offer. PreCARpos (PreCARneg) is defined as the market-adjusted return in the five days immediately prior to the offer if positive (negative) and zero otherwise. Stock price (PRC) equals the stock price on the day before the offer. The bid-ask spread (BAsprd) is calculated average relative quoted bid-ask spread during the five days prior to the offering and is available from TAQ during 1993-2004 and from ISSM (only NYSE-Amex) during 1983-1992. INTEGER equals one for whole dollar offers and zero otherwise. IPOunder equals the average IPO underpricing during the same month as the seasoned offer. INSTHLD equals the percentage of shares held by institutions in the quarter prior to the offering. #ANAL equals the number of analysts covering the firm in the month prior to the offering. Rule 10b-21 equals one for offers made during or after the 3rd quarter of 1988 and zero otherwise. Lag (discounting) is the average discounting across issuers in the previous year or quarter. Lag2 and Lag3 (discounting) are the average discounting across issuers two and three years or quarters ago, respectively.

Table 7
Pearson correlations

Panel A: Correlations using all sample observations

	Non-shelf offers	Shelf offers
Variable	Discount	Discount
Log (MARKVAL)	-0.21***	-0.19***
VOL	0.33***	0.33***
OFRSIZE	0.25***	0.27***
PreCARpos	0.07***	0.16***
PreCARneg	-0.11***	-0.10***
Log (PRC)	-0.27***	-0.31***
BAsprd	0.30***	0.10**
INTEGER	0.20***	0.12***
IPOunder	0.01	-0.09**
INSTHLD	-0.17***	0.04
#ANAL	-0.12***	-0.06

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Panel B: Correlations using 90 quarterly aggregated observations

	Non-shelf offers	Shelf offers
Variable	Discount	Discount
Rule 10b-21	0.69***	0.44***
Log (MARKVAL)	0.22**	0.16
VOL	0.65***	0.59***
OFRSIZE	0.39***	0.55***
PreCARpos	0.13	0.20*
PreCARneg	-0.63***	-0.35***
Log (PRC)	0.22**	0.03
BAsprd	0.13	-0.46***
INTEGER	0.51***	0.37***
IPOunder	0.12	0.10
INSTHLD	0.62***	0.41***
#ANAL	0.39***	0.40***

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 7
Pearson correlations

Panel C: Autocorrelation of discounting

	Non-shelf offers	Non-shelf offers	Shelf offers	Shelf offers
	Annual Discount	Quarterly Discount	Annual Discount	Quaterly Discount
Lag (Discount)	0.87***	0.73***	0.87***	0.67***
Lag2 (Discount)	0.76***	0.68***	0.51***	0.69***
Lag3 (Discount)	0.71***	0.63***	0.65***	0.54***

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 8
Factors and discounting over time

This table displays discounting within quartiles of selected variables for non-shelf (Panel A) and shelf offers (Panel B). The quartiles are formed using the entire sample period 1982 - June 2004. I split the sample into four sub-periods while maintaining the original quartile breakpoints. The variables are: Market value (MARKVAL) defined as the stock price times the number of shares outstanding on the day prior to the offer; Stock price volatility (VOL) calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer; Relative offer size (OFRSIZE) equaling the number of shares offered divided by the number of shares outstanding on the day prior to the offer; PreCAR defined as the market-adjusted return in the five days immediately prior to the offer; and stock price (PRC) defined as the stock price on the day before the offer.

Table 8
Factors and discounting over time

Panel A: Non-shelf offers

	1982-87			1988-93			1994-99			2000-04		
	N	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median
MARKVAL												
Q1	493	1.53	0	350	3.59	2.45	265	6.22	5.26	30	5.04	5.13
Q2	244	0.62	0.80	332	2.22	1.48	496	3.23	2.46	67	4.10	3.33
Q3	191	0.35	0	268	1.44	0.75	488	2.32	1.77	192	3.70	2.96
Q4	202	0.05	0	218	0.66	0.00	416	1.59	0.96	302	2.49	1.76
VOL												
Q1	438	0.40	0.00	354	0.71	0.00	275	1.71	0.97	71	1.75	1.32
Q2	343	0.80	0.00	299	1.87	1.08	411	2.52	1.52	85	2.76	2.32
Q3	253	1.26	0.40	289	2.80	1.96	472	3.18	2.27	125	3.01	2.23
Q4	95	2.30	1.49	226	3.98	3.18	507	4.01	2.70	310	3.72	2.80
OFRSIZE												
Q1	352	0.28	0.00	308	0.91	0.00	285	1.94	1.03	193	2.89	1.47
Q2	289	0.61	0.00	274	1.99	1.27	411	2.36	1.64	165	3.08	2.27
Q3	255	1.13	0.50	297	2.25	1.32	451	3.02	2.12	136	3.28	2.73
Q4	234	1.80	0.79	289	3.55	2.44	518	4.17	2.86	97	3.90	3.36
PreCAR												
Q1	200	1.19	0.50	246	2.48	1.67	478	3.72	2.44	214	3.46	2.59
Q2	304	0.74	0.00	332	1.80	0.69	379	2.56	1.75	124	3.04	2.32
Q3	359	0.62	0.00	323	1.79	0.79	361	2.42	1.50	96	2.99	2.61
Q4	267	1.13	0.00	267	2.75	1.96	447	3.18	2.17	157	3.10	2.30
PRC												
Q1	314	1.62	0.96	378	3.75	2.56	346	5.68	4.64	101	4.72	4.24
Q2	338	0.71	0.00	307	1.81	1.32	389	3.29	2.60	112	3.20	2.27
Q3	270	0.56	0.00	293	1.31	0.52	431	2.06	1.16	140	2.96	2.07
Q4	208	0.40	0.00	190	0.86	0.25	499	1.82	1.27	238	2.69	1.96

Table 8
Factors and discounting over time

Panel B: Shelf offers

	1982-87			1988-93			1994-99			2000-04		
	N	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median
MARKVAL												
Q1	43	0.35	0.00	6	1.01	0.72	49	2.24	0.69	92	5.20	4.25
Q2	31	0.02	0.00	12	0.19	0.00	43	1.90	1.17	105	3.87	3.13
Q3	42	0.19	0.00	14	0.51	0.23	41	1.84	0.68	94	2.95	1.83
Q4	11	-0.28	0.00	9	0.54	0.00	63	0.68	0.25	107	2.60	1.87
VOL												
Q1	56	-0.19	0.00	27	0.39	0.00	48	1.20	0.00	59	2.54	1.23
Q2	36	0.32	0.00	8	0.81	0.65	63	1.23	0.44	84	2.57	1.91
Q3	27	0.41	0.00	5	0.29	0.00	59	1.69	0.64	100	3.46	2.60
Q4	8	1.14	0.00	1	2.02	2.02	26	2.88	2.18	155	4.69	3.91
OFRSIZE												
Q1	54	0.36	0.00	20	0.71	0.00	50	0.98	0.00	66	2.67	2.01
Q2	37	-0.26	0.00	12	0.23	0.00	44	1.38	0.51	98	3.22	2.11
Q3	21	0.32	0.00	6	0.23	0.00	54	1.96	0.55	110	3.44	2.42
Q4	15	0.28	0.00	3	0.67	0.00	48	1.96	1.12	124	4.59	3.28
PreCAR												
Q1	18	0.32	0.00	3	0.33	0.00	52	1.68	0.56	117	3.80	2.56
Q2	46	-0.02	0.00	13	0.49	0.00	43	1.34	0.40	89	3.19	2.09
Q3	34	-0.07	0.00	18	0.56	0.00	55	1.47	0.34	84	2.34	1.85
Q4	29	0.63	0.25	7	0.43	0.00	46	1.83	0.82	108	4.77	4.29
PRC												
Q1	18	0.08	0.00	3	0.95	0.83	31	2.23	0.68	138	5.00	4.09
Q2	39	-0.16	0.00	14	0.60	0.29	46	2.04	0.71	92	3.65	2.60
Q3	39	0.49	0.00	14	0.25	0.00	56	1.68	0.56	82	2.43	1.77
Q4	31	0.21	0.00	10	0.57	0.00	63	0.84	0.43	86	2.51	1.92

Table 9

Time-series determinants of discounting

This table reports time-series regressions that include 90 quarterly observations during 1982-June 2004. Each variable is averaged across firms at the quarterly frequency to form the time-series of observations. The sample consists of offers that have at least some primary component and excludes financial and utility issuers. The dependent variable is the average discounting across issuers within the quarter. Discounting is defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. Market value (MARKVAL) is the stock price times the number of shares outstanding on the day prior to the offer. Stock volatility (VOL) is calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer. Relative offer size (OFRSIZE) equals the number of shares offered divided by the number of shares outstanding on the day prior to the offer. Price (PRC) is the closing stock price on the day prior to the offer. INTEGER equals the percentage of offers within the quarter that are priced at whole dollars. IPO underpricing (IPOunder) is the average discounting across all IPOs during the same quarter as the seasoned offer. Exchange dummy equals the percentage of offers within the quarter that are made by NYSE / AMEX listed firms. PreCARpos (PreCARneg) equals the market-adjusted return in the five days immediately prior to the offer if positive (negative) and zero otherwise. Rule 10b-21 equals one for offers made during or after the 3rd quarter of 1988 and zero otherwise. Lag (discounting) is the average discounting across issuers in the previous quarter. Heteroskedasticity-adjusted standard errors are in parentheses.

Table 9
Time series determinants of discounting

	Dependent variable: discounting			
	Non-shelf offers: models (1) – (3)			Shelf offers
	(1)	(2)	(3)	(4)
Intercept	0.0348 (0.0391)	0.0557 (0.0395)	0.0545 (0.0383)	-0.0424 (0.0401)
Log (MARKVAL)	0.0003 (0.0018)	-0.0012 (0.0018)	-0.0008 (0.0017)	0.0015 (0.0022)
VOL	0.6064*** (0.1191)	0.5512*** (0.1274)	0.5393*** (0.1197)	1.086*** (0.3325)
OFRSIZE	0.0167 (0.0327)	0.0207 (0.0317)	0.0258 (0.0301)	0.0673* (0.0394)
PreCARpos	0.04 (0.0578)	0.0145 (0.0581)	-0.0366 (0.0475)	-0.1591 (0.1092)
PreCARneg	-0.083* (0.0450)	-0.0884* (0.0482)	-0.0893** (0.0441)	0.1484 (0.0958)
Log (PRC)	-0.0163*** (0.0045)	-0.0133*** (0.0046)	-0.0157*** (0.0043)	-0.0024 (0.0051)
INTEGER	0.0019 (0.0052)	0.0038 (0.0051)	-0.0018 (0.0054)	0.0174** (0.0081)
IPOunder	-0.0101* (0.0054)	-0.0076 (0.0051)	-0.0011 (0.0051)	-0.0101 (0.0075)
Nasdaq	0.0021 (0.0058)	-0.0018 (0.0058)	-0.0048 (0.0063)	-0.0013 (0.0116)
Utility	-0.0205*** (0.0065)	-0.0205*** (0.0075)	-0.0200*** (0.0070)	0.0044 (0.0058)
Rule 10b-21	0.0101*** (0.0016)	0.0097*** (0.0016)	0.0072*** (0.0016)	0.0082*** (0.0031)
Lag (discounting)	-	0.111*** (0.0385)	0.1034** (0.0441)	-
Lag2 (discounting)	-	-	0.2318*** (0.0647)	-
Adj R-Sq	0.7739	0.7767	0.7927	0.4674
Number of Obs.	90	89	88	78
Durbin-Watson Statistc	1.40	1.45	1.80	1.96

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 10
Cross-sectional differences in discounting between procedures

This table provides OLS and Fama-MacBeth regression estimations to explain differences in discounting across shelf and non-shelf offers. The OLS estimates include heteroskedasticity adjusted standard errors using White's method in parentheses. The Fama-MacBeth (FM) estimates are from cross-sectional regressions estimated annually during 1982-June 2004. The means (across years) of the regression intercept and slopes are reported with t-stats for the means in parentheses. The t-stats are defined as the mean divided by the standard error (standard deviation of the regression coefficient divided by the square root of the number of years in the period). Discounting is defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. SHELF is a dummy variable taking the value of one for shelf offers and zero for non-shelf offers. The control variables include: Market value (MARKVAL) defined as the stock price times the number of shares outstanding on the day prior to the offer; Stock price volatility (VOL) calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer; Relative offer size (OFRSIZE) equaling the number of shares offered divided by the number of shares outstanding on the day prior to the offer; PreCARpos (PreCARneg) defined as the market-adjusted return in the five days immediately prior to the offer if positive (negative) and zero otherwise; Stock price (PRC) equaling the stock price on the day before the offer; INTEGER equaling one for whole dollar offers and zero otherwise; IPOunder equaling the average IPO underpricing during the same month as the seasoned offer; and Nasdaq equaling one for offers made by Nasdaq firms and zero for NYSE / AMEX listed firms. Industry dummies are based on the Fama French 48 classification.

	Entire period (1982-2004)		1982-87	1988-93	1994-99		2000-04	
	OLS	Fama-MacBeth						
					NYSE Amex	Nasdaq	NYSE Amex	Nasdaq
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.0632*** (0.0124)	-	0.0481*** (0.0140)	0.0596*** (0.0205)	0.1164*** (0.0319)	0.0871** (0.0405)	-0.0056 (0.0343)	0.1531*** (0.0438)
SHELF	0.0065*** (0.0013)	0.0087 (3.28)	0.0019 (0.0014)	-0.0008 (0.0025)	0.0051 (0.0033)	0.0089* (0.0049)	0.0081** (0.0035)	0.0092** (0.0041)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2			0.1586	0.3109	0.2414	0.2424	0.205	0.1834

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Table 11
Discounting of integer and non-integer offers within groups of positive pre-offer returns

Panel A reports discounting across procedures for integer and non-integer offers. Panels B and C report discounting where PreCAR>0 for non-integer and integer offers, respectively. In Panels B and C I split PreCARpos into three groups (low, medium, high) using all seasoned offerings (shelf and non-shelf) in forming the break points. Discounting is defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. PreCAR is defined as the market-adjusted return in the five days immediately prior to the offer. PreCARpos is defined as the market-adjusted return in the five days immediately prior to the offer if positive and zero otherwise. P-values for differences in means [medians] between pre- and post-rule periods are based on standard t-tests [Wilcoxon sign-rank tests].

Panel A: Discounting during 1997-2004 of Integer versus Non-integer offer prices

	Non-shelf offers			Shelf offers			P-values	
	N	Mean Discount	Median Discount	N	Mean Discount	Median Discount	Mean	Median
Integer	635	3.87	2.91	159	3.57	2.19	0.3956	0.1098
Non-integer	692	2.13	1.39	379	2.94	1.84	0.0002	0.0026

Panel B: Discounting during 1997-2004 for Non-integer offers (PreCAR>0)

	Non-shelf offers			Shelf offers		
PreCARpos group	N	Mean Discount	Median Discount	N	Mean Discount	Median Discount
Low	79	2.48	1.39	66	1.92	1.23
Medium	91	2.19	1.39	53	3.89	2.23
High	100	2.60	1.85	45	5.19	4.16
Total #	270			164		
P-values (high – low)		0.7846	0.7628		<0.0001	<0.0001

Panel C: Discounting during 1997-2004 for Integer offers (PreCAR>0)

	Non-shelf offers			Shelf offers		
PreCARpos Group	N	Mean Discount	Median Discount	N	Mean Discount	Median Discount
Low	63	3.79	2.86	24	2.14	1.85
Medium	69	3.20	2.30	19	4.36	2.56
High	76	4.05	3.49	12	2.60	1.97
Total #	208			55		
P-values (high – low)		0.7300	0.3228		0.5804	0.5387

Table 12
Explaining cross-sectional differences between procedures

This table provides OLS regression estimations during the period 2000-June 2004 (Panel A) and Fama-MacBeth regression estimations during 1997-June 2004 (Panel B) to explain differences in discounting across offering methods. The OLS estimates include heteroskedasticity adjusted standard errors using White's method in parentheses. The Fama-MacBeth (FM) estimates are from cross-sectional regressions estimated annually. The means (across years) of the regression intercept and slopes are reported with t-stats for the means in parentheses. The t-stats are defined as the mean divided by the standard error (standard deviation of the regression coefficient divided by the square root of the number of years in the period). Discounting is defined identical to Corwin's (2003) definition of SEO underpricing as the return from the previous day's closing transaction price to the offer price (close-to-offer return), multiplied by negative one. SHELF is a dummy variable taking the value of one for shelf offers and zero for non-shelf offers. Non-INTEGER equals zero for offer priced at whole dollars and one otherwise. PreCARpos is defined as the market-adjusted return in the five days immediately prior to the offer if positive and zero otherwise. Other control variables include: Market value (MARKVAL) defined as the stock price times the number of shares outstanding on the day prior to the offer; Stock price volatility (VOL) calculated as the standard deviation of daily stock returns over the 30-day period ending 11 days prior to the offer; Relative offer size (OFRSIZE) equaling the number of shares offered divided by the number of shares outstanding on the day prior to the offer; PreCARneg defined as the market-adjusted return in the five days immediately prior to the offer if negative and zero otherwise; Stock price (PRC) equaling the stock price on the day before the offer; IPOunder equaling the average IPO underpricing during the same month as the seasoned offer; and Nasdaq equaling one for offers made by Nasdaq firms and zero for NYSE / AMEX listed firms. Industry dummies are based on the Fama French 48 classification.

Table 12
Explaining cross-sectional differences between procedures

Panel A: OLS estimations (2000-2004)

	(1)	(2)	(3)	(4)
Intercept	0.0896***	0.1015***	0.0881***	0.0922***
	(0.0305)	(0.0310)	(0.0306)	(0.0305)
SHELF	0.0102***	0.0001	0.0083***	0.0074***
	(0.0027)	(0.0050)	(0.0029)	(0.0028)
SHELF * Non-INTEGER	-	0.0154***	-	
		(0.0052)		
Shelf * PreCARpos	-	-	0.0763*	
			(0.0454)	
Non-INTEGER * PreCARpos	-	-	-	0.026
				(0.0402)
Shelf * Non-INTEGER * PreCARpos	-	-	-	0.1697***
				(0.0610)
PreCARpos	0.0307*	0.0306*	0.0113	-0.0038
	(0.0190)	(0.0187)	(0.0194)	(0.0158)
Non-INTEGER	-0.0164***	-0.0221***	-0.0165***	-0.0186***
	(0.0026)	(0.0032)	(0.0026)	(0.0028)
Other Control Variables	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Adj R-sq		0.2053	0.2002	0.209

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Panel B: Fama-MacBeth regression estimations (1997-June 2004)

	(1)	(2)	(3)	(4)
Intercept				
SHELF	0.0087	0.0006	0.0064	0.0059
	(3.28)	(0.15)	(2.01)	(2.08)
SHELF * Non-INTEGER	-	0.0114	-	-
		(2.94)		
Shelf * PreCARpos	-	-	0.1359	-
			(2.11)	
Non-INTEGER * PreCARpos	-	-	-	0.0550
				(0.65)
Shelf * Non-INTEGER * PreCARpos	-	-	-	0.2102
				(3.12)
PreCARpos	0.0988	0.0997	0.0767	0.0207
	(3.59)	(3.58)	(2.13)	(0.34)
Non-INTEGER	-0.0143	-0.0182	-0.0147	-0.0163
	(-5.17)	(-8.02)	(-5.44)	(-4.50)
Other Control Variables	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes

*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

Figure 1: Transaction price and offer price increments for non-shelf offers

This figure plots closing transaction prices on the day before the offer (top) and offer prices (bottom) for the sample of non-shelf offers during 1982 - June 2004.

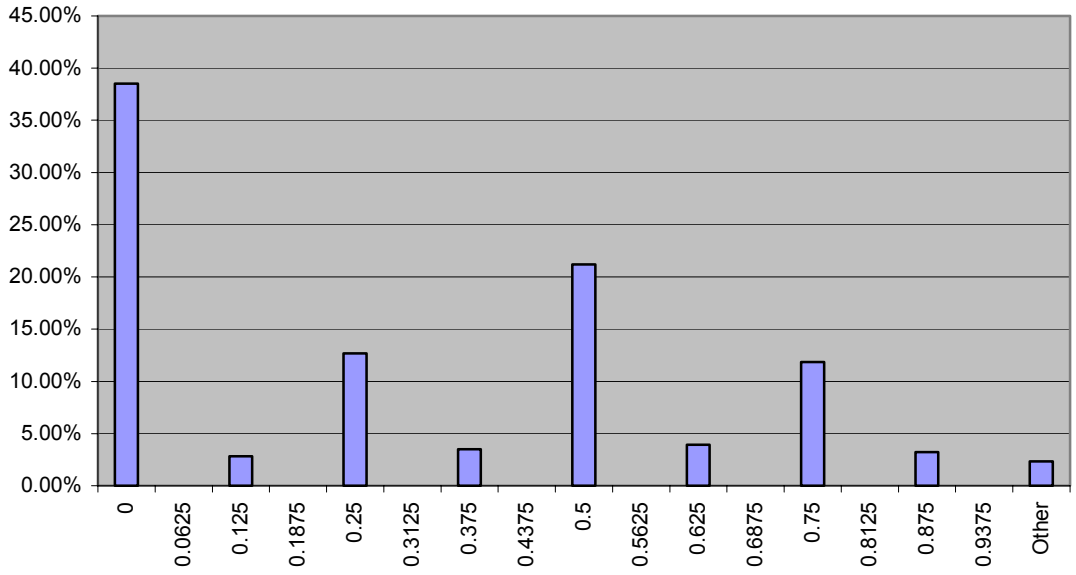
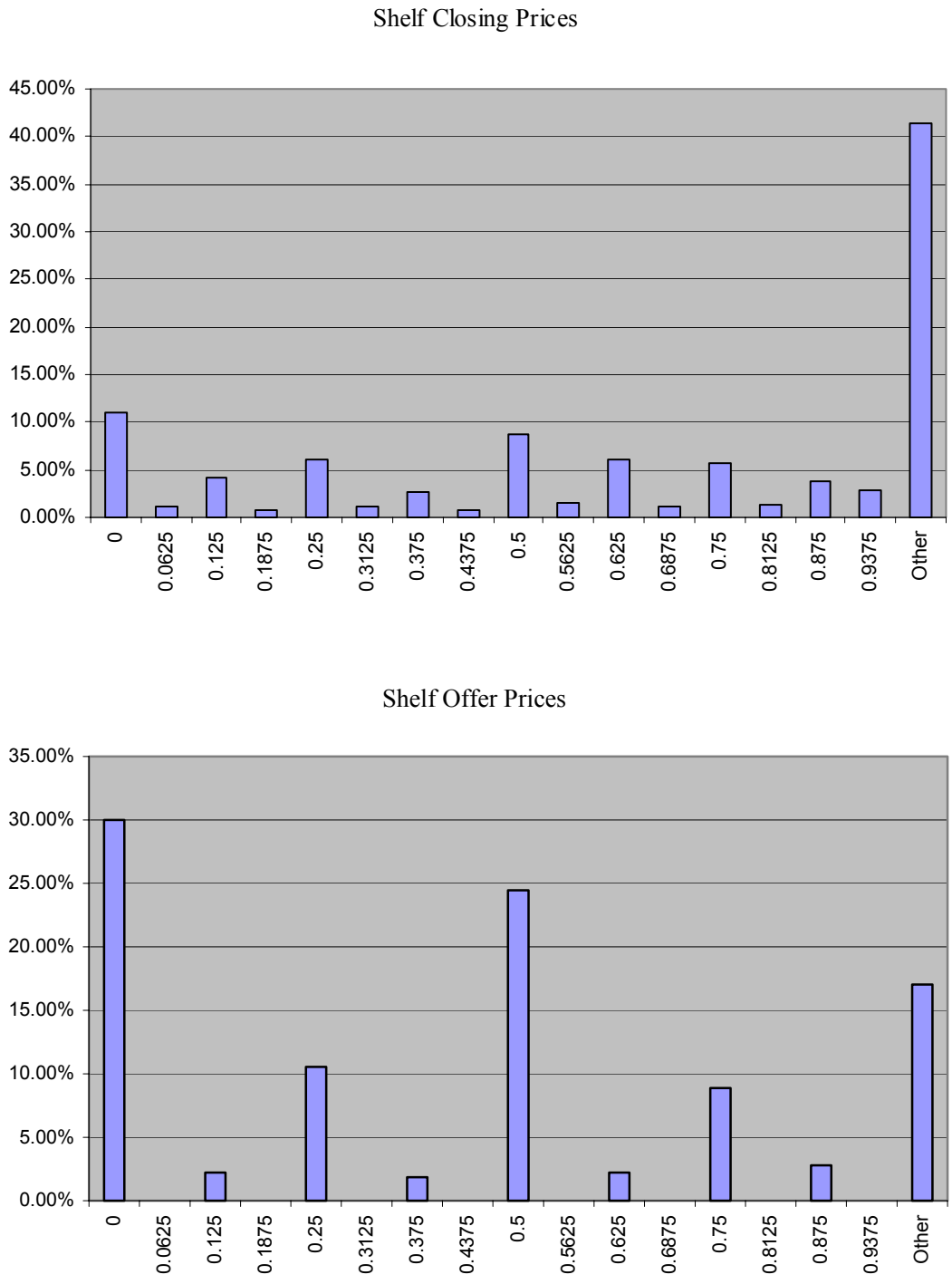


Figure 2: Transaction price and offer price increments for shelf offers

This figure plots closing transaction prices on the day before the offer (top) and offer prices (bottom) for the sample of shelf offers during 1982 - June 2004.



Vita

Don M. Autore was born in Plainfield, New Jersey on August 27th, 1975. He received a B.S. in Mechanical Engineering (1998) and an MBA in Finance (2000) from the University of Central Florida. During 2000-2001 he worked as a Research Analyst at the Dr. Phillips Institute for the study of American business activity in Orlando, FL. At the Pamplin College of Business, Virginia Tech, he worked as a research assistant and taught courses in Corporate Finance and Investments. During 2004-2005 he served as Visiting Lecturer of Finance at James Madison University and taught Money & Capital Markets and an advanced course in Commercial Bank Management.