Chapter 1

The revival of shelf-registered corporate equity offerings

1. Introduction

In the past decade, extensive research has been devoted to the study of seasoned equity offerings (SEOs), although limited attention has been given to an increasingly common method of raising public equity: shelf-registered offerings.[1] In the first two years following the implementation of shelf registration, 1982-83, several firms experimented with shelf equity and approximately one-quarter of all primary industrial offerings were shelf-registered. Over the remainder of the 1980s, however, few industrial firms issued shelf equity (Denis, 1991). Since 1990, particularly since 1997, there has been a significant revival in the use of shelf registration. Over the recent five years, 1999-2003, almost half of all primary equity offerings were shelf-registered and total proceeds of shelf offerings exceeded proceeds of traditional offerings.

The received wisdom in the literature attributes the demise of shelf offers in the mid-1980s to the problem of under-certification, hence greater market penalty, from the limited opportunity for underwriters to perform due diligence in shelf-registered offerings (Denis, 1991 and Sherman, 1999).[2] What explains the dramatic revival of shelf-registered equity offerings during 1990-2003? The objective of this paper is to answer this question.

The research methodology used in Fama and French (2001) to explain 'disappearing dividends' would appear to be well suited to explain 'appearing shelf offers.' This research design could potentially explain whether the increased use of shelf offers is due to (i) increase in the prevalence of firm characteristics established to be associated with

[1] In 1982 the SEC introduced Rule 415 (shelf registration), allowing firms to register securities that they reasonably expect to issue over the next two years. This enables firms to conduct "off-the-shelf" offerings with no advanced notice.

[2] Early evidence by Bhagat, Marr, and Thompson (1985) and Moore, Peterson, and Peterson (1986) suggested that shelf offers were less costly overall than traditional SEOs. However, Denis (1991, 1993) finds that after controlling for a self-selection in which firms more likely to choose shelf registration have less need for certification, shelf offers are more costly overall than traditional SEOs.

shelf offerings in the 1980s and / or (ii) an increased propensity to use shelf registration regardless of firm characteristics. However, this methodology implicitly assumes that the functional relationship between firm characteristics and the event probability is stable over time. Whereas such an assumption is entirely plausible in the case of dividend decisions given the long history of firms' and the market's experience with dividends, it may not hold for the shelf offer decision. Shelf offerings have a relatively short history encompassing a possible learning period. For example, we point out a significant shift in how firms use shelf offers now compared to the early 1980s. In the early 1980s issuers typically offered all shelf-registered shares in a single offering with a median of 7 days between the registration and offer dates, identical to how they used traditional offerings (Denis, 1991). In our sample period, 1990-2003, shelf offers are often deferred by months or years after registration, and frequently abandoned.

Our findings indicate that the relation between firm-specific uncertainty and the decision to choose shelf registration is not stable over time. In other words, there is an important structural shift in how uncertainty influences firms' choice between procedures. Whereas Denis (1991) reports that in the 1980s the probability of shelf registration is a decreasing function of residual volatility, we find that during 1990-2003 it is an increasing function of this variable. High volatility is now viewed favorably by potential shelf issuers. The Denis (1991) finding is consistent with the under-certification hypothesis; i.e. high volatility firms face greater under-certification costs in the form of market penalty and are therefore less likely to use shelf offers. We interpret our findings as consistent with firms increasingly valuing the option feature of shelf offerings – the option to defer or abandon. The value of this option is increasing in the firm's volatility resulting in the positive association between volatility and the probability of a shelf offer. We argue that this option is more valuable than non-shelf issuers' option to cancel offerings, and report that the growth in shelf registration and decline in traditional SEOs in recent years coincides with increasing volatility in market returns.

The combination of high volatility and the inherent under-certification in shelf offers should result in a severe market penalty, *ceteris paribus*. Does the option value associated with high volatility come at too high an under-certification cost? We argue that it is rational for issuers to choose shelf registration only if the need for certification is

reduced through some mechanism other than underwriter due-diligence of the shelf offer. We provide evidence of such behavior. First, we find that during 1990-2003 firms are more likely to favor shelf offerings after already being certified in prior seasoned offerings. For example, over 40% of our sample shelf offers represent the firm's third or subsequent seasoned equity offer, while less than 20% of our sample non-shelf offers constitute the firm's third or subsequent offer. Second, we report that shelf offerings, relative to traditional SEOs, are associated with significantly lower abnormal stock price runups in the six to twelve months prior to the registration and the offering. Moreover, shelf offers are not timed to stock price peaks. The evidence suggests that shelf users do not opportunistically time offers to take advantage of temporarily high prices[3] and therefore have less risk of overvaluation and thus a reduced need for certification.

We argue that this reduced need for certification has led to a market perception that shelf filings are now much less of a negative event. Consistent with this, during 1990-2003 the market reaction to shelf filings is economically small and is significantly less negative than the reaction to non-shelf filings, which is a reversal from the 1980s. Furthermore, we report no market penalty at the filing for shelf offers that (i) represent a firm's third or subsequent offering or (ii) are associated with relatively low pre-filing stock price runup. However, we find a large negative market reaction (-3.12%) for the small number of shelf-registered offers that represent a firm's first seasoned equity offering *and* are associated with large pre-filing abnormal stock price runups. In these circumstances the shelf under-certification problem is costly. The limited use of shelf registration by firms whose circumstances do not reduce the need for certification sheds light on the continuing (albeit diminishing) use of the non-shelf procedure in spite of the benefits associated with shelf registration.

Only a small percentage of shelf filings lead to an offer and therefore it is possible that rational market participants incorporate the probability of issuance when discounting the stock price at shelf filings. This would imply that the remainder of the discount takes place at the actual offering. However, we find no evidence of more negative price reactions at the offering for shelf than for non-shelf offerings. Furthermore, the overall market

[3] We point out that Heron and Lee's (2004) examination of operating performance around equity offerings leads them to suggest that issuers are less likely to opportunistically time shelf offerings than regular equity offerings.

penalty (sum of filing and offering reactions) is significantly lower for shelf offers relative to non-shelf offers.

Since the circumstances under which firms typically choose shelf offerings are associated with a reduced need for certification, we expect that underwriters can charge lower fees due to a lessened need for an intensive due diligence investigation. Our evidence indicates that indeed shelf issuers incur lower underwriter fees than non-shelf issuers. Our cost results are robust to controls for self-selection.

An additional change in how firms use shelf registration is related to the SEC's October 1992 adoption of the unallocated or universal shelf rule, which accounts for 85% of our sample shelf offers. The key feature of this legislation is that universal filers are not required to specify a particular security until the issue date, allowing them to issue debt and/or equity without advanced notice. Although debt offerings are not the focus of this paper, we provide preliminary evidence that universal shelf issuers choose between the equity and debt markets depending on their prevailing relative receptiveness to the offer when an emerging investment requires financing. Specifically, we find that the universal shelf filings that culminate in equity offerings have larger market-adjusted stock price increases in the 30- and 60-day period before the offer date than those that culminate in debt offerings. Similarly, the universal shelf filings that culminate in debt offerings are associated with greater declines in interest rates between the filing and the offering dates than those that culminate in equity offerings. These findings are consistent with those of Kadapakkan and Kon (1989) and Barry et al. (2005) that firms time debt offerings based on interest rate fluctuations, and also support the survey evidence of Graham and Harvey (2001) that firms care about interest rates and recent stock returns in making security issue decisions.[4]

The paper is organized as follows. Section 2 describes the data and sample characteristics, and discusses the recent revival of shelf equity offers. Sections 3 explores the potential explanations of the shelf revival: the easing of shelf eligibility requirements,

[4] In a contemporaneous paper, Bethel and Krigman (2005) examine the costs and benefits of universal shelf offerings. However, their analysis focuses on why firms do not use shelf registration, whereas our study attempts to explain why firms are increasingly using the shelf (universal and non-universal) procedure.

changes in the composition of shelf issuers, changes in how firms use shelf registration impacting the benefits and costs of using shelf offerings, and the advantages of universal shelf offers. Section 4 concludes the paper.

2. Sample description

2.1. Data

The sample for this study is collected from Securities Data Company's (SDC) Global New Issues database. The sample consists of primary [5] shelf registration filings and offerings and primary non-shelf seasoned equity offerings of common shares during the period 1990-2003, and excludes initial public offerings, rights offers, unit offers, ADRs, offers by financials (SIC code 6000-6999) and utilities (SIC code 4900-4999), 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 100 days of pre-filing stock return data available from the Center for Research in Securities Prices (CRSP) as well as financial data available from COMPUSTAT.

The sample is collected from two sources within SDC's Global New Issues database: (i) SDC's U.S. public new issues database, which includes all equity offers, and (ii) SDC's U.S. shelf registration database, which includes all shelf filings (even those that do not lead to offers) and distinguishes between universal and non-universal shelf filings. Previous studies examine only completed shelf offerings, which can result in a bias in our sample period 1990-2003 because the majority of shelf filings do not lead to equity offers.

[5] We define primary issues as those in which 100% of the shares filed are primary. We use this definition because the universal or "unallocated" shelf registration procedure accounts for 85% of our sample shelf equity offers, and according to the SEC, "…secondary offerings […] may not be included among securities registered on an unallocated basis in a Rule 415 offering. Securities offered by selling shareholders may be registered on the same registration statement as an unallocated shelf offering, but a separate section in the fee table must be included for the selling shareholders. That section lists the class(es) of securities registered and allocates a dollar amount to each class." (SEC release no. 33-7943) Thus, unallocated securities in universal shelfs are 100% primary and comparing these offers to mixed primary / secondary non-shelfs can distort a comparative analysis of shelf and non-shelf offers. Additionally, secondary shelf offers are largely associated with Private Investment in Public Equity (PIPE) transactions and therefore we believe they should be excluded from our analysis.

To define our shelf registration sample, we match offers from the new issues database to their respective filings on the shelf registration database. There are 53 shelf offers on the new issues database that do not have a matching observation on the shelf registration database. We manually check each of these observations for accuracy and to determine whether the offer is from a universal or from an equity filing by searching the Dow Jones News Wire and SEC filings. We match 41 observations manually. In 12 cases, SDC classified the observation on the new issues database incorrectly as a primary shelf offer and thus we exclude these from the sample. Next, we manually check the complete sample of non-universal shelf offers and 10% of the sample of universal shelf offers for accuracy. We correct seven observations in which universal offers are incorrectly classified by SDC as non-universal offers, and six observations in which non-universal filing dates are incorrect. The universal offers that are manually checked are all correct. Our final sample includes 343 non-universal shelf registration filings, of which only 53 lead to at least one equity offer, and 1,094 universal shelf registration filings, of which 288 lead to at least one equity offering. There are a total of 386 shelf-registered equity offers: 59 non-universal offers and 327 universal offers. We also collect a sample of universal debt offerings, which includes 820 observations. The sample of non-shelf offerings is collected from the new issues database, and contains 1,428 observations.

Some of our tests use registration procedure as a choice variable, thus we restrict the sample of non-shelf issuers to those firms that are eligible to use the shelf procedure. This restriction reduces the sample of non-shelf offers from 1,428 to 1,128. We use this restricted sample in all of our tests.[6]

2.2. Shelf and non-shelf equity offers since 1990

Table 1 reports the yearly distribution and total proceeds of shelf-registered equity offers and non-shelf offers over the period 1990 – 2003. The annual number of shelf equity offers has risen from zero in 1990 to 84 in 2003, with a large surge in shelf use beginning in 1997. This is matched by a corresponding decrease in the number of non-shelf SEOs since 1997. Proceeds from shelf offerings have grown over time, while proceeds from non-

[6] We also conduct all of our tests using the complete sample of 1428 non-shelf offers. The results are qualitatively similar to those reported in the paper.

shelf offerings have varied considerably. In 1998, annual shelf proceeds surpassed annual non-shelf proceeds, and the gap has widened since 2000. This shift to shelf use, and more generally the increase in shelf use over time, contradicts the hypothesis in previous studies that firms avoid shelf registration because of the lack of underwriter certification.

Table 2 provides descriptive statistics for shelf and non-shelf offers. Compared to non-shelf issuers, shelf issuers are substantially larger, based on both book assets and the market value of equity, and make larger offers, based on both the amount filed and the offer proceeds. As a percentage of market value, shelf issuers make larger filings but issue slightly smaller amounts than non-shelf issuers. As a percentage of total assets, shelf issuers have lower sales, higher long-term debt, and higher capital expenditures than non-shelf issuers. Additionally, the market-to-book ratio of shelf issuers is lower and the total and residual stock volatilities of the two groups are comparable.

3. Explanations for the revival of shelf equity offerings

In this section we examine four potential explanations for the recent growth in the use of shelf equity offerings: (i) easing of shelf eligibility requirement in the 1990s, (ii) changes in the characteristics of firms choosing shelf registration, (iii) changes in the way firms use shelf registration impacting benefits and costs to shelf issuers, and (iv) the advent of the "universal" shelf registration in 1992.

3.1. Easing of eligibility requirements

A possible explanation for the increase in shelf use is the easing of shelf requirements. In 1992 the SEC reduced the public float requirement from $150 million to $75 million. Although this rule change increased the number of shelf-eligible firms by about 30%[7], only 19 of the 386 shelf offers in our sample do not meet the original $150 million public float requirement. Additionally, in May of 1997 the SEC began allowing companies to use non-voting common shares to meet the $75 million public float requirement. In our shelf sample, however, every issuer meets the earlier requirement of $75 million in voting common shares. We conclude that the easing of shelf requirements is not the primary explanation for the growth in shelf use.

[7] See "SEC Proposes Easing Shelf Registration Rules," Dow Jones News Service, July 16, 1992.

3.2. Changing Characteristics of Shelf Issuers

Consistent with the under-certification hypothesis (Denis, 1991 and Sherman, 1999), Denis (1991) documents that in the early 1980s the primary determinant of a firm's choice of shelf versus non-shelf registration was its (residual) volatility. High volatility firms incurred larger market penalties from reduced opportunities for due diligence and were less likely to choose shelf registration. The line of reasoning used in Fama and French (2001) to explain the decline in dividend payers would suggest that the growth in shelf users could be the result changing firm characteristics over time towards lower volatility. However, casual empiricism --- the observation that the recent high usage of shelf offers coincides with high market volatility --- and our own data and analyses document that the *opposite* is true.

The shelf revival begins in earnest in 1997 and in 2001 there is continued growth along with a noticeable decline in the number of non-shelf offers. We form three sub-periods using these breakpoints (1990-96, 1997-00, and 2001-03) to assess time-series changes in the residual volatility of shelf issuers. We report that the sharp growth in shelf use coincides with large *increases* in stock volatility. The mean (median) residual stock volatility increases from 2.5% (2.12%) during 1990-96 to 3.3% (2.96%) during 1997-2001 and to 4.38% (4.07%) during 2001-03.[8, 9] Later in section 3.3.3 we report in fully specified logit and probit regressions that the likelihood of choosing shelf over traditional registration is positively related to the issuing firm's residual volatility. These findings suggest a structural shift in the relationship between the choice of the registration method and firm characteristics over time. The implicit assumption in the Fama and French (2001) methodology that the functional relationship between firm characteristics and the event probability is stable over time is more likely to hold for the dividend payment decision than for the shelf registration decision because of the short history of shelf offerings during which there has been in a significant change in how firms use/execute equity shelf offers.

[8] For comparison, Denis (1991) reports that during the 1980s the mean (median) shelf issuer has a residual volatility of 2.02% (1.70%).

[9] Across periods the number of analysts following firms that conduct shelf offers decreases, and the percentage of shares held by institutions remains constant. Thus the under-certification problem is not alleviated through increases in analyst coverage or institutional holdings.

In the following section we argue that this structural change is a result of firms (i) increasingly valuing the shelf deferral option and (ii) reducing the need for certification (and therefore issuance costs) through other mechanisms.

3.3. How firms use shelf registration

3.3.1 The shelf deferral option

The shelf procedure provides issuers with the option to defer or even abandon an equity offering. In the 1980s, issuers typically made little use of this option. They offered all the shelf-registered shares in a single offering with a median of 7 days between the registration and offer dates, identical to how they used traditional SEOs (see Denis 1991). We provide evidence that in our more recent sample period, firms routinely use the option to defer an offer and the recognition and realization of this valuable option is one potential reason for the recent growth in the use of shelf registration.

Table 3 reports that over the period 1990-2003, the median shelf offering is conducted 111 days after the filing date.[10] This figure is comparable for universal and non-universal shelf offers, which have medians of 111 and 103, respectively. In contrast, the median non-shelf offer takes place only 31 days after the filing date.[11] When we include only issuers that issue both shelf and non-shelf equity (315 total observations: 159 shelf offers and 156 non-shelf offers), the difference is even larger. We note that the delay in shelf offers has increased in the final few years of our sample period. In fact, 25 shelf offers occur more than two years after filing, suggesting that the two-year shelf window is not rigid.[12]

[10] This is similar to the finding of Heron and Lie (2004) that there is an average of 102 days from the filing date to the issue date for shelf offers during the 1980 to 1998 period.

[11] During the 2000s there is an increase in the average waiting period for traditional issuers. It is possible that this has increased the relative attractiveness of registering shares prior to any need for capital via shelf registration.

[12] We manually check each observation that has more than two years between filing and offering dates by searching EDGAR for forms filed with the SEC. In most cases we can track the offer to a specific filing, and for these cases we do not find any errors. In addition, we manually check observations that have less than 10 days between the filing and offer dates, and correct three observations.

In addition to this lengthy delay, most shelf filings never culminate in an equity offer. Table 4 reports the yearly distribution of the total number of shelf registration filings and the number of filings that lead to an equity offering. Only 341 of the 1,437 sample filings lead to at least one equity offer.[13] Both universal and non-universal filings are associated with a low probability of issuance. We note, however, that a large number of these filings take place during 2000-2003, and therefore it is likely that some of them will have an offer in the future.[14] Nonetheless, there are a surprisingly large number of forgone shelf equity offers, which is in contrast to the findings of Clarke, Dunbar, and Kahle (2001) that only about 5% of non-shelf SEO registrations are cancelled.

The value of shelf issuers' option to defer or abandon offers is increasing in volatility. Although non-shelf issuers have the option to cancel, it expires quickly and is exercised only if the favorable conditions under which the filing was made deteriorate in the relatively short interval before the offering. In contrast, shelf issuers' option to defer or abandon offerings expires after two years or longer and allows firms to make filings regardless of the current conditions and to complete offerings only if and when conditions become favorable and / or an uncertainty regarding the potential offer resolves favorably. Thus, we argue that the frequently used shelf deferral option is more valuable than the infrequently used non-shelf cancellation option and that the difference in value between these two options increases in volatile markets. Consistent with this, we report that the sharp rise in the number of shelf-registered equity offers and the corresponding decline in the number of non-shelf offers generally coincides with an increase over time in market-wide stock return volatility. Figures 1-3 plots the time-series pattern of S&P 500 volatility based on monthly levels, the annual standard deviation of daily returns, and the number of days per year that the return is greater than 2%, respectively. In each figure, the rise in volatility corresponds to a shift from non-shelf to shelf use. Figure 4 provides similar results using implied option volatility data from the Chicago Board Options Exchange (CBOE) Volatility Index (VIX), which is a measure of the market's future expectations of

[13] In unreported tests, we find that the probability that a shelf filing will lead to an equity offering is increasing in the firm's market-adjusted stock performance during the three months after filing.
[14] This could impart a downward bias on our analysis of the number of days between filing and offering since many shelf filings during 1990-2003 could eventually lead to an offer. This potential bias, however, does not affect our comparative analysis of completed shelf and non-shelf equity offerings.

volatility based on S&P 500 stock index option prices. Since implied volatility is an ex-ante measure, we plot it against the number of shelf filings rather than the number of offers. The above results suggest a positive association between market volatility and shelf use. However, the primary determinant of the registration decision is the *firm-specific volatility*. During the 2000s the popularity of shelf registration grows while aggregate market volatility declines. However, our logistic regression results in Section 3.3.3 show that choice of shelf over traditional SEOs is positively related to firm-specific volatility.

3.3.2 Reduced need for certification

> "The financial markets are no longer knocking down the prices of companies that file shelf registrations, *a radical break from previous years,*….in the past, worries over stock price declines presented the only hurdle to doing shelf registrations."
>
> - Investment Dealer's Digest, "Punishment Eases for Shelfs: The Markets Have Stopped Rebuking Issuers that File Shelfs", July 16, 2001.

During 1990-2003 shelf offerings are increasingly associated with high volatility. The combination of high volatility / uncertainty and under-certification inherent in shelf offerings would predict a severe market penalty. However, the above quote is consistent with a non-negative market perception of shelf offerings. In this section we provide evidence that firms are more likely to choose shelf offerings when the need for certification is reduced through other mechanisms, reducing the costs associated with shelf offerings (reported in Section 3.4) and increasing its usage.

A. The sequence of offerings

One mechanism through which shelf users can reduce the need for certification is conducting shelf offers after the firm has been certified in prior seasoned offerings. D'Mello, Tawatnuntachai, and Yaman (2003) provide evidence that frequent seasoned equity issuers experience smaller announcement reactions to the third and subsequent SEOs. Their evidence suggests that the certification obtained from earlier offerings has reduced the negative impact of subsequent offering announcements. It is possible that

issuers reduce the need for certification and thereby avoid the shelf under-certification problem by choosing shelf registration later in the sequence of offerings.

For 1812 of our 1814 sample equity offers, we are able to obtain from SDC the number of seasoned offers since the firm's IPO. Panel A of Table 5 reports statistics on the sequence of a firm's equity offerings. First-time seasoned issuers represent 54% of our sample non-shelf offers, but they represent only 30% of shelf offers. However, issuers conducting their third or subsequent offer constitute only 18% of non-shelfs, whereas they make up 42% of shelfs. Thus, the non-shelf procedure is predominantly used early in a firm's sequence of offerings, while shelf registration is often used after two prior offerings. The statistics in the third row of Panel A indicate where in the sequence of offerings the average shelf and non-shelf offering takes place. A value of one represents the firm's first seasoned offering, a value of two represents its second offering, etc. The mean non-shelf offer occurs after less than one previous seasoned offer (sequence = 1.87), while the typical shelf offer is made after one or two prior offers (2.57). These differences are statistically significant at the 1% level and provide evidence that shelf offers occur later in a firm's sequence of offerings. Apparently firms are aware of the shelf under-certification problem and choose shelf offers after the firm has been certified in prior offerings to reduce the associated market penalty. In Section 3.4.1 we provide evidence of this cost reduction.

B. Abnormal stock price run-ups

The need for certification is also reduced if firms choose the shelf procedure when there is less risk of firm overvaluation. In the Myers and Majluf (1984) adverse selection model, investors are at an informational disadvantage relative to managers and interpret equity issues as signals of firm overvaluation. Numerous studies (see, e.g., Asquith and Mullins, 1986, Masulis and Korwar, 1986, and Mikkelson and Partch, 1986) document a stock price decline at the announcement of seasoned equity offerings consistent with the adverse selection hypothesis. In the model of Lucas and McDonald (1990), the market reaction is less negative for issuing firms with lower pre-announcement price runup. By using shelf registration after relatively small stock price runups, issuers might be able to convince the market that neither shelf filings nor shelf offers represent opportunistic

market timing, which would lessen the need for certification and could result in a smaller market penalty.

We provide evidence of lower abnormal stock returns prior to shelf relative to non-shelf offerings, suggesting that shelf offers are associated with less risk of firm overvaluation. We calculate the pre-filing runup (PREFILE180) as the stock's buy-and-hold return for 180 days, ending two days before the filing date, minus the buy-and-hold return for the CRSP value weighted index for the same period. The pre-offer runup (PREOFFER180 and PREOFFER360) is the 180- and 360-day market-adjusted buy-and-hold return ending two days prior to the offer date. Panel B of Table 5 reports the evidence. Mean and median values of all three runup variables are significantly lower for shelf relative to non-shelf offerings. PREFILE180 is roughly twice as large for non-shelf as for shelf offers, and PREOFFER360 is about 1.75 times larger for non-shelf offers.

Furthermore, in untabulated results the median buy-and-hold market-adjusted return in the 30-day period after shelf offers is a significantly positive 1.96%, which is not consistent with opportunistic market timing of a temporary price peak. This finding is consistent with Heron and Lee (2004), who study the operating performance around various types of equity issues and argue that announcements of shelf-registered offers are less likely to be opportunistically timed than announcements of regular equity offerings.

3.3.3 Choice of registration method

Our analyses thus far would predict that firms are more likely to choose shelf registration if they (i) have high residual volatility associated with high option value to defer and (ii) have low pre-filing returns and issue shelf offers later in the financing sequence to mitigate the potential under-certification costs associated with the high volatility. Table 6 reports logistic (models 1 and 2) and probit (models 3 and 4) estimates of the choice of registration method that provide support for our univariate evidence regarding firm volatility, the sequence of offers, and pre-filing returns. Since equity issues are spread over several years and there is substantial time-variation in the number of shelf and non-shelf offers, a filing year dummy variable for each year is included in every specification.[15] Each model includes issuer size measured as the log of the market value of

[15] Every regression in the paper includes filing year dummy variables.

equity (MARKVAL), the relative filing size (FILESIZE), the debt ratio (DRATIO), market-to-book (MTB), issuer residual volatility (RVOL), the number of seasoned offers since the firm's IPO (SEQUENCE), and the pre-filing runup (PREFILE 180). Models 2 and 4 also include industry dummies based on the Fama-French 48 classification. The choice of shelf registration is positively related to firm size and the relative filing size, and appears to be weakly associated with the debt ratio although this effect is eliminated when we include industry dummies. After we control for these factors, the estimates indicate that shelf offers are associated with greater total and residual stock volatility, consistent with the option to defer shelf offerings being more valuable for these firms. This represents a reversal from the 1980s, during which Denis (1991) and Blackwell, Marr and Spivey (1990) report an inverse relation between the choice of shelf registration and residual volatility, consistent with low uncertainty firms preferring shelf registration because of the under-certification problem.

Moreover, we find that firms choose shelf registration later in the sequence of offers and firms that choose shelf have significantly lower pre-filing abnormal stock returns. These findings support our contention that during 1990-2003 shelf issuers reduce the need for certification by choosing shelf registration after already being certified in prior offerings and when there is relatively low risk of overvaluation. In the next section we examine whether the costs of shelf filings and offerings indicate that the market views shelf offers in this way.

3.4. Cost comparison

In this section we examine the market penalties and underwriter fees associated with shelf and non-shelf offerings.

3.4.1 Market penalties

The 1980s evidence that shelf offers, like traditional offerings, were conducted just one week after registration implies that shelf filings were made with the intention to immediately enter the market. Thus market participants likely viewed shelf and non-shelf offers similarly, except that shelf offers had the added disadvantage of being under-certified because of insufficient time for underwriters to perform due diligence. These

arguments would predict a more negative stock price reaction to announcements of shelf registrations, *ceteris paribus*. Indeed, Denis (1991) reports that the market penalty is greater for shelf relative to traditional offers.

We argue that during 1990-2003 the circumstances under which firms choose shelf registration are associated with a reduced need for certification, thereby offsetting the "under-certification" problem and resulting in lower costs of shelf relative to non-shelf offerings. Our findings are consistent with these arguments.

The evidence in Panel A of Table 7 indicates that shelf issuers experience smaller market penalties than non-shelf issuers. The panel reports market-adjusted cumulative abnormal returns in the three day window centered on the filing date[16] (FILECAR).[17] The first row indicates that in the full sample the mean and median FILECAR of shelf offers (-0.30% and -0.61%) are significantly less negative than those of non-shelf offers (-1.83% and -2.08%) at the 1% level based on t-tests for means and Wilcoxon sign-rank tests for medians.[18] In unreported analysis we find statistically comparable values of FILECAR between universal and non-universal shelf offers.[19]

The second row includes only observations of firms that offer both shelf and non-shelf equity. This sample includes 114 firms that conduct a total of 315 equity offerings (156 non-shelfs and 159 shelfs) during 1990-2003. The results are qualitatively similar to those using the full sample. For shelf offers, FILECAR is not statistically distinguishable from zero, and the median value of FILECAR for shelf offers is greater than that of non-

[16] Earlier studies that examine pre-1990 data often use the earlier of the filing date or the announcement date as reported in the *Wall Street Journal*. However, during the sample period (1990-2003) very few registrations have a press release prior to the filing date. We follow previous researchers and use the SDC filing date as the announcement date.

[17] We also calculate FILECAR using the market model and the Scholes-Williams (1977) market model, using an estimation period of 200 days ending 20 days before the event date. We require at least 100 days of available data for the estimation period. The results (unreported) are qualitatively similar to those reported in the paper.

[18] The small market reaction to shelf filings compared to non-shelf filings suggests that shelf equity issuers incur relatively less dilution to existing shareholders prior to equity offers. This can have implications for the importance of Myers and Majluf's (1984) pecking order theory, which predicts that market participants cause dilution to existing shareholders by discounting firm value at the announcement of an equity offer. Shelf registration adds to Fama and French's (2005) list of ways to issue equity (e.g. options and mergers and acquisitions) that do not incur much dilution.

[19] This is consistent with the findings of Masulis and Korwar (1986) and Billingsley, Smith, and Lamy (1994) that dual equity-debt offerings have announcement reactions similar to straight equity offerings.

shelf offers at the 5% level. We obtain qualitatively similar results in unreported tests in which we split the sample into the periods 1990-1996 and 1997-2003 and select firms within each period that use both procedures.

The costs we report above can potentially underestimate shelf costs. Since only a small portion of shelf filings culminate in equity offerings, it is possible that shelf users are more likely to forgo offers after a large negative market reaction, resulting in a survivorship bias in which shelf filings that culminate in equity offerings are those with the least unfavorable market reaction. The evidence rules out this possibility. The market penalty of shelf filings that lead to an equity offering is no different from that of shelf filings that do not culminate in an equity offering. The third row of Panel A reports that the median FILECAR for shelf filings that do not lead to offers, -0.36%, is actually slightly more positive than that for shelf filings that result in offers, -0.61%. Furthermore, untabulated logistic estimates indicate that, after controlling for other factors, the probability of a shelf filer conducting an offer is not associated with FILECAR.[20]

In Panel B of Table 7 we provide evidence that the small market penalty at shelf filings is at least partially due to how firms use shelf registration. We find that the median shelf announcement reaction is insignificant if the shelf offer represents the firm's third or subsequent offer (-0.12%) and is significantly negative for the firm's first or second offer (-1.39%). This adds to the findings of D'Mello, Tawatnuntachai, and Yaman (2003) that non-shelf announcement reactions are less severe for a firm's third and subsequent offerings and suggests that the certification obtained from earlier offerings reduces the negative impact of subsequent shelf offering announcements.

Moreover, the abnormal pre-filing stock price runup (PREFILE180) appears to be associated with the market penalty at filing. Using the entire sample of equity offerings, we form three groups based on PREFILE180. Shelf filings in the top third of PREFILE180 are associated with a significantly negative market reaction of -1.54%, while shelf filings in the bottom third have an insignificant reaction of -0.21%.

[20] The fact that the negative market reaction is statistically identical for both filings that lead to offers and those that do not is certainly consistent with the market assigning the same ex-ante probability of issuance to both groups. It also may be consistent with firms themselves having similar expectations regarding their own probability of issuance.

In Panel C, we provide evidence on the combined effect of the sequence of offers and PREFILE180. The first row consists of offerings in which the issuer reduces the need for certification through both mechanisms: those that represent the issuer's third or subsequent offering and are in the bottom third of PREFILE180. Although shelf offers represent only 25% (386 of 1514) of our sample of seasoned offerings, they constitute 55% (83 of 151) of offers in this group. The second row consists of offerings in which the issuer does not reduce the need for certification through either mechanism: those that represent the issuer's first seasoned offering and are in the top third of PREFILE180. It is noteworthy that shelf offers make up only 12% (29 of 239) of offers in this group. Few firms choose the shelf procedure under these circumstances. The evidence indicates that it is cost effective for firms to choose shelf registration when the need for certification is reduced through these mechanisms. Shelf offerings in the second group (sequence = 1 and top third of PREFILE180) are penalized significantly more at filing than shelf offerings in the first group (sequence >= 3 and bottom third of PREFILE180). For non-shelf offers, however, there is little difference in market penalties between groups.

This evidence sheds light on the continuing (albeit diminishing) use of the non-shelf procedure in spite of the benefits associated with shelf registration. The economically large mean reaction (-3.12%) to shelf offerings in which the issuer does not reduce the need for certification explains the limited use of shelf registration by firms in this group. These firms are less able to offset the shelf under-certification problem and therefore may find the non-shelf procedure relatively more attractive.[21]

In Table 8 we report OLS estimates of the association between FILECAR and the choice of registration after controlling for firm- and offer- specific variables. In model 1, we regress FILECAR against the filing size scaled by the market value two days prior to filing (FILESIZE), the firm's Scholes-Williams market model residual volatility (RVOL), the pre-filing runup (PREFILE 180), and a dummy variable (SHELF) equal to one for

[21] Another potential reason why some firms continue to prefer traditional SEOs is related to Merton's (1987) investor recognition hypothesis. The increased media exposure in the weeks prior to traditional non-shelf offerings can result in greater breadth of ownership and an associated reduction in the cost of capital. Merton argues this can explain why firms almost unanimously prefer traditional SEOs over rights offerings despite the apparent cost advantage of rights issues. The differences between shelf and non-shelf offers are much smaller than those between traditional and rights offers, but nevertheless, shelf offers are arguably associated with smaller increases in investor recognition than non-shelf offer since there is often less opportunity for a road show.

shelfs and zero for non-shelfs. In model 2, we add interaction variables of SHELF*FILESIZE, SHELF*PREFILE180 and SHELF*RVOL to gain insights into the differential impact of these variables across registration methods. Our choice of variables follows Denis (1991). We report similar estimations in models 3 and 4 except that we add an additional variable reflecting the number of seasoned offers since the firm's IPO (SEQUENCE) and other firm-specific traits (MARKVAL, MTB, and DRATIO). In models 1-4 we report a significantly positive coefficient for SHELF consistent with a lower market penalty for shelf offers, after controlling for firm and offer characteristics. Shelf issuers' market value falls by more than a percent less than non-shelf issuers' market value. In economical terms, a typical issuer that has a market value of $1 billion or more can save at least $10 million by choosing shelf registration instead of the traditional procedure. The significantly positive coefficients on SEQUENCE in models 3 and 4 indicate that subsequent seasoned offers are associated with a smaller market penalty. This suggests that a portion of shelf issuers' cost advantage stems from firms using shelf offers later in the sequence of offerings. However, after controlling for the sequence of offers, shelf issuers cost advantage remains significant, suggesting that this provides only a partial explanation of shelf issuers' reduced need for certification.

Of particular importance, the coefficient of the interaction term SHELF*RVOL in models 2 and 4 is insignificantly different from zero compared to a significantly negative coefficient reported by Denis (1991) in a similar model specification. The result of Denis (1991) is consistent with stock prices reacting more negatively to higher levels of uncertainty for shelf offers because they are less certified. The under-certification hypothesis was plausible for the shelf issues of the early to mid 1980s. Our finding of an insignificant coefficient for the interaction term indicates that shelf issuers that have greater uncertainty do not incur an additional market penalty, consistent with shelf issuers having less risk of overvaluation and less need for certification. Estimations that include industry dummies based on the Fama-French 48 classification yield statistically and economically similar results.

In unreported analysis we conduct quantile median regression analysis (see Koenker and Bassett, 1978), which is robust to outlier observations and makes no distributional assumptions about the error term. The findings using this robust estimation

technique are statistically similar to those reported in Table 8. Taken together, the results suggest the market now penalizes shelf offers less than non-shelf offers, firms use the shelf procedure later in the sequence of offers partially reducing the need for certification, and shelf announcement reactions are not more negative for higher volatility shelf issuers.

An alternative explanation of the small shelf announcement reaction is that the market, uncertain that a shelf filing will lead to an equity offer, incorporates the expected probability of issuance and accordingly only partially discounts share value. We test this possibility using a Bayesian-like approach in which we divide FILECAR by the expected probability of issuance.[22] The median value of this probability-adjusted filing reaction (-2.04%) is statistically similar to the median value of FILECAR for non-shelf offers (-2.08%). According to this explanation, the remainder of the negative market reaction should occur at the offering. This implies that (i) the magnitude of the offering date reaction should be significantly correlated with the announcement reaction as pointed out by Lease, Masulis, and Page (1991), and (ii) shelf offerings should experience a more negative market reaction than non-shelfs on the offering date since non-shelfs are almost always completed so the offer itself reveals less, if any, information.

To test these predictions we examine the market-adjusted cumulative abnormal returns in the three day window centered on the offer date (OFFERCAR) and the total market reaction to the offer (TOTALCAR), which is the sum of FILECAR and OFFERCAR.[23]

Our evidence does not support this alternative explanation. First, we find no statistical correlation between OFFERCAR and FILECAR for our sample of shelf offers. Second, in Panel A of Table 9 we report no greater penalty at the offering (OFFERCAR) for shelf relative to non-shelf offerings. In both the full sample and the sample of firms using both offer types, OFFERCAR is not statistically different between procedures.

[22] We calculate the expected probability of issuance for each shelf filing as the percentage of prior filings in the window t-4 to t-2 years that lead to an equity offer.

[23] We also calculate OFFERCAR and TOTALCAR using the market model and the Scholes-Williams (1977) market model with an estimation period of 200 days ending 20 days before the event date, requiring at least 100 days of available data for the estimation period. The results (unreported) are qualitatively similar to those reported in the paper.

Unreported regressions of OFFERCAR regressed on FILECAR, SHELF, and control variables support these findings.[24]

Panel B provides evidence that the overall market penalty is less negative for shelf offers. In the full sample the overall market reaction (TOTALCAR) is significantly less negative for the median shelf issuer, -1.55%, compared to the median non-shelf issuer, -3.42%. In the sample of firms using both offer types, TOTALCAR for shelf offers is not statistically distinguishable from zero, and the median value of TOTALCAR for shelf offers is greater than that for non-shelf offers at the 5% level.[25]

3.4.2 Direct costs (~underwriter fees)

Bhagat, Marr, and Thompson (1985) and Blackwell, Marr, and Spivey (1990) find that underwriter fees are lower for shelf than for non-shelf equity offers. Denis (1993), however, shows that (i) after excluding non-syndicated shelf offers that have zero underwriter fees, there is no issuance cost advantage of shelf offers and (ii) after controlling for firm characteristics issuance costs are no lower for shelf than non-shelf offers.

If shelf issuers in our sample period have less need for certification, we expect that investment bankers now require less compensation in underwriting shelf relative to non-shelf offerings. We provide evidence in Tables 10 and 11 and Figure 5 that is consistent with this argument. Following Lee, Lockhead, and Ritter (1996) we define direct costs as the sum of gross underwriter spread (management fee, underwriter fee, and selling concession) and expenses paid by the issuer (legal, miscellaneous, and printing fees), scaled by offer proceeds (PDIRCOSTS). The gross underwriter spread usually accounts for at least 95% of direct costs. Therefore, our direct cost variable, PDIRCOST, is comparable to previous studies' use of gross underwriter spreads in analyzing direct costs.

Table 10 reports that shelf offers are associated with lower direct costs than non-shelf SEOs. In the complete sample of offers reported in Panel A, the mean and median

[24] It is possible that filing reactions are probability-adjusted, but that only shelf firms that have a favorable resolution of a prior uncertainty proceed with an offering, thereby truncating the distribution of potential offer reactions from below. This would be consistent with shelf issuers having a reduced need for certification.

[25] In unreported analysis we find statistically comparable values of OFFERCAR and TOTALCAR between universal and non-universal shelf offers.

PDIRCOSTS for shelf offers (3.99% and 4.41%) are significantly lower than those for non-shelf offers (5.24% and 5.26%) at the 1% level based on t-tests for means and Wilcoxon sign-rank tests for medians.[26] The results are similar when we restrict the sample to offers conducted by firms that use both procedures. Panel B reports that for this sample the mean and median PDIRCOSTS for shelf offers (4.14% and 4.49%) are significantly lower at the 1% level than for non-shelf offers (5.25% and 5.28%). Although not reported, the results in Panel B persist across syndicated and non-syndicated offers.

Consistent with these findings, the cumulative density functions (CDFs) illustrated in Figures 5a and 5b show that the CDF of PDIRCOSTS for shelf offers is first-order stochastically dominant to that of non-shelf offers, in both the full sample (Figure 5a) and the sample of firms that use both procedures (Figure 5b). This implies that shelf issuers incur lower direct expenses across all fee percentiles.

Additional (unreported) results indicate that shelf users do not seem to incur lower costs than non-shelf users in the issuance of non-shelf SEOs, which reverses the results of Denis (1993), and provides further evidence that the observed cost differential is not driven by firm characteristics. Specifically, the mean (median) value of PDIRCOSTS for 156 non-shelf SEOs of shelf users, 5.25% (5.28%), is statistically comparable to that for 987 non-shelf SEOs of firms that are not shelf users, 5.26% (5.26%).

The differences between shelf and non-shelf direct costs remain significant in regressions that control for firm and offer characteristics. The regression estimates of models (1) and (2) in Table 11 indicate that, consistent with prior studies, smaller offerings, offerings by firms with more uncertainty, and syndicated offerings are associated with greater direct costs. We also find that underwriters charge less for firms with greater equity market experience (SEQUENCE). After controlling for these variables, the coefficient of SHELF is significantly negative at the 1% level and is economically large. For a typical offering of $100 million, shelf issuers incur $900,000 less in fees, after

[26] To test whether these results are driven by differences in the use of non-syndicated / low fee offerings across the two registration methods, we form quintiles of direct costs for shelf and non-shelf offers, and within each offering type, for non-syndicated offers with and without zero-fee offers, and for syndicated offers. The results indicate that non-syndicated shelf offerings have a high incidence of zero-fee offerings but mean and median shelf costs are significantly (1% level) lower than SEO costs in each quintile, and overall, for both syndicated and non-syndicated offerings.

controlling for other factors, than non-shelf issuers. Using separate regressions for syndicated and non-syndicated offerings (unreported) yields qualitatively similar results. In models (3) and (4) we interact SHELF with offer size and residual volatility. The coefficient of SHELF * PROCEEDS suggests a weakened relation between offer size and underwriter fees for shelf offerings, possibly due to diminishing economies of scale in underwriter fees. More importantly, the interaction term SHELF * RVOL, however, is insignificant suggesting that shelf issuers with greater uncertainty do not incur higher underwriter fees. This is consistent with the finding that higher uncertainty shelf issuers are not penalized more by the market (see Table 8). Estimations that include industry dummies based on the Fama-French 48 classification yield statistically and economically similar results. The results of quantile median regressions (unreported) that are robust to outlier observations are generally consistent with those reported in Table 11.

For completeness, we examine the additional direct cost associated with offer underpricing. Following Corwin (2003), we define underpricing as negative one times the return from the prior day's closing price to the offer price. We find (unreported) that in the sample of firms that use both procedures shelf offers are slightly more underpriced than non-shelf offers (3.27% versus 2.94%), although this difference is not statistically significant.

We note that the direct and indirect costs reported above represent an upper bound since shelf issuers can and often do make multiple offers under a single filing, reducing the costs on a per offer basis. Denis (1991) provides evidence that firms almost never issue shares more than once with a shelf registration in the 1980s. In particular, he reports that from 1982 to 1986 only one out of 41 shelf filings had more than one offer (i.e. 41 filings and 42 offers). In our sample period 1990-2003, 42 filings out of 341, or roughly 12%, have multiple offers. It appears that after 1990, a greater percentage of firms have been conducting multiple shelf offers from a single filing.

Overall, our analysis of the comparative costs of shelf and non-shelf offers suggests a cost advantage for shelf-registered offers during 1990-2003, both in the direct and indirect costs, consistent with shelf issuers having a reduced need for certification.

3.5. How firms use universal shelf offers

> "Similar to many other public companies, we are utilizing a universal shelf registration statement because it is a practical and efficient way to access the public markets. While we currently have no specific plans to sell securities, the shelf registration positions us to act quickly to take advantage of growth opportunities and favorable market conditions."
>
> - Robert C. Lamb, Jr., Executive Vice President and Chief Financial Officer, KPMG Consulting, March 7, 2002, after filing a $1 billion universal shelf registration for the possible future issuance of debt, preferred stock, common stock, and warrants.

In this section we examine how firms use the unallocated or "universal" shelf procedure, adopted by the SEC in October 1992 (SEC release no. 33-6964). The universal shelf rule allows firms to register a dollar amount of various classes of securities (including both debt and equity) without disclosing which securities it will offer in the future. Effectively, the rule allows firms to defer the decision of which security to issue until the actual offering. With a universal shelf, when a firm has need for capital it can, on short notice, choose to issue in the debt or equity market depending on which of these markets is more receptive at that time.

We provide comparative statistics on the use of the universal procedure for issuing equity relative to debt. Our sample contains 1094 universal shelf filings made by 721 different firms. From these filings, there have been 327 equity offers (representing 85% of the 386 total shelf equity offers in our sample[27]) and 820 debt offers made by a total of 380 different firms. Thus approximately only 53% of firms that make a universal shelf filing (380 out of 721 firms) use the filing to issue either debt or equity.[28] More specifically, about 34% of universal filers (242 out of 721) issue equity, and about 29% (211 out of 721) issue debt. Roughly 10% of firms filing universal shelfs (73 out of 721) use the filing to issue both debt and equity.

Our earlier findings suggest shelf issuers have relatively low stock price runups in the six to twelve months prior to offerings. Below we provide evidence, however, that

[27] Many of the 59 non-universal shelf equity offerings in our sample are made by biotech and pharmaceutical companies, which raise primarily equity and therefore might have less incentive to file a universal registration.

[28] It is possible, however, that firms filing universal shelfs near the end of the sample period will make an offer in the future.

universal issuers take advantage of short-term price fluctuations in choosing between the debt and equity markets. Specifically, we compare the 30- and 60- day pre-offer stock returns and the interest rate changes from the filing date to the offer date of universal equity offerings with those of universal debt offerings. The pre-offer stock price runup (PREOFFER30 and PREOFFER60) is the 30- and 60-day market-adjusted buy-and-hold return ending two days prior to the offer date. Each pre-offer runup variable is truncated at two days after the filing date to avoid contamination. We calculate interest rate changes as the natural logarithm of the ratio of one plus the interest rate on the offer date divided by one plus the interest rate on the filing date (LOGRATEDIFF). Interest rates are Moody's long-term corporate bond rates.

The results reported in Table 12, based on a sample of universal equity offers (327) and debt offers (820), indicate that PREOFFER30 and PREOFFER60 are significantly larger for universal equity offers, and the percentage change in interest rates from the filing to offer date (LOGRATEDIFF) is significantly more negative for universal debt offers. These findings indicate that, on average, universal issuers choose stock offerings when equity market conditions are more favorable, and they choose bond offerings when debt market conditions are more favorable. The results are consistent with the survey results of Graham and Harvey (2001) that firms care about interest rates and recent stock returns in making their security issuance decisions.

Overall, the additional flexibility provided by the universal shelf rule is further reason for the growing popularity of shelf registration. Universal shelf issuers have the options to defer offers, to defer the choice between debt and equity, and to abandon the offer completely, each of which they frequently use.

4. Conclusions

During 1990-2003 there has been a significant revival in the use of shelf registration to issue seasoned equity. Over the recent five years, 1999-2003, almost half of all primary equity offerings were shelf-registered and total proceeds of shelf offerings exceeded proceeds of traditional offerings. The purpose of this paper is to explain the dramatic revival of shelf-registered equity offerings.

We provide evidence of significant changes in how firms use shelf offers now compared to the early 1980s. Whereas in the early 1980s issuers typically offered all shelf-registered shares in a single offering within one week of registration, during 1990-2003 shelf offers are often deferred for months or years and are frequently abandoned. Moreover, we report an important structural shift in how uncertainty influences firms' choice between procedures. While Denis (1991) reports that in the 1980s the probability of shelf registration is a decreasing function of residual volatility, consistent with his under-certification hypothesis, we find that during 1990-2003 it is an increasing function of this variable. Our findings suggest that potential shelf issuers now view high volatility favorably, consistent with firms increasingly valuing the option-like shelf offerings. We argue that shelf issuers' option to defer or abandon is more valuable than non-shelf issuers' option to cancel offerings, and report that the growth in shelf registration and decline in traditional SEOs in recent years coincides with increasing volatility in market returns.

The combination of high volatility and the inherent under-certification in shelf offers should result in a severe market penalty, *ceteris paribus*. We provide evidence that the typical shelf issuer avoids this penalty by reducing the need for certification in other ways. In particular, firms typically favor shelf offerings after having already been certified in prior seasoned offerings and after relatively low abnormal stock price runups.

This has led to a less negative market attitude toward shelf offers, reflected in a lower market penalty for the average shelf relative to non-shelf issuer. However, the few shelf offers that represent the firm's first seasoned equity offering *and* are associated with large pre-filing abnormal stock price runups (i.e. offers in which the need for certification is not reduced) are associated with a large negative market reaction. The limited use of shelf registration by firms whose circumstances do not reduce the need for certification sheds light on the continuing (albeit diminishing) use of the non-shelf procedure in spite of the benefits associated with shelf registration.

Since the circumstances under which firms typically choose shelf offerings are associated with a reduced need for certification, we expect that underwriters can charge lower fees due to a lessened need for an intensive due diligence investigation. Our evidence indicates that indeed shelf issuers incur lower underwriter fees than non-shelf issuers. Our cost results are robust to controls for self-selection.

Most shelf offers are registered under a universal shelf filing, which represents an additional change in how firms use shelf registration. Universal filings enable issuers to register an offering without specifying a particular security until the issue date, and we provide evidence that universal shelf issuers choose equity or debt depending upon which market conditions become more favorable. This supports the survey evidence of Graham and Harvey (2001) that firms care about interest rates and recent stock returns in making security issue decisions.

Our findings are important considering that the economic magnitude (and annual number) of shelf offers has recently surpassed that of the more studied traditional SEOs. In light of new SEC legislation adopted in June 2005 that is intended to further streamline the shelf offering process for well-known seasoned issuers,[29] the trend to shelf use is likely to be a topic of continuing interest.

[29] For details, see SEC release 2005-99 at www.sec.gov/news/press/2005-99.htm.

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Table 1

The number and total proceeds of traditional SEOs and shelf offers

This table displays the annual number and total proceeds of shelf and non-shelf equity offers during the sample period 1990-2003. Shelf-eligible traditional (non-shelf) issuers are those that have a market value of public shares held by investors (public float) of at least $150 million for offers filed before October 22, 1992, and a public float of at least $75 million for offers filed after October 22, 1992. Only primary offers are included. Primary offers are those in which 100% of shares (or dollar amount) filed are primary.

	Traditional non-shelf offers		Shelf-eligible non-shelf offers		Shelf offers	
	Number	Total Proceeds (millions)	Number	Total Proceeds (millions)	Number	Total Proceeds (millions)
1990	34	1,289.6	18	1,017.6	0	-
1991	158	9,542.7	82	8,000.3	2	196.3
1992	127	8,658.8	73	7,646.1	3	276.8
1993	154	9,316.4	121	8,788.7	7	1,237.0
1994	89	4,544.9	68	4,184.4	11	1,498.2
1995	150	11,003.0	126	10,609.7	7	1,216.2
1996	183	13,032.6	151	12,528.0	8	1,133.0
1997	120	7,178.7	102	6,867.6	26	3,692.5
1998	65	6,168.8	52	5,929.1	31	7,282.6
1999	90	11,847.1	86	11,747.6	47	10,558.3
2000	99	13,893.2	94	13,782.6	47	16,213.9
2001	49	5,695.1	47	5,627.7	58	14,085.2
2002	62	8,752.1	61	8,735.9	55	9,559.4
2003	48	4,608.1	47	4,571.1	84	11,558.5
Total	**1,428**	**115,531.1**	**1,128**	**110,036.4**	**386**	**78,507.9**

Table 2
Descriptive statistics

This table displays statistics for shelf and non-shelf equity offers during 1990-2003. The market value of equity is calculated as the stock price two days prior to filing multiplied by the number of shares outstanding at that time. The market-to-book ratio is the market value of equity plus book value of debt divided by total book assets. Filing size is the dollar amount filed. Scaled filing size is the ratio of the filing size to the market value of shares outstanding two days prior to filing. Scaled proceeds are the ratio of proceeds to the market value of shares outstanding two days prior to filing. Sales, long-term debt, and capital expenditures are each scaled by total book assets. All COMPUSTAT variables (book assets, market-to-book, sales, collateral, long-term debt, and capital expenditures) are year-end figures for the year prior to filing and are scaled by book assets. Residual volatility is calculated from the Scholes-Williams (1977) market model using a 200-day estimation period ending 20 days prior to the filing date. Total volatility is calculated as the standard deviation of daily stock returns over 180 days immediately prior to the filing date. P-values for differences in means and medians between shelf and non-shelf offers are based on standard t-tests and Wilcoxon sign-rank tests, respectively.

	Non-shelf offers		Shelf offers			
	Mean	Median	Mean	Median	Mean p-value	Median p-value
Book assets (mil.)	1,152.1	145.5	2,309.0	641.8	0.0008	<.0001
Market value of equity (mil.)	979.9	371.4	3,456.6	924.4	<.0001	<.0001
Market-to-book	3.15	1.76	2.62	1.52	0.0132	0.0442
Filing size (mil.)	113.9	63.8	742.7	320.2	<.0001	<.0001
Scaled filing size	0.20	0.16	0.47	0.31	<.0001	<.0001
Proceeds (mil.)	97.6	59.8	203.4	110.4	<.0001	<.0001
Scaled proceeds	0.18	0.15	0.15	0.12	<.0001	<.0001
Sales	0.85	0.70	0.66	0.46	<.0001	<.0001
Long-term Debt	0.21	0.14	0.33	0.27	<.0001	<.0001
Capital Expenditures	0.08	0.05	0.10	0.06	0.0143	0.0115
Residual volatility (%)	3.70	3.44	3.77	3.36	0.5304	0.5956
Total volatility (%)	3.79	3.47	3.91	3.52	0.2785	0.7985
Number of observations	1,128	1,128	386	386		

Table 3
Number of days between filing and offer dates

This table presents the mean and median number of days between the filing date and offer date for shelf and non-shelf equity offers by year. The full sample consists of 386 shelf offers and 1128 non-shelf offers, and the sample of firms that offer using both procedures consists of 159 shelfs and 156 non-shelfs.

	Non-shelf offers		**Shelf offers**	
Offer year	Mean	Median	Mean	Median
1990	23	21	-	-
1991	32	26	91	91
1992	42	29	147	147
1993	34	29	67	49
1994	46	32	72	48
1995	37	33	89	92
1996	42	36	192	134
1997	51	29	173	88
1998	38	30	84	57
1999	49	35	180	84
2000	36	31	210	99
2001	97	37	247	148
2002	93	25	301	184
2003	94	21	346	199
Entire period	48	31	232	111
Entire period for firms that use both procedures	71	30	220	127

Table 4
Shelf filings that lead to equity offerings

This table displays the yearly distribution of the total number of shelf filings and the number (and percentage) of those filings that lead to at least one equity offering. Only primary filings are included. Primary filings are those in which 100% of shares filed are primary.

Filing year	Number of shelf filings	Number of shelf filings that lead to at least one equity offer	Percentage of shelf filings that lead to at least one equity offer
1990	4	0	0%
1991	24	2	8
1992	9	2	22
1993	35	10	29
1994	42	9	21
1995	84	10	12
1996	83	11	13
1997	120	25	21
1998	142	42	30
1999	142	46	32
2000	170	46	27
2001	224	60	27
2002	173	36	21
2003	185	42	23
Total	**1,437**	**341**	**24%**

Table 5
Reducing the need for certification

Panel A displays statistics on the sequence of offers and Panel B reports pre-filing and pre-offer stock performance full sample (1990-2003) of shelf and non-shelf equity offers. SEQUENCE is the number of seasoned offers since the firm's IPO. The statistics in the third row of Panel A indicate where in the sequence of offerings the average shelf and non-shelf offering takes place. A value of one represents the firm's first seasoned offering, a value of two represents its second offering, etc. The pre-filing runup (PREFILE180) is defined as the buy-and-hold return for 180 days ending two days before the filing date. The pre-offer runups (PREOFFER180, PREOFFER360) are the 180- and 360-day buy-and-hold return ending two days prior to the offer date. All runup variables are net of the CRSP value-weighted market buy-and-hold return for the same period. The sample of 386 shelf offers are conducted from 341 different filings, thus PREFILE180 is calculated using only 341 observations. P-values for differences in means and medians are based on standard t-tests and Wilcoxon sign-rank tests, respectively.

Panel A: The sequence of offerings

	Non-shelf offers		Shelf offers		
	Mean	Percentage of offers	Mean	Percentage of offers	Mean p-value
First time seasoned issuer	-	54%	-	30%	-
Third or subsequent offer	-	18%	-	42%	-
SEQUENCE	1.87	-	2.57	-	<0.0001

Panel B: Stock returns prior to filing and offering

	Non-shelf offers		Shelf offers			
	Mean	Median	Mean	Median	Mean p-value	Median p-value
PREFILE180 (%)	62.21	37.22	40.55	18.75	0.0003	<0.0001
PREOFFER180 (%)	53.04	28.04	38.45	21.10	0.0128	0.0020
PREOFFER360 (%)	108.01	46.42	76.00	26.86	0.0183	<0.0001

Table 6
Factors that influence the choice between shelf and non-shelf offers

Logistic and probit regressions with a binary choice variable (SHELF) taking the value of one for shelf offers and zero for non-shelf offers. The sample period is 1990-2003 and the sample consists of 1128 non-shelf offers and 386 shelf offers. MARKVAL is the natural log of the market value of equity (stock price multiplied by shares outstanding) two days prior to the filing. FILESIZE is the ratio of the dollar amount filed to the market value of shares outstanding two days prior to filing. DRATIO is the ratio of long-term debt to total book assets. MTB is the market value of equity plus book value of debt divided by total book assets. DRATIO and MTB are calculated at the end of the year prior to filing. RVOL is the residual volatility calculated from the Scholes-Williams (1977) market model estimation using a 200-day estimation period ending 20 days prior to the filing date. SEQUENCE equals the number of seasoned offers since the firm's IPO and is obtained from the Securities Data Corporation (SDC) new issues database. PREFILE180 is the 180-day buy-and-hold stock return ending two days before the filing date, net of the CRSP value-weighed market return for the same period. Filing year dummy variables are included in each specification.

	Modeled: SHELF = 1			
	Logistic		Probit	
	(1)	(2)	(3)	(4)
Intercept	-22.48 (306.9)	-20.52 (24.12)	-10.71 (6305.5)	-13.38 (9779.0)
MARKVAL	0.9467*** (0.0868)	1.1357*** (0.1018)	0.4427*** (0.0432)	0.6341*** (0.0537)
FILESIZE	5.371*** (0.5217)	7.388*** (0.6894)	1.697*** (0.1583)	3.929*** (0.3256)
DRATIO	0.6319* (0.3467)	0.5891 (0.4011)	0.6212*** (0.1893)	0.3515 (0.2269)
MTB	-0.0038 (0.0259)	-0.0049 (0.0296)	-0.0114 (0.0152)	-0.0035 (0.0170)
RVOL	19.80*** (5.97)	21.46*** (6.87)	9.72*** (3.30)	12.83*** (3.83)
SEQUENCE	0.2878*** (0.0642)	0.2938*** (0.0722)	0.1484*** (0.0347)	0.1641*** (0.0397)
PREFILE180	-0.4106*** (0.1151)	-0.3799*** (0.1202)	-0.2177*** (0.0539)	-0.1943*** (0.0575)
Industry dummies	No	Yes	No	Yes

*, **, *** indicate significantly different from zero at 10%, 5%, and 1% levels, respectively

Table 7
Market penalty at filing

This table displays statistics on the market penalty at filing (FILECAR), defined as the market-adjusted cumulative abnormal returns over the three-day event window centered on the filing date. The sample period is 1990-2003. Panel A reports FILECAR for the full sample, for the sample of firms that offer both shelf and non-shelf equity during 1990-2003, and for the sample of shelf filings that do not lead to equity offers. Panel B reports FILECAR of offerings which represent a firms' first seasoned offer (SEQUENCE=1) and third or subsequent seasoned offer (SEQUENCE=3). Panel B also reports FILECAR of offerings that are in the top or bottom third of PREFILE180. PREFILE180 is defined as the buy-and-hold return for 180 ending two days before the filing date, and is net of the CRSP value-weighted market buy-and-hold return over the same period. The top and bottom third of PREFILE180 are formed using the entire sample of shelf and non-shelf offerings. Panel C reports FILECAR within groups of SEQUENCE and PREFILE180. P-values for differences in means and medians are based on standard t-tests and Wilcoxon sign-rank tests, respectively.

Panel A

	Non-shelf			Shelf			Difference	
	Number	Mean	Median	Number	Mean	Median	Mean p-value	Median p-value
Full sample	1128	-1.83***	-2.08***	341	-0.30	-0.61***	0.0004	<0.0001
Firms using both procedures	156	-0.79	-1.28***	138	0.28	0.13	0.1814	0.0279
Shelf filings that do not lead to equity offers	-	-	-	1,096	-0.45**	-0.36***		

Panel B

	Non-shelf			Shelf			Difference	
	Number	Mean	Median	Number	Mean	Median	Mean p-value	Median p-value
SEQUENCE = 1	558	-1.85***	-2.08***	117	-0.40	-1.39***	0.0960	0.0902
SEQUENCE >= 3	570	-1.08***	-1.67***	163	-0.17	-0.12	0.1282	0.0190
Difference	-	0.9098	0.7904	-	0.8073	0.1813		
Prefile180 (top third)	407	-1.56***	-2.19***	83	-1.03	-1.54***	0.5890	0.6166
Prefile180 (bottom third)	328	-1.95***	-1.93***	161	0.11	-0.21	0.0029	0.0005
Difference	-	0.4513	0.9848	-	0.2891	0.1151		

Table 7 (cont.)
Market penalty at filing

Panel C

	Non-shelf			Shelf			Difference	
	Number	Mean	Median	Number	Mean	Median	Mean p-value	Median p-value
SEQUENCE = 1 and Prefile180 (top third)	210	-1.76***	-2.51***	29	-3.12**	-2.56***	0.4146	0.6378
SEQUENCE >= 3 and Prefile180 (bottom third)	68	-1.39**	-1.70***	83	-0.46	-0.21	0.2880	0.0619
Difference	-	0.6712	0.3080	-	0.0852	0.0575		

*, **, *** indicate significantly different from zero at 10%, 5%, and 1% levels, respectively.

Table 8
Determinants of the market reaction at the filing of equity offers

This table provides regressions with the filing reaction (FILECAR) as the dependent variable. The sample period is 1990-2003 and the sample consists of 1128 non-shelf filings and 341 shelf filings. FILECAR is the market-adjusted cumulative abnormal returns over the three-day event window centered on the filing day. The filing size (FILESIZE) is the ratio of the dollar amount filed to the market value of shares outstanding two days prior to filing. MARKVAL is the natural log of the market value of equity (stock price multiplied by shares outstanding) two days prior to the filing. DRATIO is the ratio of long-term debt to total book assets. MTB is the market value of equity plus book value of debt divided by total book assets. DRATIO and MTB are calculated at the end of the year prior to filing. RVOL is the residual volatility calculated from the Scholes-Williams (1977) market model using a 200-day estimation period ending 20 days prior to the filing date. PREFILE180 is the 180-day buy-and-hold stock return ending two days before the filing date, net of the CRSP value-weighed market return for the same period. SHELF takes the value of one for shelf-registered offers and zero for non-shelf offers. SEQUENCE equals the number of seasoned offers since the firm's IPO and is obtained from the Securities Data Corporation (SDC) new issues database. Filing year dummy variables are included in each specification. Heteroskedasticity-adjusted standard errors based on White's (1980) procedure are in parentheses.

	Dependent variable: FILECAR			
	(1)	(2)	(3)	(4)
Intercept	-0.0097 (0.0154)	-0.0119 (0.0153)	-0.0012 (0.0214)	-0.0053 (0.0219)
FILESIZE	0.0055 (0.0053)	0.0217* (0.0126)	0.0057 (0.0053)	0.0215 (0.0146)
MARKVAL			-0.0017 (0.0018)	-0.0014 (0.0019)
MTB			0.0009 (0.0005)	0.0009 (0.0005)
DRATIO			-0.0131* (0.0078)	-0.0118 (0.0080)
RVOL	-0.1703 (0.1762)	-0.1852 (0.1687)	-0.2496 (0.1897)	-0.2656 (0.1960)
PREFILE180	-0.0032 (0.0032)	-0.0011 (0.0039)	-0.0033 (0.0034)	-0.0018 (0.0041)
SHELF	0.0118** (0.0050)	0.0221* (0.0120)	0.0136*** (0.0053)	0.0203* (0.0120)
SHELF*FILESIZE	-	-0.0248* (0.0143)	-	-0.0230 (0.0155)
SHELF*PREFILE180	-	-0.0083 (0.0073)	-	-0.0059 (0.0072)
SHELF*RVOL	-	0.0241 (0.4178)	-	0.0602 (0.4172)
SEQUENCE	-	-	0.0029** (0.0013)	0.0030** (0.0013)
Adj R-Sq	0.0081	0.0100	0.0117	0.0127

*, **, *** indicate significantly different from zero at 10%, 5%, and 1% levels, respectively

Table 9
Market penalty at the offering

Panel A displays statistics on OFFERCAR and Panel B displays statistics on TOTALCAR for the full sample (1990-2003) and the sample of firms that offer both shelf and non-shelf equity during 1990-2003. OFFERCAR is the market-adjusted cumulative abnormal returns over the three-day event window centered on the offer date. The total stock price reaction to the offer (TOTALCAR) is determined by summing FILECAR and OFFERCAR for each offer. FILECAR is the market-adjusted cumulative abnormal returns over the three-day event window centered on the filing date. P-values for differences in means and medians are based on standard t-tests and Wilcoxon sign-rank tests, respectively.

	SEOs		Shelf offers			
	Mean	Median	Mean	Median	Mean p-value	Median p-value
			Panel A: OFFERCAR			
Full sample	-1.65***	-1.61***	-1.62***	-1.41***	0.9491	0.9382
Firms using both	-1.76***	-2.27***	-0.90	-1.34	0.3636	0.1802
			Panel B: TOTALCAR			
Full sample	-3.47***	-3.42***	-2.10***	-1.55***	0.0303	0.0051
Firms using both	-2.55***	-2.74***	-0.70	-0.35	0.1066	0.0328

*, **, *** indicate significantly different from zero at 10%, 5%, and 1% levels, respectively.

Table 10
Direct Costs of shelf and non-shelf offers

This table provides statistics on direct costs during 1990-2003 for the full sample (Panel A) and for the sample of issuers that conduct both shelf and non-shelf offers (Panel B). Direct costs include the gross underwriter spread (management fee, underwriter fee, and selling concession) and expenses paid by the issuer (legal, miscellaneous, and printing fees). PDIRCOSTS is calculated by taking the ratio of the direct costs to the total proceeds of the offer. P-values for differences in means and medians are based on standard t-tests and Wilcoxon sign-rank tests, respectively.

	Non-shelf offers		Shelf offers			
	Mean	Median	Mean	Median	Mean p-value	Median p-value
Panel A: Full sample						
PDIRCOSTS (%)	5.24	5.26	3.99	4.41	<0.0001	<.0001
Number of observations	1,128	1,128	386	386		
Panel B: Firms that conduct both shelf and non-shelf offers						
PDIRCOSTS (%)	5.25	5.28	4.14	4.49	<.0001	<.0001
Number of observations	156	156	159	159		

Table 11
Determinants of the direct costs of equity offers

Regressions with PDIRCOSTS as the dependent variable over the sample period 1990-2003. The sample consists of 1128 non-shelf offers and 386 shelf offers. PDIRCOSTS is the ratio of the direct costs to the total proceeds of the offer. Direct costs include the gross underwriter spread (management fee, underwriter fee, and selling concession) and expenses paid by the issuer (legal, miscellaneous, and printing fees). The offer proceeds (PROCEEDS) are defined as the natural logarithm of offer proceeds. RVOL is the residual volatility calculated from the Scholes-Williams (1977) market model using a 200-day estimation period ending 20 days prior to the filing date. SEQUENCE equals the number of seasoned offers since the firm's IPO and is obtained from the Securities Data Corporation (SDC) new issues database. SHELF takes the value of one for shelf-registered offers and zero for non-shelf offers. SYNDICATE takes the value of one for syndicated offers and zero for non-syndicated offers. Filing year dummy variables are included in each specification. Heteroskedasticity-adjusted standard errors based on White's (1980) procedure are in parentheses.

	Dependent variable: PDIRCOSTS			
	(1)	(2)	(3)	(4)
Intercept	0.0679***	0.0661***	0.0695***	0.0679***
	(0.0025)	(0.0024)	(0.0025)	(0.0025)
PROCEEDS	-0.0064***	-0.0067***	-0.0068***	-0.0073***
	(0.0004)	(0.0003)	(0.0004)	(0.0004)
RVOL	0.1552***	0.1595***	0.1712***	0.1747***
	(0.0280)	(0.0276)	(0.0239)	(0.0244)
SEQUENCE	-0.0010***	-0.0009***	-0.0010***	-0.0009***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
SHELF	-0.0092***	-0.0082***	-0.0145**	-0.0143***
	(0.0010)	(0.0009)	(0.0055)	(0.0053)
SHELF*PROCEEDS			0.0016*	0.0017*
	-	-	(0.0009)	(0.0008)
SHELF*RVOL			-0.0525	-0.0502
	-	-	(0.0641)	(0.0624)
SYNDICATE		0.0057***		0.0057***
	-	(0.0005)	-	(0.0006)
Adj R-Sq	0.4147	0.4461	0.4173	0.4492

*, **, *** indicate significantly different from zero at 10%, 5%, and 1% levels, respectively

Table 12
Stock returns and interest rates prior to universal equity and debt offers

This table provides statistics on stock returns and interest rate changes before universal equity and debt offers. Pre-offer runup (PREOFFER30 and PREOFFER60) is the 30- and 60-day buy-and-hold return ending two days prior to the offer date. Each of the offer runup variables is truncated at two days after the filing date to avoid contamination. The runup variables are net of the CRSP value-weighted market buy-and-hold return for the same period. LOGRATEDIFF is the natural logarithm of the ratio of one plus the interest rate on the offer date divided by one plus the interest rate on the filing date. Interest rates are Moody's long-term corporate bond rates. P-values for differences in means and medians are based on standard t-tests and Wilcoxon sign-rank tests, respectively.

	Universal equity offers		Universal debt offers			
	Mean	Median	Mean	Median	Mean p-value	Median p-value
PREOFFER30	0.0515***	0.0247***	0.0207***	0.0104***	0.0214	0.0906
PREOFFER60	0.1102***	0.0533***	0.0323***	0.0136***	0.0001	<.0001
LOGRATEDIFF	-0.0219***	-0.0101***	-0.0281***	-0.0228***	0.2209	0.0296
Number of observations	327	327	820	820		

*, **, *** indicate significantly different from zero at 10%, 5%, and 1% levels, respectively.

Figures 1-4: Market volatility and the number of shelf and non-shelf equity offers

Figure 1

This figure displays S&P 500 monthly levels (bar) and the number of shelf equity offers per year (dots).

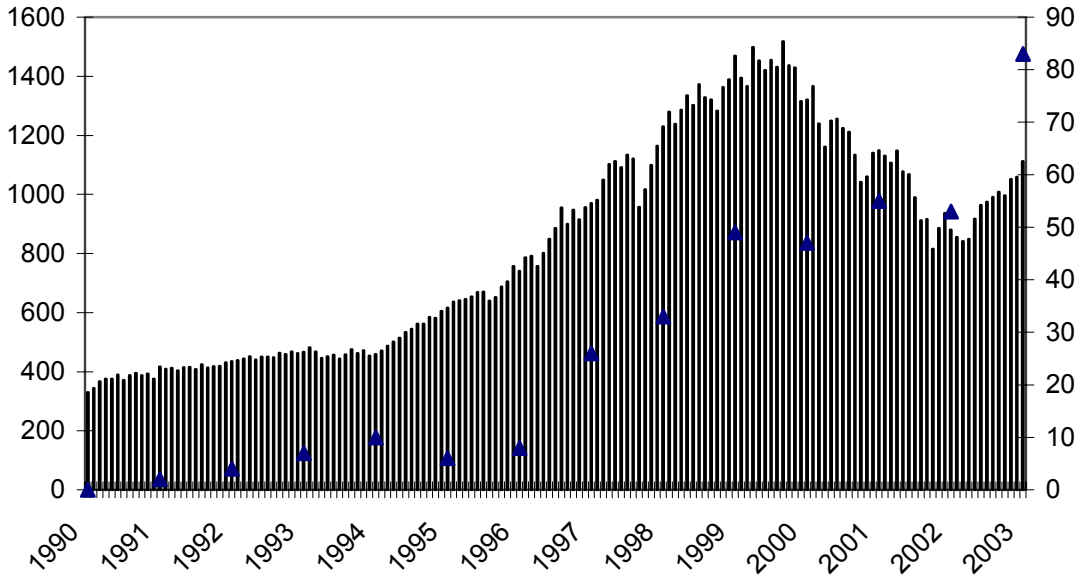

Figure 2

This figure displays the S&P 500 annual standard deviation calculated using daily S&P 500 returns (bar), and the number of shelf-registered equity offers (solid line) and non-shelf SEOs (dashed line) per year.

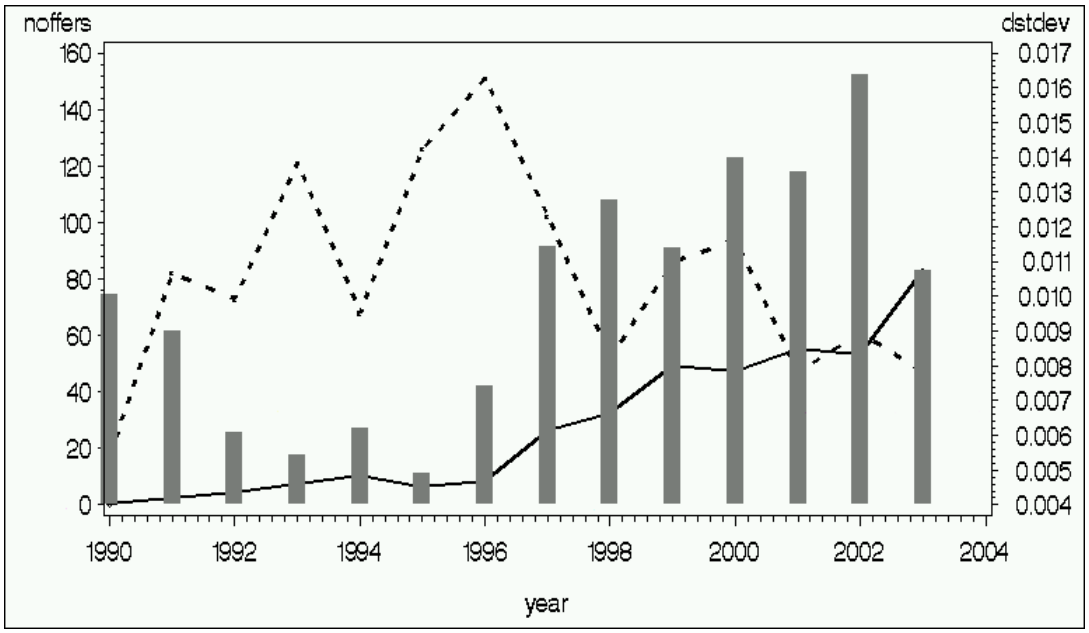

Figure 3

This figure displays the number of days per year that the S&P 500 return is greater than two percent (bar), and the number of shelf-registered equity offers (solid line) and non-shelf SEOs (dashed line) per year.

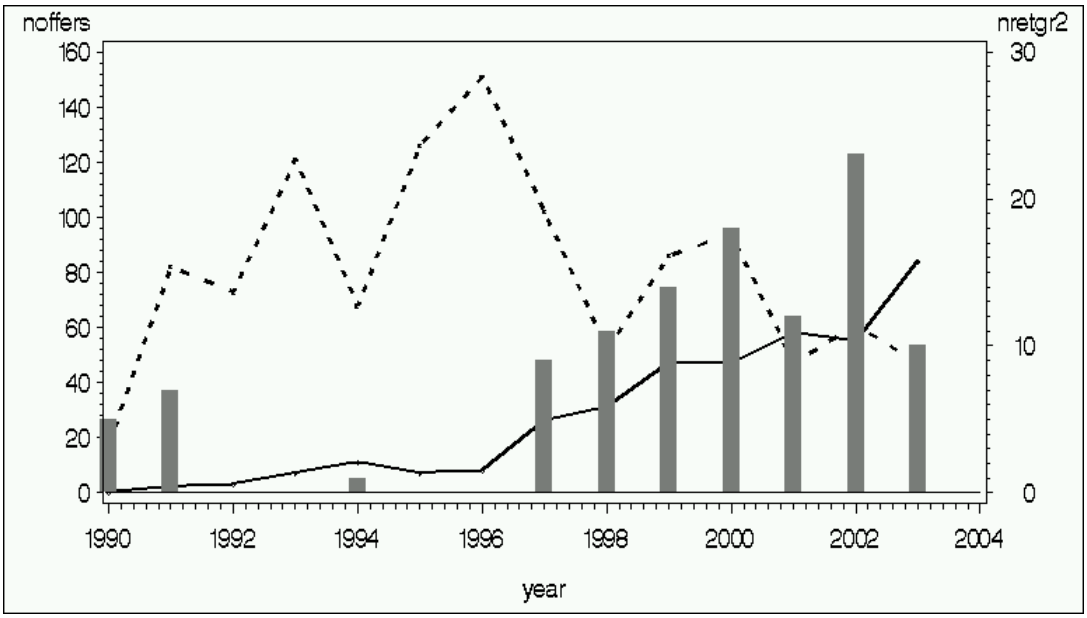

Figure 4

This figure displays implied daily volatility averaged annually (bar) and the total number of shelf filings per year (line). The implied volatility data is obtained from the Chicago Board Options Exchange (CBOE) Volatility Index (VIX), which measures the market's future expectations of volatility based on S&P 500 stock index option prices.

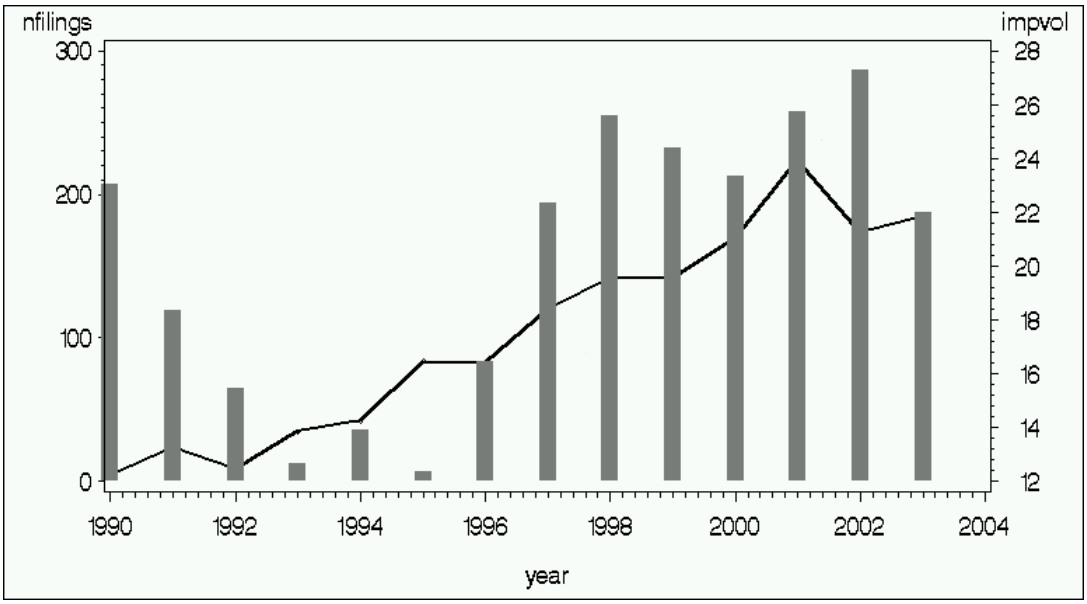

Figure 5: Cumulative density functions (CDF) of direct costs

Figure 5a: All observations

This figure displays the CDF of PDIRCOSTS for the full sample of 386 shelf equity offers (top line) and 1128 non-shelf SEOs (bottom line) during 1990-2003. PDIRCOSTS is the ratio of the direct costs to the total proceeds of the offer. Direct costs include the gross underwriter spread (management fee, underwriter fee, and selling concession) and expenses paid by the issuer (legal, miscellaneous, and printing fees).

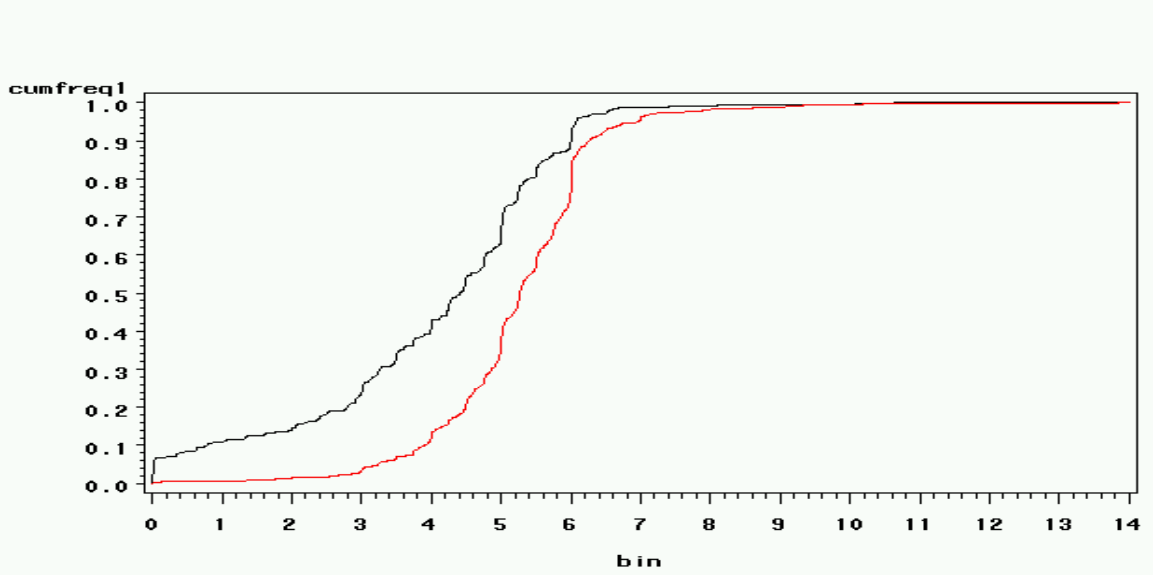

Figure 5b: Firms that use both procedures

This figure displays the CDF of PDIRCOSTS for 159 shelf equity offers (top line) and 156 non-shelf SEOs (bottom line) offered by firms that use both procedures during 1990-2003. PDIRCOSTS is the ratio of the direct costs to the total proceeds of the offer. Direct costs include the gross underwriter spread (management fee, underwriter fee, and selling concession) and expenses paid by the issuer (legal, miscellaneous, and printing fees).