Second Time Lucky? Underwriter Switching and the Performance of Withdrawn IPOs that Return to the Market

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Abstract

Our study presents a seminal investigation of firms withdrawn from the IPO market (after security regulation filings) that successfully return later. We make four contributions to the literature. First, we extend analysis of the determinants of offering withdrawal to over 6,800 IPO filings from 1985 to 2000. We find that 20% of the filings are withdrawn. The probability of a withdrawn IPO is positively related to both pre-filing revenues and a measure of shares retained by pre IPO insiders, and negatively related to investment bank reputation. Second, we identify 138 firms or 9% of the withdrawn sample that successfully return to the market. Probit analysis identifies venture capital backing and reputation of the lead underwriter as key factors in predicting successful return. Third, our sample provides a unique context in which to investigate underwriter switching after a withdrawal but *before* a successful IPO, complementing the existing literature on switching *after* a successful IPO but before a subsequent equity offering. Probit analysis indicates that firms attempting to raise more capital and those having venture capital backing are less likely to switch underwriters. We find limited support the hypothesis that firms switch to "graduate" to higher reputation investment banks. We find more support for the notion that poor underwriter performance in the original IPO process explains the issuer's decision to switch. Finally, we examine, through cross-sectional regressions, initial day and one-year performance of all IPOs in our sample. After controlling for issuer and market characteristics including whether returning firms switch underwriters, we find that non-switching returners earn significant initial day and one-year abnormal returns while switchers exhibit no abnormal performance.

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1. Introduction

Arguably the most significant event in the life of a corporation is its transition from a private company to a public company through the initial public offering (IPO) process. The IPO provides a major source of capital to the corporation and allows the existing owners to have a liquid market for their shares. Firms rely on the IPO for either their survival or their ability to take advantage of growth opportunities.

Yet not all firms are successful in making the transition from a private to public company. In fact, after an IPO process has been initiated with the support of an investment bank, a surprisingly large number of proposed IPOs are withdrawn from the market before being completed. An emerging literature examines the prevalence of proposed IPOs that are registered but withdrawn before issue. For example, Dunbar (1998) and Busaba, Benveniste and Guo (2001) show that between the mid-1980s and mid-1990s almost one in five IPOs was withdrawn. Evidence from more recent periods, as uncovered in this paper, suggests that this fraction has increased to over one in two in some years. Dunbar (1998) also finds that issuers withdrawing IPOs are unlikely to return for a successful public equity offering, suggesting that IPO withdrawal can significantly restrict a firm's access to the liquid and relatively inexpensive public capital markets.[1]

We add to this emerging literature in four ways. First we extend the analysis in Dunbar (1998) and Busaba, Benveniste and Guo (2001) on the determinants of offering withdrawal. Dunbar examines 3,540 withdrawn and successful IPOs from 1984 to 1993 and relates the choice of withdraw to a short list of four observable variables. Busaba, Benveniste and Guo (2001) consider a larger number of variables obtained directly from IPO prospectuses but only look at 536 IPO filings from 1990 to 1992. In our analysis, we examine over 7,400 IPO filings from 1985 to 2000. In the late 1990s we augment our more readily available data with prospectus level information obtained through the SEC's Edgar system. Thus

[1] Ritter (1987) and Cho (1992) also examine withdrawals within the context of best-efforts offering methods.

our analysis provides both significant time series (as in Dunbar, 1998) and cross-sectional (as in Busaba, Benveniste and Guo, 2001) variation. While many of the findings in the prior studies are confirmed in our analysis, a number of new findings emerge. For example, we find that firms with greater pre-filing revenues are more likely to withdraw an IPO. A measure of shares retained by pre IPO insiders is significantly positively related to the probability of withdrawal. Investment bank reputation, proxied by its IPO market share, is significantly negatively related to the probability of withdrawal. Finally, the volume of recent filings is not a significant determinant of withdrawal.

In the second part of our study, we examine a sample of withdrawn IPOs that return to the market for a successful IPO. Dunbar (1998) finds that fewer than 10% of withdrawn IPOs re-emerge. We similarly find a low incidence of returning IPOs over our longer sample period. Firms contemplating the withdrawal of an IPO should be concerned with their likelihood of successful return to the public markets. We attempt to identify the factors most significantly affecting the ex ante probability of successful return (at the time of the initial withdrawal). Our results indicate that venture capital backing and investment bank reputation are the most important factors affecting a successful return (both have a significantly positive impact).

In the third part of our analysis, we explore an interesting feature of the sample of returning IPOs. In approximately 75% of the cases, the investment bank leading the successful IPO is different than the bank used in the initial unsuccessful attempt. Withdrawn IPOs that subsequently return to the market, therefore, provides a unique setting to explore underwriter switching. James (1992) examines firms that switch underwriters subsequent to an IPO. Krigman, Shaw and Womack (2001) update James' analysis and consider a wider range of alternative explanations for underwriter switching including mispricing of the offering (leaving too much money on the table), poor share placement resulting in high flipping, limited market making activity, limited research coverage and graduation (simply moving to a bank with greater reputation). They find that graduation and limited research coverage are the most significant determinants of switching and conclude that "there is little evidence that firms switch due to dissatisfaction with underwriter performance at the time of the IPO" (p. 245).

We believe that an examination of switching decisions *after* an IPO provides a possibly biased view of the importance of different roles played by investment banks in the IPO process. Firms returning for follow-on equity offerings not only had a successful IPO but also generally experienced very positive stock market performance after the IPO (numerous studies show that stock prices significantly ramp up prior to a follow-on equity offering). It would be very surprising, in this setting, for a firm to express dissatisfaction with work done by its IPO underwriter. However, this does not diminish the importance of the investment bank's role in the successful pricing and placement or shares as part of the IPO process.

An examination of underwriter switching following a withdrawn IPO is a very different context and should provide complementary insights into the importance of various investment bank roles. In the context of a withdrawn IPO, the decision to subsequently switch investment bank *cannot* be explained by many of the alternatives proposed by Krigman Shaw and Womack (2001): leaving too much money on the table, dissatisfaction with retail/institutional investor mix, market making by the IPO underwriter or subsequent research coverage. All of these considerations require that the IPO be completed. However, firms may switch because of dissatisfaction with the investment bank's efforts in original failed IPO process or because they can now obtain the services of a more reputable underwriter. Conversely, firms may choose *not* to switch after an unsuccessful IPO if they have confidence in the underwriter and view the previous failed IPO as related to other external and uncontrollable factors such as an unfriendly market environment.

We find that issuers originally attempting to raise more capital are less likely to switch underwriters, consistent with Krigman Shaw and Womack's (2001) findings for switching for follow-on offerings. Firms having venture capital backing are also less likely to switch underwriters. We find only limited support for the graduation hypothesis. While firms appear to switch to banks having higher market share, we find no difference between the Carter-Manaster ranking of original banks and banks used on the follow on offering. We find more support for the notion that poor underwriter performance in the original IPO process explains the issuer's decision to switch banks. Switching firms attempted to raise fewer proceeds in the original attempt than non-switchers. The capital actually raised in the

completed offerings is virtually identical for these groups. Switchers are able to sell shares at lower book-to-market multiples than suggested by their initial attempt whereas non-switchers do not see a significant change in their valuation ratios between initial filing and successful offering. Our evidence suggests that switching firms believed (correctly, ex post) that they could have raised more money at more favourable terms and were disappointed with their original bank's efforts on their behalf. Non-switching firms do not see significant changes to their offering terms suggesting that they were satisfied with their original bank's efforts on their behalf but cancelled the original offering due to temporary adverse market conditions.

In the final part of our analysis, we examine the short-run (first day) and long-run (one year) performance of IPOs that are returning to the market after an unsuccessful first attempt. We find that first day returns for IPOs that were previously withdrawn and did not switch investment banks are abnormally positive. Long run abnormal returns are also significantly positive for these issuers. These results are consistent with either returners being very conservative in their pricing on the second attempt or that returners are viewed as more risky, given their failed first attempt. Firms that return to the market after a failed attempt using a different investment bank realize short and long-run performance that is not abnormal. These results suggest that part of the benefit of using a new bank is the certification that comes from retaining a new intermediary.

The remainder of the paper is organized as follows. In section 2 we describe the data used in our analysis. We develop hypotheses and present evidence on the factors affecting the choice to withdraw an IPO in section 3. Evidence on factors affecting the successful return to the IPO market after withdrawal is presented in section 4. We examine the underwriter switching choice for withdrawn IPOs that return to the market in section 5. The short-run (initial day) and long-run (one year) performance of returning IPOs is examined in section 6. Finally we present conclusions in section 7.

2. Data

Our study examines all U.S. firms that file documents to raise capital through an initial public offering of equity between 1985 and 2000. Our primary data source is Thomson Financial Securities Data's (TFSD) New Issues Database. We begin our analysis in 1985 as TFSD's coverage of withdrawn IPOs begins in 1984 but is complete only beginning in January 1985. We consider all IPOs filed over that period but, following the existing literature (e.g., Busaba, Benveniste and Guo, 2001), we screen offerings on a number of criteria. Specifically, we exclude unit offerings (combinations of equity and warrants), REITs, ADRs and closed-end mutual funds.[2] For each offering, we gather data from TFSD on firm characteristics (e.g., data from past financial statements) and offering characteristics including offering size, price, and investment bank reputation. Data on market returns around the proposed offerings are collected from the CRSP database. For many withdrawn offerings, TFSD data are incomplete. To increase our coverage of withdrawn offerings we obtain initial prospectuses from the SEC's Edgar system for all withdrawn IPOs staring in 1996 (electronic filing only began in the mid 1990s). Offering characteristics (proposed price and size) and past financial information are then obtained for these offerings.

TFSD data allow us to identify all successful IPOs as well as all withdrawn IPOs. It is somewhat more challenging to identify which successful IPOs were previously withdrawn and return to the market. We use a number of approaches to identify those returners. The first step in identifying matches is to examine unique company identifier numbers (CUSIPs) assigned to issuers by TFSD. CUSIPs from TFSD's withdrawn IPO dataset are matched to TFSD's database of successful IPOs. In many cases, CUSIPs assigned to companies are different on TFSD's databases.[3] We use a number of other

[2] Unlike Busaba, Benveniste and Guo (2001), we do not screen out firms in certain industries such as financials or service firms.

[3] As an example, Goldman Sachs is assigned a different CUSIP number in the withdrawn IPO file and the successful IPO file. This is likely due to the fact that the firm was structured as a limited partnership in its original filing and an incorporated business in its eventual successful offering.

approaches to identify returning IPOs. TFSD provide a contact name for each issuer in its database. We look for common names in the two databases. TFSD also provides information on business location, which we use as a check. In other cases we look for name matches (using parts of names). As a last step, where possible, we check our matches of withdrawn and successful offerings using actual filing documents from Edgar to ensure that the matches are correct. In spite of our best efforts, we recognize that it is likely that we have missed some returning issuers.

In Table 1 we report the number of observations in our initial database, broken down by filing year and ultimate outcome (completed or withdrawn offering and for withdrawn offerings we report the number of cases where the firm returns for a successful IPO). Overall we have 7,442 firms in our database, 1,473 of which were withdrawn (approximately 20%). Of those firms withdrawing an IPO only 138 (or a little over 9%) ever return for a successful offering. The number of filings varies considerably over time from a low of 154 in 1989 to a high of 824 in 1995. The percentage of withdrawn IPOs ranges from 8.88% in 1991 to a staggering 55.29% in 2000. The percentage of successful returns also varies considerably over time from 0.34% in 2000 to 17.31% in 1992. Ignoring the more recent two years (since many of those firms have not had time to return), the lowest rate of successful returns is 2.70% in 1985.[4]

3. Determinants of the Choice to Withdraw an IPO

In this section we examine factors affecting the choice to withdraw an IPO. Dunbar (1998) relies on three theories of the IPO market to make predictions regarding the determinants of IPO withdrawal. Benveniste and Spindt (1989) present a model where investment banks precommit to allocation and pricing schemes that induce investors to truthfully reveal information regarding the value of securities being issued prior to final pricing. When information revealed is sufficiently negative, offerings can be

[4] The correlation between annual number of filings and annual number of withdrawals is 0.50. The correlation between annual percentage of withdrawals and percentage of those withdrawals that return is –0.25 (although it is 0.37 if the last two years are excluded).

withdrawn. Benveniste and Spindt argue that negative information is more likely to arise in offerings by firms whose value, ex ante, is more uncertain. This suggests that offerings by firms with greater ex ante valuation uncertainty are more likely to be unsuccessful. Welch (1992) presents a model where investors have some ability to "eye" the demand of prior investors contacted to purchase shares. Offerings can be unsuccessful if early demand is weak. They are more likely to succeed if communication between investors is reduced, however. Welch argues that investment banks play an important role in reducing communication by offering shares diffusely (e.g., nationally or internationally). Offerings by banks that place shares widely are more likely to succeed. Finally, Booth and Chua (1996) present a model of the IPO market where information-gathering costs are reduced when offerings are clustered. This process results in a greater precision of IPO valuation by investment banks, increasing the probability of offering success (see Booth and Chua, pp. 298-299). Based on these theories, Dunbar (1998) relates withdrawal choice to proxies for issuer riskiness (filing size and price), Carter and Manaster's (1990) investment bank reputation (as a proxy for breadth of share placement) and number of contemporaneous filings.

Busaba, Benveniste and Guo (2001) argue that the choice of an issuer to withdraw an IPO should depend on the issuer's reservation value for the offering *relative* to possible investor valuations. Presumably, such a relative position is determined by factors affecting the issuer's reservation value as well as factors affecting investors' valuations of the issue. Factors affecting issuer's reservation value should include the potential effect of withdrawal on firm survival and the firm's access to alternative sources of capital. Factors affecting investor valuation include proxies for firm riskiness (issuers that are "tougher to value" should be discounted by investors), and issue certification (such as insider ownership retention, investment bank reputation and venture capital backing).[5]

[5] Potential investors in an initial public offering face an asymmetry of information commonly referred to as a lemons problem (Akerlof, 1970): since insiders have better information regarding the true value of their firm, they have an incentive to offer securities when they are overvalued by investors. Booth and Smith (1986) argue that this problem can be ameliorated if insiders credibly certify that they are not selling overpriced securities. One certification mechanism is to hire an investment bank to manage the offering. This mechanism is credible if banks lose expected economic rents from future issues by being associated with an overpriced offering. Other mechanisms, such as insider retention and venture capital backing, also provide credible certification that the offering is not overpriced allowing the issuer to sell shares at more favorable terms (see Grinblatt and Hwang, 1989, and Lerner, 1994).

We consider a number of empirical measures in our analysis of the IPO withdrawal choice based on this existing literature. First, we consider a number of measures of firm riskiness. *Average filing price* is defined as the average of the low and high price indicated in the initial prospectus. *Filing size* is the average filing price multiplied by the number of shares (in millions) to be offered as indicated in the initial prospectus. Firms with lower filing sizes and prices tend to be riskier (see Seguin and Smoller 1997). *Annual revenue pre filing* is the sales (in million dollars) by the firm over the most recent 12-month fiscal reporting period leading up to the IPO filing. *Total assets pre filing* is the book value of assets (in million dollars) reported at the end of the fiscal quarter prior to IPO filing. Firms with higher sales and assets are presumably less risky. Since riskier offering should be less likely to succeed we expect to observe a negative relationship between IPO withdrawal and all average filing price, filing size, annual revenue pre filing and total assets pre filing.

As a measure of the potential impact of an IPO withdrawal on firm survival, we use an industry dummy variable as in Busaba, Benveniste and Guo (2001). Specifically, *high-tech industry dummy* is set equal one when the issuer is from Fama and French (1997) industries 34 (business services) and 36 (chips). Withdrawal can cause bad publicity, negatively affecting the relationship between the firm and various stakeholders including suppliers and customers. This problem is likely to be most acute for high-tech firms where since information asymmetries are likely to be most significant. Employees and suppliers are also likely to have job-specific skills making withdrawal very costly (see Titman and Wessels, 1988). Thus, we would expect the likelihood of withdrawal to be negatively related to our high-tech industry dummy.

As a measure of the intensity of the IPO market, we include the number of IPO filings over the 30 days prior to an IPOs filing date (*number of filings prior 30 days*) in our analysis following Dunbar (1998) and Busaba, Benveniste and Guo (2001). Based on previous research, we would expect to observe a positive relationship between the likelihood of withdrawal and the number of filings prior 30 days.

Following Busaba, Benveniste and Guo (2001) we also consider a number of proxies for a firms access to capital including the level of debt in millions of dollars as reported at the end of the fiscal

quarter prior to IPO filing (*total debt pre filing*) and a dummy variable taking the value 1 if the issuing firm has venture capital backing prior to the filing date (*Venture Capital backing dummy*). To account for differences in scale across firms we also include the total debt pre filing divided by the total assets pre filing (*Debt to assets ratio*) as a variable in our analysis. A final measure of access to capital is a dummy variable taking the value 1 if the primary use of proceeds in the IPO is to retire debt (*Use of proceeds dummy*). Firm with greater debt, those planning to retire debt and those with venture capital backing presumably have greater access to capital and, therefore, would be less dependent on an IPO. This would suggest that the likelihood of withdrawal should be positively related to the debt to assets ratio, use of proceeds dummy and the venture capital dummy.[6]

We consider four measures of certification for the IPO filing. Our first two measures attempt to capture the certification due to the reputation of the lead underwriter. *Carter-Manaster Rank* is obtained from Carter and Manaster (1990) as updated by Carter, Dark and Singh (1998) and more recently by Loughran and Ritter (2002b). These rankings are on a 0 to 9 scale, with 9 being the most reputable underwriter. Second, *Investment bank market share* is measured for the bank taking the firm public (see Dunbar, 2000). For each IPO we examine all IPOs in the year leading up to the offer (including the IPO). We compute the sum of gross proceeds (on global shares excluding over allotments) for which the underwriter was also the book manager. To account for mergers in the investment banking industry, we gather data from TFSD on all combinations during the period. If the book manager recently merged, the gross proceeds of all offering by any precedent bank are added together.[7] In cases with multiple book managers, equal credit is given to each bank. Market Share is then defined as the sum of gross proceeds for the bank, divided by the sum of gross proceeds for all IPOs over the sample period. Our third measure

[6] Note that revenue prior to the filing could be viewed as a variable that proxies for a firm's access to capital. Firms with greater revenues presumably have a built-in alternative to raising capital through an IPO: internally generated cash. If revenue proxies for access to capital we would expect to observe a positive relationship between revenues and the likelihood of withdrawal, in contrast to what is predicted based on the view that revenues proxy for issuer riskiness.

[7] For example offerings by Salomon Smith Barney, all IPOs by Salomon Bros. and Smith Barney in the prior year are included in the calculation of Salomon Smith Barney's market share.

of certification is the *Venture Capital backing dummy*, as defined above.

Our final certification proxy is *overhang based on the offering terms*, defined as the number of shares outstanding after the IPO net of the number of shares offered in the IPO all divided by the number of shares offered in the IPO. Overhang attempts to reflect the fraction of shares that cannot freely trade immediately after the IPO. It also captures the relative size of the firm sold to new investors in the IPO. Issuers with greater overhang are retaining a greater fraction of the firm for original shareholders. As noted by Leland and Pyle (1977), this greater retention provides greater certification for the offering (see Bradley and Jordan, 2002).

Offerings brought forward by banks with higher Carter-Manaster ranks and market shares and offerings having venture capital backing and higher overhang have greater certification. We would, therefore, expect that the likelihood of withdrawal is lower for those issuers. Note that certification and access to capital stories make different predictions regarding the effect of venture capital backing on the probability of withdrawal. We leave it to the data to decide which story dominates.

As a preliminary univariate investigation, in Table 2 we report descriptive statistics for the data items, broken down by ultimate success of the offering. Note that sample sizes change depending on the variable examined. This reflects the fact that TFSD coverage of data items is extremely limited in some cases (especially for withdrawn issues).

Withdrawn offerings have significantly lower average initial filing sizes ($52.91 million) compared to completed offerings ($61.87 million). Withdrawn offerings also have significantly lower average pre-filing revenues than completed offerings ($128.08 million vs. $274.99 million). These differences are consistent with the conjecture that more speculative offerings are less likely to succeed. A greater percentage of high-tech firms are successful than withdrawn (27% of completed offering are high tech whereas 24% of withdrawn offerings are high-tech), consistent with the notion that withdrawals are more costly for high-tech firms. Withdrawn IPOs are filed after periods with a greater average number of filings over the prior 30 days than completed offers (51.1 vs. 49.1), consistent with prior research. While withdrawn IPOs have less average debt than completed offerings ($39.4 million vs. $95.8 million), they

have higher debt to asset ratios (44% vs. 31%). These results are consistent with the notion that firms with less financial opportunities (i.e., those with less access to the debt market as proxied by current relative debt levels) being more likely to withdraw. Consistent with the access to capital argument, withdrawn firms are more likely to indicate intent to use IPO proceeds to retire debt. Firms with venture capital backing a more likely to succeed (39% of completed IPOs have venture capital backing compared to 16% of withdrawn IPOs). This is not consistent with venture capital backing proxying for capital constraints (those with venture capital backing presumably have greater access to alternative sources of capital and, therefore, would be more likely to withdraw). It is consistent, however, with venture capital backing acting as certification for the offering.[8] Also consistent with certification, we find that firms retaining banks with higher Carter-Manaster ranks and higher market shares are significantly more likely to succeed (average Carter-Manaster ranks for banks in completed and withdrawn IPOs are 7.1 and 6.6, respectively, and average market shares for banks in completed and withdrawn IPOs are 4.3% and 1.9%, respectively. Our measure of insider share retention (overhang), however, is not significantly different for completed and withdrawn IPOs.

We formalize our univariate analysis of the determinants of IPO withdrawal in Table 3 using a multivariate probit analysis. The dependent variable in the analysis takes the value 1 if the IPO filing is withdrawn and 0 otherwise. We consider as independent variables all of the measures noted previously in this section. Table 3 reports our probit model coefficient estimates and associated t-statistics. We also report the marginal effect for each variable. Unlike ordinary least squares regressions, marginal effects, defined as the change in probability of withdrawal given a one unit change in the independent variable, cannot be interpreted through examination of the coefficient estimates. In a probit model, the marginal effect is defined as $\phi(\beta x)*\beta$ where $\phi()$ is the standard normal probability density function, β is the coefficient estimate and x is the mean of the independent variable for the sample. To provide greater insight into the economic impact of each variable we multiply this expression by σ_x, defined as one

[8] Also, Gompers (1996) notes that venture capitalists have an incentive to bring firms early to the IPO market to capitalize their claims. This argument would suggest that venture capitalists would lobby hard for IPO completion.

standard deviation for the independent variable (σ_x is set to 1 for dummy variables). Our measure of marginal effect, therefore, captures the change in the probability of withdrawal given a one standard deviation change in the independent variable.

Our first probit model includes the natural logarithm of the average filing price (*log of average filing price*), the natural logarithm of the filing size (*log of filing size*), a dummy variable equal to 1 if the firm is in the business services or chips industry (*high-tech industry dummy*), the *Carter-Manaster rank* and the *investment bank market share* for the lead underwriter, the number of filings over the 30 days prior to filing (*number of filings prior 30 days*) and two time period dummy variables. One of the time period dummies equals 1 if the filing takes place in the 1980s (*1980s dummy*) and one takes the value 1 if the filing takes place after 1996 (*late 1990s dummy*). The 1980s dummy is included to see whether withdrawal rates are different around the period of the 1987 market crash. The late 1990s dummy is included to see whether the rate of withdrawals is higher during the booming tech-markets. We use a logarithmic transformation for filing price and size in keeping with the existing literature (see Busaba, Benveniste and Guo, 2001). In unreported analyses, we replicate our findings using untransformed variables and find qualitatively similar results.

Our analysis indicates that filing price, high-tech industry status and investment bank market share all have a significantly negative effect on the likelihood of IPO withdrawal. Filing size, prior filing activity and the time period dummies have a significantly positive effect on the likelihood of withdrawal. Ignoring dummy variables, filing size and price have the most significant effect on the probability of withdrawal (as measured by the magnitude of the marginal effect). A one standard deviation increase in the log of average filing price results in an approximately 10 percent decrease in the probability of withdrawal. A one standard deviation increase in the log of filing size results in an approximately 7 percent increase in the probability of withdrawal. The signs on all variables are consistent with predictions made previously except for filing size. Filing size does not, therefore, appear to proxy for offering risk. Our finding is consistent with the notion that firms attempting to raise too much capital are more likely to be rejected by the market.

The second probit model incorporates many of the remaining variables noted previously. We add these variables incrementally due to data limitations. As seen in Table 3, the sample size for this model is less than half that for the first model. Of the variables consider in the original model, only investment bank market share and the late 1990s dummy remain significant. All new variables have a significant effect on the choice to withdraw an IPO. The logarithm of annual revenue pre filing[9], overhang based on filing terms, the use of proceeds dummy and the debt to assets ratio have a significantly positive effect on the probability of withdrawal and the venture capital backing dummy variable has a negative effect on the probability of withdrawal. The most significant variables (excluding time period dummy variables) in this specification (as measured by the magnitude of the marginal effect) are venture capital backing, use of proceeds, and debt to assets ratio. Firms with venture capital backing are 31% less likely to withdraw and IPO and firms that are attempting to refinance debt are 11% more likely withdraw. A one-standard deviation increase in the debt-to-assets ratio increases the probability of withdrawal by 28%. The positive sign on the coefficient for revenues suggest that revenues proxies for access to capital rather than firm risk. Also, the negative coefficient on venture capital backing suggests that this variable proxies for offering certification and not access to capital. The signs on the coefficients on other additional variables are as predicted except for overhang. The positive coefficient on overhang suggests that insider retention increases the likelihood of withdrawal, inconsistent with certification. One possible interpretation of this result is that overhang proxies for issue risk in this context (riskier issuers are more likely to issue fewer shares relative to what is already outstanding).

4. Withdrawn IPOs that Return to the Market

In this section we solely examine the sample of 1,485 withdrawn IPOs from 1985 to 2000. As noted previously 138 of these firm (or approximately 9%) return to the market for a successful IPO. We

[9] Formally defined as Log(revenue + 0.01) where revenue is the annual revenue prior to filing in million dollars (we add 0.01 to account for the numerous observations with no sales).

first examine the average time difference between the unsuccessful issue date and the successful issue date. Results are presented in Table 4. From panel A, the median (mean) time is 817 (658) days or 2.24 (1.80) years. The minimum is 125 days or 0.34 years, while the maximum 5,045 days or 13.82 years. We also examine the probability of a successful re-issue based solely on the elapsed time since the withdrawn issue date in panel B of Table 4. There is a 70 percent chance that a firm might still have a successful issue about one year after a withdrawn issue, but only approximately a 25 percent chance after about three years. If "market conditions," often a stated reason for the postponement of new issues, are a primary cause of the initial withdrawal, conditions should have improved within a few years at the latest. However, it may well be that some firms cannot survive while waiting for market conditions to improve.

We next examine which factors, known at the time of the initial (unsuccessful) filing, most affect the probability of successful return. In Table 5 we present univariate evidence on the variables defined in the previous section for two samples of withdrawn IPOs: one sample that returns and another sample that never returns. Since withdrawal can cause a "lemons problem" for the issuing firm (Akerlof, 1970), riskier firms, high-tech firms and firms filing in more intense markets should be less likely to return. Thus, we would expect to observe a positive relation between the likelihood of returning and average filing price, filing size, annual revenue pre filing and total assets pre filing. The likelihood of returning should be negatively related to our high-tech industry dummy variable and the number of filings prior 30 days. Firms with greater certification and greater access to capital should be more likely to return. Thus, the likelihood of return should be positively related to the debt to assets ratio, use of proceeds dummy, the venture capital dummy, Carter-Manaster rank, investment bank market share and share overhang.

Few of the variables examined in Table 5 are significantly different for the sample of successful returners and the sample of non-returners. The Carter-Manaster ranking is significantly higher for filings that return for a successful offerings (7.48) than filings that never return (6.51). Returners are more likely to have venture capital backing (34.4% have backing) than non-returners (11.6%). These findings suggest that external certification is crucial if an issuer hopes to successfully return for an IPO. Finally, returners have significantly lower debt and asset levels ($7.6 million and $29.4 million, respectively) than

non-returners ($41.2 million and $172.3 million, respectively), however the debt-to-assets ratio for these two groups are no different. This finding could be consistent with high quality firms simply attempting to go public too soon (when they are relatively small) and benefiting from additional "seasoning" as a private firm before returning.[10]

We formalize our analysis of the determinants of IPO return for withdrawn IPOs in Table 6 using a multivariate probit analysis. The dependent variable in the analysis takes the value 1 if the withdrawn IPO filing eventually returns for a successful offering and 0 otherwise. We report our probit model coefficient estimates, marginal effects and associated t-statistics. We consider as independent variables all of the measures noted previously in this section. We first report our most parsimonious model, which has a largest number of observations. The only significant variables in our probit analysis are the high-tech industry dummy, the late 1990s dummy and the Carter-Manaster rank. The late 1990s dummy is significantly negative suggesting that many of the firms attempting but failing in the booming market of that period are less likely to get a second chance. Of course, many may still come public so our results may be biased (however as noted in Table 4, the likelihood of successful return at this point for most of these firms is quite low). The high-tech dummy variable is significantly positive (at the 10% level). The estimate indicates that high-tech firms that withdraw are 9% more likely to return than other firms. This is consistent with the notion that withdrawals are potentially more costly for high tech firms. These firms only consider withdrawing an IPO if they believe their chances of return are good. The coefficient on the Carter-Manaster rank is significantly positive. A one standard deviation increase in bank reputation, as measured by the Carter-Manaster rank, results in a 9% increase in the likelihood that the issuer will return, consistent with more certified offering having a better chance of returning.

In the second probit model of Table 6, we include a dummy variable taking the value 1 if the IPO is venture capital backed. Given the drop in sample size, we only include variables that are significant in the first regression or are significant in the smaller sample. For example, the number of filings in the

[10] As will be seen later in Table 10, returning firms have similar debt and assets levels to other IPOs when they successfully return, consistent with this interpretation.

prior 30 days is significantly negative suggesting that issuers are less likely to return if they initially filed in a hot market (creating greater lemon's problems). The venture capital backing dummy is significantly positively related to the likelihood of successful return and indicate that firms with backing are 35% more likely to return.

When we add additional variables, our sample size drops dramatically. While the significant variables in the parsimonious model are unaffected, new variables added are always insignificant (including debt, which is significantly different for returners and non-returners in the univariate analysis).

5. Investment Bank Switching for Successfully Returning Issuers

An interesting feature of the sample of successful reissuers is that in many (but not all) cases, the issuing firm switches investment banks from the initial attempt to the final success. Two notable studies examine the choice of a firm to switch investment banks from its IPO to a seasoned equity offering. James (1992) examines the underwriter switching decision in the context of relationship-specific assets. He argues that given high set-up costs (learning), firms would tend not to switch banks (so they can amortize those costs over multiple offerings) unless performance by the bank on the IPO was poor.[11] Consistent with this, James finds that pricing errors at the time of the IPO are significantly associated with bank switches. Krigman, Shaw and Womack (2001) also examine the choice to switch underwriters. In addition to the possibility that firms switch due to IPO mispricing, Krigman Shaw and Womack consider a number of other explanations including poor share placement (resulting in high flipping), limited market making activity, limited research coverage and graduation (simply moving to a bank with

[11] Recently Loughran and Ritter (2002a) present a prospect theory model to explain why issuers who see the overall value of their wealth increase at the time of an IPO may not be upset by underpricing. In his discussion of the paper, Daniel (2002) highlights the case of the Microsoft IPO whereby Bill Gates was concerned that a deliberate underpricing would simply benefit the lead underwriter's favorite clients. While the Microsoft IPO was not withdrawn, one could speculate that a perception of deliberate underpricing could be an alternative explanation of why a firm might withdraw from the IPO and later return successfully with a different underwriter and with less underpricing.

greater reputation). They find evidence most consistent with the limited research coverage and graduation explanations.

In the context of a previously withdrawn IPO, many of the explanations proposed by Krigman Shaw and Womack (2001) simply cannot apply, including IPO mispricing, poor share placement, limited market making and limited research coverage. All of those explanations require that the firm become public. We consider the two remaining possibilities in our analysis. First, firms may switch investment banks because a bank with a greater reputation is willing to underwrite the offering (the graduation hypothesis). Second, firms may switch underwriters due to concerns with the initial investment bank's performance in the IPO process (the IPO performance hypothesis).

As a first test of the relative importance of these explanations for bank switching, we carry out probit regressions on the sample of returning issuers where the dependent variable equals 1 if the issuer switches banks from the initial filing to the eventual successful offering. Of the variables previously identified, we include three to test the IPO performance hypothesis. First, we include the logarithm of filing size. Issuers attempting to raise smaller amounts of capital yet still failing in their attempt should be less pleased with their bank's performance. We would, therefore, expect to observe a negative relationship between filing size and the likelihood of switching. Second, issuers may be more upset with their bankers if they attempted to first go public in a high volume market given the greater chance of failure. We would, therefore, expect to observe a negative relationship between market intensity (proxied by number of filings prior 30 days) and the likelihood of withdrawal. Finally we include the two time period dummy variables for the late 1980s and late 1990s. Since withdrawals were more prevalent during these markets, issuer may hold their bank more accountable for a failed attempt. We would therefore expect a positive relationship between these dummy variables and the likelihood of bank switching.

We also include two variables to test the graduation hypothesis: the Carter-Manaster rank and investment bank market share for the lead underwriter. Issuers using banks with either low Carter-Manaster ranks or low market share should be more likely to switch in order to obtain more reputable banking services. We would, therefore, expect to a negative relationship between underwriter switching

and these two variables.

Our probit regression results are presented in Table 7. We report probit model coefficient estimates, marginal effects and associated t-statistics. The first model contains all the variables noted above. None of the variables are significant at conventional levels. Because the independent variables are highly correlated, we only include the logarithm of filing size and the number of filings prior 30 days in the second model. The coefficient on the logarithm of filing size is significantly negative and the coefficient on the number of filings prior 30 days is significantly positive (at the 10% level), consistent with the IPO performance hypothesis. In the third model, we only include the Carter-Manaster Ranking and the number of filings prior 30 days. The coefficient on Carter-Manaster Ranking is significantly negative, consistent with the graduation hypothesis.

In unreported probit regressions, we include other variables considered previously as independent variables. In no cases are these variables significant. Overall, the evidence in Table 7 provides some weak support for both the IPO performance and graduation hypotheses. While the probit analysis provides some information, additional insights can be gleaned by examining incremental changes in the reputation variables. To test this possibility we look at the sub sample of switching banks in Table 8. For each firm that switches we measure the reputation at the time of the successful offering for the bank used on the initial attempt and the bank switched to. In addition to the Carter-Manaster rank and market share for each bank, we also measure the industry market share for each bank (measured as noted previously for the market share variable where we only consider IPOs in the same Fama-French, 1997, 48 industry group as the issuer). More reputable banks should have higher Carter-Manaster ranks, higher market shares and higher industry market shares (see Bates and Dunbar, 2002, for an analysis of industry market share).

At the time of the successful offering, the original bank has an average Carter-Manaster rank of 7.3 whereas the bank switched to has an average Carter-Manaster of 7.5. The difference between these two means is not significant. While this is not consistent with graduation, the market share evidence is more supportive. At the time of the successful offering the original bank has an average market share of

3.4% whereas the bank switched to has a market share of 4.8%. The difference is significant at the 5% level. Also, at the time of the successful offering, the original bank had an average industry market share of 2.4% whereas the bank switched to by the issuer had an industry market share of 9.9%. The difference is significant at the 1% level. Overall, this evidence is consistent with switchers "graduating" to banks with greater IPO market presence.

In Table 9, we perform a similar analysis to give greater insight into the importance of IPO performance on underwriter switching. In the first three rows, we examine how offering sizes change from the initial unsuccessful filing to the final successful offering, broken down by whether the investment bank is switched. The mean filing size for returners with a change in banks is $49.2 million compared to $75.8 million for returners having no change in banks, although the difference is not significant. Upon successful reissue, the mean offering sizes for the two groups are almost identical. Returners with a change in bank raise $71.2 million and returners with no change in bank raise $74.8 million. Returners with a change in bank experience a significant (at the 5% level) increase in proceeds of $22.1 million whereas returners with not change in bank do not change the proceeds to be raised from initial filing to completed offering.

We interpret this evidence as being consistent with the IPO performance hypothesis. We conjecture that banks switched away from attempted to raise much less money on the failed attempt. The issuer recognized this as poor performance and decided to switch to a bank that was able to raise much more money for the firm. Non-switchers initially attempted to raise an appropriate amount of money and on return they were successful at that level. The issuer undoubtedly interpreted the first failure as the result of factors beyond the bank's control, like poor market conditions.

To give further insight into the IPO performance hypothesis, we examine changes to valuation ratios from initial filing to ultimate offer success. Specifically we examine the book-to-market ratio, defined as the book value of equity (from the last quarter's balance sheet prior to filing) divided by the market value of equity. For the initial filing, the market value of equity is defined as the average filing price multiplied by the shares to be outstanding after the offering. For the ultimately successful offering,

the market value of equity is defined as the offering price multiplied by the number of shares to be outstanding after the offering. All else equal, firms should prefer to be priced at a lower book-to-market multiple. The fourth to sixth row of Table 9 provide evidence on changes to book-to-market ratios from initial filing to the successful offering broken down by whether the underwriter is switched. It should be noted that sample sizes decrease dramatically as much of this data is obtained solely from Edgar filings.

At the time of the initial filing, the book-to-market ratio implied by filing terms is higher for firms with underwriter switching (0.33) than those not switching (0.28), although the difference is not significant. Upon successful return, the book-to-market ratio becomes lower for switching firms (0.24) than non-switchers (0.25). The change in book-to-market ratio is significantly negative for switching firms (-0.09) but insignificantly negative for non-switching firms (-0.03). We again interpret this evidence as strongly supportive of the IPO performance hypothesis. Banks switched away from attempted to raise capital at relatively low valuation ratios but failed. The issuer recognized this poor performance and decided to switch to a bank that is able to raise money at a more favorable valuation ratio for the firm. Non-switchers initially attempted to raise money at an appropriate valuation ratio and on return they were successful at that level. The issuer undoubtedly interpreted the first failure as the result of factors beyond the bank's control, like poor market conditions, and did not switch banks.

In the final rows of Table 9 we report the mean industry return for switching firms and non-switching firms. It is possible that the evidence on offering size and book-to-market ratios is driven by different market conditions faced by the different groups of firms. For example, post-filing returns could be very positive for firms in the switcher's industry and flat or negative for firms in the non-switcher's industry. In this case we would expect switching firms to raise more money at more favorable terms on return than non-switchers. The evidence in Table 9, however, suggests that industry returns following the initial filing for the two groups are virtually identical. The changes in offering terms reported previously, therefore, are not likely to be due to differing market conditions.

Overall, the evidence in this section provides some support for both the IPO performance and graduation hypotheses. The evidence in support of IPO performance is consistently strong, suggesting

that IPO performance during the IPO process is a crucial part of an investment banks IPO duties, inconsistent with the Krigman, Shaw and Womack's (2001) evidence from a sample of firms switching banks after a successful IPO. We believe our findings complement Krigman, Shaw and Womack's to give a broader impression of the importance of different roles played by investment banks in the IPO process.

6. Performance of Withdrawn IPOs that Return to the Market

In this section we examine the pricing and performance of withdrawn IPOs that return to the market. We examine four aspects of IPO pricing and performance: price adjustments made during the pricing process (i.e. the change, if any, from initial filing price to final offering price), the first day return on the IPO, the long-run (one-year) stock performance for the IPO firm and the spread charged by the investment bank on the offering.

Hanley (1993) presented the first analysis of price adjustments made between the initial filing of regulatory documents with the SEC and the approval of the offering when the bank sets a final price. She finds a strong positive relation between price adjustments and initial returns[12] and argues that this is consistent with Benveniste and Spindt's (1989) partial adjustment theory. In their formal model, investment banks attempt to obtain private information from regular "informed" investors about the value of the securities in an IPO prior to setting the final offering terms (during the "bookbuilding" process). To induce truthful revelation, the bank precommits to allocate shares at a value below that revealed to those indicating positive information. This allocation scheme results in initial returns being most positive when positive information is revealed. Hanley's evidence is consistent with this theory if price adjustments are positively correlated with valuation information acquired during bookbuilding. Many recent papers also make this link between information acquisition and price adjustments (see, for

[12] IPOs priced below the low end of the filing range have a mean first day return of approximately 0% and IPOs priced above the high end of the filing range have an average first day return of approximately 25%.

example, Lowry and Schwert, 2002, Bradley and Jordan, 2002, Ljungqvist and Wilhelm, 2002a and Ljungqvist and Wilhelm, 2002b).

In the context of a previously withdrawn IPO, we might expect price adjustment behavior to be different than that observed for "first time" issuers. Specifically, we would expect price adjustments to be less positive for two reasons. First, issuers would be more averse to failure and, therefore, would be willing to leave more "money on the table" to ensure success. In the face of positive valuation information revealed in the premarket, issuers might not respond by adjusting price as significantly as first-time issuers. Second, return issuers may be perceived as more risky by investors (given the "lemons" problem referred to previously). Benveniste and Spindt (1989) argue that price adjustments should be lower (and first day returns higher) for speculative offers since information is more costly to acquire (and more valuable) so investors need greater returns to induce truth telling.

Based on this discussion, we would also expect first day returns to be more positive for return issuers. If partial adjustments are less positive, first day returns are necessarily more positive. Other theories of IPO initial returns also predict that more speculative offerings should have higher first day returns to induce investment (e.g. Rock, 1986, Baron, 1982).

As an alternative hypothesis, a recent paper by Lowry and Shu (2002) presents evidence related to litigation risk. They conjecture and find evidence to support the notion that both firms and underwriters intentionally underprice their IPOs to insure against the possibility of investors suing if the price declines substantially. Given the withdrawal history of the firms in our sample, we conjecturer that returns are viewed as having more litigation risk and hence we would expect to see more underpricing (i.e., higher initial-day returns).

Recent evidence of long-run abnormal returns for IPOs (Ritter, 1991; Loughran and Ritter, 1995) suggests that the first-day return may not be a complete measure of mispricing. Long-run returns following IPOs tend to be abnormally negative. Krigman Shaw and Womack (1999) show a positive relationship between first day returns and one-year abnormal returns. Based on this and our prior prediction about first day returns, we would expect to observe positive long-run returns for returning

issuers.[13]

Finally, we examine the IPO spread charged by investment banks for returners and first-time issuers. Since returning issuers are viewed by the market as more speculative, fees charged by banks could be higher (numerous papers including James, 1992, and Dunbar, 1998, find that the IPO spread is positively related to issuer riskiness). While the issuer is likely to be viewed as riskier from the perspective of investors, banks may actually perceive returning issuers as *less* risky. We find very few cases where issuers withdraw an IPO on their second attempt. Dunbar (1998) finds that the spread in an IPO is positively related to the probability of withdrawal. Since returners are less likely to fail, spreads could be lower for these firms than for first-time issuers.

As a first step in our analysis we report descriptive statistics on first time issuers and returners in Table 10. Panel A of table 10 reports means for firm and market condition variables considered previously in this paper. It is interesting to compare these statistics with those reported in table 2 for successful and withdrawn IPOs. A number of relationships from table 2 reverse themselves here. For example, while withdrawn IPOs had smaller filing sizes, those that return have higher filing sizes ($89.2 million) than first time issuers ($61.2 million). Similar changes are observed for Carter-Manaster rank (returners have mean rank of 7.7, first time issuers have mean rank of 7.1), investment bank market share (returners have mean market share of 5.4%, first time issuers have mean market share of 4.3%), annual revenue pre-filing (returners have mean revenue of $542.7 million, first time issuers have mean revenue of $268.6 million), and venture capital backing (55% of returners have venture capital backing compared to 38% for first time issuers). Compared to first time issuers, returning issuers have significantly higher mean filing price ($13.53 vs. 11.73) and significantly lower mean assets ($178 million vs. $285 million). These differences suggest that it will be important to control for firm and market conditions in our analysis.

[13] This would also be consistent with issuers of previously withdrawn IPOs purposely pricing below intrinsic value to ensure success and investors being sceptical about the firm's prospects given their previous failure in the IPO market.

In panel B we report mean values for IPO pricing and performance variables of interest. For those firms with CRSP data, the IPO initial return is defined as: $100*(P_{1st\ day\ close} - P_{offer})/P_{offer}$, where $P_{1st\ day\ close}$ is the closing price at the end of the first-day of trading and P_{offer} is the offering price from TFSD. Following Dunbar (2000), our measure of the underwriting spread is defined as $100*(SP/P_{offer})$, where SP is the gross spread per share in the offering and P_{offer} is the offering price. Price Adjustment for each IPO is defined as the final offering price minus the average of the high and low initial filing prices all divided by the average of the high and low initial filing prices.

One-year buy-and-hold returns are measured for each issuer on CRSP from the end of the first month of trading through the following twelve months. In order to measure abnormal returns each IPO is matched with a portfolio of public firms based on the issuer's market capitalization and book-to-market ratio. Market capitalization is computed as the IPO price multiplied by the number of shares outstanding after the IPO. The number of shares outstanding after the IPO is primarily obtained from CRSP. In cases where TFSD notes that the IPO shares are dual class, the shares outstanding are obtained from TFSD or the SEC's Edgar database.[14] Book-to-market is computed as the book value of equity per share prior to the IPO plus the value of primary shares in the offering divided by the firm's market capitalization. At the end of the first month of trading, the IPO firm is matched to a size and book-to-market portfolio.[15] The abnormal return for the IPO is computed as the buy-and-hold return on the issuer for the following twelve months net of the buy-and-hold return on the size and book-to-market portfolio.[16]

We find that mean spreads for returning IPOs are lower than those for first time issuers (6.88% vs. 7.31%), suggesting banks consider returning issuers less risky. Price adjustments are also lower for returners than first time issuers (0.15% vs. 0.90%). IPO initial returns are more positive for returners than first time issuers (26.4% vs. 20.1%). Finally, raw and abnormal returns are more positive for returners

[14] Loughran and Ritter (2002b) find the CRSP misstates number of shares outstanding when the firm has more than one class of shareholders.

[15] We use Fama-French 100 portfolio cutoffs (10 market capitalization by 10 book-to-market). See http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html for details.

[16] If the issuer delists prior to 12 months, the abnormal return calculation ends at the month of delisting. We also considered other long-run return windows (up to 3- years) and found similar results to those presented here.

than first time issuers (raw returns of 15.2% vs. –1.6% and abnormal returns of 4.7% vs. –0.7%). While consistent with our predictions, none of these differences are statistically significant with the exception of one-year raw returns.

As noted previously, firm and market conditions are different for returning and first time issuers. We, therefore, examine whether there are differences in spreads, price adjustments, first day returns and long-run returns controlling for these differences.

In Table 11, we report regression of first day and one-year returns on numerous control variables plus dummy variables to capture whether the IPO was previously withdrawn. Control variables are motivated based on the existing literature. We include two independent variables capture the relationship between information revelation and first day return. *Price Adjustment* is defined as the final offering price minus the average of the high and low initial filing prices all divided by the average of the high and low initial filing prices. *Price Adjustment* + takes the same value as *Price Adjustment* when *Price Adjustment* is positive, and 0 otherwise. This specification allows for an asymmetric relationship between price adjustments and initial returns (Lowry and Schwert, 2002, Bradley and Jordan, 2002, Ljungqvist and Wilhelm, 2002a and Ljungqvist and Wilhelm, 2002b). Following Bradley and Jordan (2002), we include O*verhang* as an independent variable in our initial return regressions measured as the number of shares outstanding after the IPO net of the number of shares offered in the IPO all divided by the number of shares offered in the IPO. The number of shares in the IPO is obtained from SDC and includes global tranches but exclude the overallotment option. We include the variable *Venture Capital Backing*, which takes the value 1 if the IPO is venture capital backed (as indicated by SDC) and 0 otherwise, as an independent variable in our analysis as a measure of external certification (see Barry, Muscarella and Vetsuypens, 1990, and Megginson and Weiss, 1991). We include a number of proxies for the ex ante uncertainty regarding the value of the firm going public including *NYSE*, a dummy variable taking the value 1 if the issuer lists on the New York Stock exchange research (Lowry and Schwert, 2002); *AMEX*, a dummy variable taking the value 1 if the issuer lists on the American Stock Exchange (Lowry and Schwert, 2002); *Firm Standard Deviation*, defined as the standard deviation of stock returns from days

+21 to +50 relative to the IPO (see Johnson and Miller, 1988, Carter Dark and Singh, 1998, and Lowry and Schwert, 2002).

We include two measures of investment bank reputation and certification in our analysis. *Carter and Manaster Ranking* is obtained from Carter and Manaster (1990) as updated by Carter, Dark and Singh (1998) and more recently by Loughran and Ritter (2002b). These rankings are on a 0 to 9 scale, with 9 being the most reputable. *Market Share* is measured for each bank. For each IPO we examine all IPOs in the year leading up to the offer (including the IPO). We compute the sum of gross proceeds (on global shares excluding over allotments) for which the underwriter was also the book manager. To account for mergers in the investment banking industry, we gather data from SDC on all combinations during the period. If the book manager recently emerged from a merger, market share in the year prior to the merger is calculated by adding together the gross proceeds of all offerings by any precedent bank. For example, offerings by Salomon Smith Barney, all IPOs by Salomon Bros. and Smith Barney in the prior year are included in the calculation of Salomon Smith Barney's market share. In cases with multiple book managers, equal credit is given to each bank. *Market Share* is then defined as the sum of gross proceeds for the bank, divided by the sum of gross proceeds for all IPOs over the sample period.

We also control for market return prior to the IPO. We include *Market Return*, defined as the compound return from day −50 to −2 relative to the IPO on the CRSP value weighted index, as an independent variable in our analysis. To allow for non-linearities in the relation between market returns and initial IPO returns, we also include *Market Return +* as an independent variable where *Market Return +* takes the same value as *Market Return* whenever it is positive, and 0 otherwise (see Loughran and Ritter, 2002b, and Lowry and Schwert, 2002). As an additional measure of pre-IPO market activity we include *Lagged Average Underpricing*, the mean first-day returns on all IPOs on days −60 to −1 relative to the offering, as an independent variable (see Loughran and Ritter, 2002b, Lowry and Schwert, 2002, and Bradley and Jordan, 2002). *Number of Prior IPOs* is the number of IPOs from days −60 to −1 relative to the offering (see Booth and Chua, 1996, and Benveniste,

Ljungqvist, Wilhelm and Yu, 2002).

The first regression indicates that IPOs by returning issuers have initial returns of 1.3% higher than would be predicted based on firm and market characteristics. This incremental return is not statistically significant, however. In the second regression of Table 11, we include two dummy variables, one taking the value 1 if the IPO was previously withdrawn and there is no change in bank, the other taking the value 1 if the IPO was previously withdrawn and there is a change in bank. This model indicates that previously withdrawn IPOs where there is no change in bank realize statistically significantly higher first-day returns of 10.7%, controlling for firm and market characteristics. IPOs by previously withdrawn issuers who change underwriters exhibit no abnormal first-day returns, controlling for firm and market characteristics.

In the third regression of Table 11, one-year abnormal returns are regressed against control variables plus a dummy variable equal to 1 if the IPO was previously withdrawn. The regression estimates indicate that previously withdrawn IPOs experience 9.6% higher abnormal returns, controlling for market and firm characteristics, although this incremental return is not significant. In the final regression of Table 11 we include two dummy variables, one taking the value 1 if the IPO was previously withdrawn and there is no change in bank, the other taking the value 1 if the IPO was previously withdrawn and there is a change in bank, in our abnormal one-year return regression. This model indicates that previously withdrawn IPOs where there is no change in bank realize statistically significantly higher abnormal one-year returns of 31.3%, controlling for firm and market characteristics. IPOs by previously withdrawn issuers who change underwriters exhibit no abnormal one-year returns, controlling for firm and market characteristics.

The findings for first-day and one-year returns indicate that returning issuers with no change in underwriter are viewed by the market as riskier, given their past failure. Returns in the short and long-run are positive compared to otherwise similar issuers. In contrast, firms switching banks have no abnormal short or long-run performance. We believe this is consistent with the issuer obtaining additional certification in offerings where there is a new bank.

To examine abnormal price adjustments and spreads we use similar methods. We regress price adjustments against the same control variables use in the initial return models of Table 11 (excluding the price adjustment variables) plus dummy variables to capture whether the IPO was previously withdrawn. In unreported regressions we find that price adjustments are 9.5% lower for previously withdrawn IPOs (t-statistic of 4.8), controlling for market and firm characteristics. The abnormal adjustments are similar for firms switching banks and those not switching. Finally, we regress underwriter percentage spreads against control variables used to predict first day returns in Table 11[17] plus dummy variables to capture whether the IPO was previously withdrawn. In unreported regressions we find that spreads are 1.5% lower for previously withdrawn IPOs (t-statistic of 13.7), controlling for market and firm characteristics. The abnormal spreads are similar for firms switching banks and those not switching.

Overall, our findings suggest that the pricing and performance of previously withdrawn IPOs is different that first-time issuers. Returners have less positive price adjustments and are charged lower fees. Initial and long-run returns for returners having no change in bank are more positive than other issuers. We interpret these results as being consistent with withdrawal being an additional risk factor, from an investor's perspective, or returning issuers being more conservative in the pricing of their issuers. Underwriter switching can reduce first day and long-run returns providing some motivation for switching. The pattern of "graduation" documented in the previous section could simply result from firms wishing to switch to acquire new certification and then picking the most capable firm available. Interestingly, spreads are lower for previously withdrawn issuers suggesting that while these firms are riskier from investors' perspective, they are less risky from the investment bank's perspective.

7. Conclusions

We present an investigation withdrawn IPOs from 1985 to 2000 and make four contributions to

[17] Following Hansen and Torregrossa (1992) we include offering size and the logarithm of offering size in these regressions.

the literature. First, we extend analysis of the determinants of offering withdrawal to over 6,800 IPO filings from 1985 to 2000. We find that 20% of the filings are withdrawn. The probability of a withdrawn IPO is positively related to both pre-filing revenues and a measure of shares retained by pre IPO insiders, and negatively related to investment bank reputation. Second, we identify 138 firms or 9% of the withdrawn sample that successfully return to the market. We attempt to identify the firm and market conditions under which firms are more likely to successfully return using a probit analysis. Our model indicates that high-tech industry status and investment bank reputation, proxied by the Carter-Manaster ranking and venture capital backing are significantly related to the probability of successful return.

Our sample of previously withdrawn IPOs provides a unique context in which to investigate underwriter switching after a withdrawal but *before* a successful IPO, complementing the existing literature on switching *after* a successful IPO but before a subsequent equity offering. We attempt to identify the firm and market conditions under which firms are more likely to switch underwriters are the most significant predictors of switching. We augment the probit analysis by examining underwriter reputation and market share changes for firms switching banks and find that those firms switching banks move to ones with higher overall and industry market share, consistent with the notion that firms "graduate" to more reputable banks over time. We also find that firms switching banks are more likely to raise more capital at more favourable valuation ratios. We interpret our evidence as providing more support for the notion that performance of the bank during the IPO process is an important part of the services provided by the underwriter.

Finally, we examine the pricing and performance of previously withdrawn IPOs. We find that previously withdrawn IPOs having no change in underwriter experience abnormally positive first-day and one year returns, consistent with the notion that prior withdrawal is viewed as a risk factor by IPO investors. Future research could further investigate the nature of such risk.

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Table 1
IPO Filings

Number of IPO filings from 1985 to 2000. The sample is obtained from the Thomson Financial Securities Data (TFSD) database. Issues that are unit offerings, REITs, ADRs or closed-end funds are excluded.

Year of filing	Number of IPOs filed in year	Number filed in year that are withdrawn	Number filed in year that are withdrawn then return for successful IPO	Percentage of filings that are withdrawn	Percentage of withdrawn offerings that return for a successful IPO
1985	298	37	1	12.42	2.70
1986	665	92	7	13.83	7.61
1987	448	95	14	21.21	14.74
1988	185	35	3	18.92	8.57
1989	154	15	1	9.74	6.67
1990	171	35	5	20.47	14.29
1991	394	35	4	8.88	11.43
1992	507	104	18	20.51	17.31
1993	623	83	14	13.32	16.87
1994	504	116	16	23.02	13.79
1995	564	54	8	9.57	14.81
1996	824	128	17	15.53	13.28
1997	569	113	6	19.86	5.31
1998	405	131	21	32.35	16.03
1999	592	102	2	17.23	1.96
2000	539	298	1	55.29	0.34
Total	7442	1473	138	19.79	9.37

Table 2
Descriptive Statistics – Successful and Withdrawn IPOs

This table reports sample means (mean) and number of observations (obs) for different variables broken down by whether the IPO filing is successful or withdrawn. Variables considered are defined as follows. Average filing price is the average of the high and low price indicated in the initial filing. Filing size equals the average filing price multiplied by the number of shares to be sold as indicated in the initial filing. High-tech industry dummy takes the value 1 if the issuer is in Fama-French industries 34 (business services) or 36 (chips) and 0 otherwise (see Fama and French, 1997). Carter-Manaster Rank is the Carter-Manaster (1990) ranking on a 0-9 scale for the book manager of the IPO (the maximum rank if there is more than one book manager). Investment bank market share is the sum of gross proceeds (not including the overallotment option) over the year prior to the IPO of all offerings where the IPO book manager is the book manager (equal credit given if there is more than one manager) divided by the sum of gross proceeds on all IPOs over the same period. Number of filings prior 30 days is the number of IPOs filed with the SEC during the 30 days prior to the filing date for the IPO. Annual revenue pre filing is the sales (in million dollars) for the 12 month period prior to the filing month for the issuing firm. Venture capital backing dummy takes the value 1 if the issuing firm has received venture capital investments prior to filing and 0 otherwise. Overhang based on filing terms is $(S_1\text{-}S)/S$ where S_1 is the shares outstanding after the IPO (based on filing terms) and S is the shares proposed to be offered in the IPO. Use of proceeds dummy takes the value 1 if the primary stated use of proceeds is retirement of debt. Total debt pre filing is the total debt outstanding at the time of the IPO filing. Total assets pre filing is the total assets at the time of the IPO filing. Debt to assets ratio is total debt pre filing divided by total assets pre filing.

	Successful		Withdrawn		p-values (from t-test) successful vs. withdrawn
	mean	obs	mean	obs	
Average filing price	11.770	5685	12.731	1108	0.343
Filing size	61.869	5685	52.910	1108	0.037
High-tech industry dummy	0.274	5685	0.236	1108	0.007
Carter-Manaster rank	7.078	5685	6.619	1108	0.000
Investment bank market share	4.331	5685	1.918	1108	0.000
Number of filings prior 30 days	49.132	5685	51.120	1108	0.008
Annual revenue pre filing	274.990	5685	128.080	346	0.000
Venture Capital backing dummy	0.386	5685	0.156	346	0.000
Overhang based on filing terms	2.749	5480	2.673	150	0.898
Use of proceeds dummy	0.318	5480	0.447	150	0.002
Total debt pre filing	95.769	3198	39.399	113	0.000
Total assets pre filing	282.650	3198	164.720	113	0.117
Debt to assets ratio	0.305	3198	0.438	113	0.000

Table 3
Probit analysis of the decision to withdraw an IPO for IPO filings between 1985 and 2000

The dependent variable equals one for IPO filings that are withdrawn and zero for completed offerings. Independent variables are defined as follows. Log of average filing price is the natural logarithm of the average of the high and low price indicated in the initial filing. Log of filing size equals the natural logarithm of the filing size, defined as the average filing price multiplied by the number of shares to be sold as indicated in the initial filing. High-tech industry dummy takes the value 1 if the issuer is in Fama-French industries 34 (business services) or 36 (chips) and 0 otherwise (see Fama and French, 1997). Carter-Manaster Rank is the Carter-Manaster (1990) ranking on a 0-9 scale for the book manager of the IPO (the maximum rank if there is more than one book manager). Investment bank market share is the sum of gross proceeds (not including the overallotment option) over the year prior to the IPO of all offerings where the IPO book manager is the book manager (equal credit given if there is more than one manager) divided by the sum of gross proceeds on all IPOs over the same period. Number of filings prior 30 days is the number of IPOs filed with the SEC during the 30 days prior to the filing date for the IPO. Log of annual revenue pre filing is the natural logarithm of 0.01 plus the sales (in million dollars) for the 12 month period prior to the filing month for the issuing firm. Venture capital backing dummy takes the value 1 if the issuing firm has received venture capital investments prior to filing and 0 otherwise. Overhang based on filing terms is $(S_1\text{-}S)/S$ where S_1 is the shares outstanding after the IPO (based on filing terms) and S is the shares proposed to be offered in the IPO. Use of proceeds dummy takes the value 1 if the primary stated use of proceeds is retirement of debt. Debt to assets ratio is total debt outstanding at the time of the IPO filing divided by total assets at the time of the IPO filing. The 1980s dummy takes the value 1 if the IPO is filed between 1985 and 1989. The late 1990s dummy takes the value 1 if the IPO is filed between 1997 and 2000. Marginal effect is defined as $\phi(\beta x)*\beta*\sigma_x$ where $\phi()$ is the standard normal probability density function, β is the coefficient estimate, x is the mean of the independent variable for the sample and σ_x is one standard deviation for the independent variable (σ_x is set to 1 for dummy variables). Pseudo R^2 is defined as 1 subtract the log likelihood for the estimated model divided by the log-likelihood for a model with only an intercept as an independent variable.

		Marginal			Marginal	
	Coefficient	effect	t-stat	Coefficient	effect	t-stat
Intercept	-0.847	-0.236	*-10.03*	-3.106	0.000	*-6.01*
Log of average filing price	-0.350	-0.099	*-7.93*	-0.186	-0.029	*-0.74*
Log of filing size	0.205	0.065	*7.19*	-0.029	-0.012	*-0.28*
High-tech industry dummy	-0.180	-0.072	*-3.97*	-0.189	-0.075	*-1.46*
Carter-Manaster rank	0.001	0.001	*0.12*	0.038	0.032	*1.04*
Investment bank market share	-0.069	-0.027	*-13.51*	-0.071	-0.160	*-4.72*
Number of filings prior 30 days	0.003	0.001	*3.46*	0.000	0.000	*0.01*
Log of annual revenue pre filing				0.033	0.057	*1.92*
Venture Capital backing dummy				-0.810	-0.307	*-5.38*
Overhang based on filing terms				0.023	0.024	*1.76*
Use of proceeds dummy				0.285	0.113	*2.35*
Debt to Assets Ratio				0.690	0.075	*3.26*
1980s dummy	0.248	0.099	*3.66*	-3.054	-1.169	*-0.01*
Late 1990s dummy	0.278	0.111	*6.01*	2.302	0.717	*7.80*
Psuedo R^2		0.061			0.407	
Number of Observations		6793			3311	

Table 4
Time from initial withdrawal to successful reissue for 138 IPOs from1985 to 2000
Length of time between withdrawn issue and successful re-issue. Probabilities indicate the chance of a successful re-issue based solely on length of time since withdrawn issue date.

Panel A

	Day	**Years**
Mean	818.6	2.24
Median	657.5	1.8
Minimum	77	0.21
Maximum	3523	9.65
Standard deviation	630.1	1.73

Panel B

Probability	**Days**	**Years**
95%	142	0.39
90%	216	0.59
85%	270	0.74
80%	307	0.84
75%	329	0.9
70%	378	1.04
65%	427	1.17
60%	517	1.42
55%	604	1.65
50%	663	1.82
45%	777	2.13
40%	828	2.27
35%	928	2.54
30%	963	2.64
25%	1181	3.24
20%	1291	3.54
15%	1398	3.83
10%	1628	4.46
5%	2223	6.09

Table 5
Descriptive Statistics – Withdrawn IPOs broken down by eventual public status

This table reports sample means (mean) and number of observations (obs) for different variables broken down by whether the withdrawn filing eventually returns for a successful IPO or not. Variables considered are defined as follows. Average filing price is the average of the high and low price indicated in the initial filing. Filing size equals the average filing price multiplied by the number of shares to be sold as indicated in the initial filing. High-tech industry dummy takes the value 1 if the issuer is in Fama-French industries 34 (business services) or 36 (chips) and 0 otherwise (see Fama and French, 1997). Carter-Manaster Rank is the Carter-Manaster (1990) ranking on a 0-9 scale for the book manager of the IPO (the maximum rank if there is more than one book manager). Investment bank market share is the sum of gross proceeds (not including the overallotment option) over the year prior to the IPO of all offerings where the IPO book manager is the book manager (equal credit given if there is more than one manager) divided by the sum of gross proceeds on all IPOs over the same period. Number of filings prior 30 days is the number of IPOs filed with the SEC during the 30 days prior to the filing date for the IPO. Annual revenue pre filing is the sales (in million dollars) for the 12 month period prior to the filing month for the issuing firm. Venture capital backing dummy takes the value 1 if the issuing firm has received venture capital investments prior to filing and 0 otherwise. Overhang based on filing terms is $(S_1\text{-}S)/S$ where S_1 is the shares outstanding after the IPO (based on filing terms) and S is the shares proposed to be offered in the IPO. Use of proceeds dummy takes the value 1 if the primary stated use of proceeds is retirement of debt. Total debt pre filing is the total debt outstanding at the time of the IPO filing. Total assets pre filing is the total assets at the time of the IPO filing. Debt to assets ratio is total debt pre filing divided by total assets pre filing.

	Initial filing of withdrawn IPOs that later return for successful offer		Initial filing of withdrawn IPOs that never return for successful offer		p-values (from t-test) not return vs. return
	mean	obs	mean	obs	
Average filing price	11.914	123	12.833	985	0.440
Filing size	50.777	123	53.176	985	0.727
High-tech industry dummy	0.244	123	0.235	985	0.820
Carter-Manaster rank	7.484	123	6.511	985	0.000
Investment bank market share	2.086	123	1.897	985	0.639
Number of filings prior 30 days	50.366	123	51.214	985	0.660
Annual revenue pre filing	255.790	61	100.750	285	0.136
Venture Capital backing dummy	0.344	61	0.116	285	0.001
Overhang based on filing terms	3.400	7	2.637	143	0.569
Use of proceeds dummy	0.571	7	0.441	143	0.549
Total debt pre filing	7.554	6	41.185	107	0.000
Total assets pre filing	29.283	6	172.320	107	0.031
Debt to assets ratio	0.394	6	0.441	107	0.755

Table 6
Probit analysis of successful returns for IPO filings that were withdrawn between 1985 and 2000

The dependent variable equals one for IPO filings that are withdrawn but eventually return for a successful offering and zero for withdrawn offerings that never return. Independent variables are defined as follows (all variables are defined at the time of the initial unsuccessful filing). Log of average filing price is the natural logarithm of the average of the high and low price indicated in the initial filing. Log of filing size equals the natural logarithm of the filing size, defined as the average filing price multiplied by the number of shares to be sold as indicated in the initial filing. High-tech industry dummy takes the value 1 if the issuer is in Fama-French industries 34 (business services) or 36 (chips) and 0 otherwise (see Fama and French, 1997). Carter-Manaster Rank is the Carter-Manaster (1990) ranking on a 0-9 scale for the book manager of the IPO (the maximum rank if there is more than one book manager). Investment bank market share is the sum of gross proceeds (not including the overallotment option) over the year prior to the IPO of all offerings where the IPO book manager is the book manager (equal credit given if there is more than one manager) divided by the sum of gross proceeds on all IPOs over the same period. Number of filings prior 30 days is the number of IPOs filed with the SEC during the 30 days prior to the filing date for the IPO. Venture capital backing dummy takes the value 1 if the issuing firm has received venture capital investments prior to filing and 0 otherwise. The 1980s dummy takes the value 1 if the IPO is filed between 1985 and 1989. The late 1990s dummy takes the value 1 if the IPO is filed between 1997 and 2000. Marginal effect is defined as $\phi(\beta x)*\beta*\sigma_x$ where $\phi()$ is the standard normal probability density function, β is the coefficient estimate, x is the mean of the independent variable for the sample and σ_x is one standard deviation for the independent variable (σ_x is set to 1 for dummy variables). Pseudo R^2 is defined as 1 subtract the log likelihood for the estimated model divided by the log-likelihood for a model with only an intercept as an independent variable.

		Marginal			Marginal	
	Coefficient	effect	t-stat	Coefficient	effect	t-stat
Intercept	-1.619	-0.174	*-7.57*	-0.302	-0.115	*-0.68*
Log of average filing price	-0.010	-0.004	*-0.11*			
Log of filing size	-0.013	-0.007	*-0.17*			
High-tech industry dummy	0.236	0.094	*1.80*	0.189	0.075	*0.89*
Carter-Manaster rank	0.103	0.091	*3.21*	0.150	0.096	*3.41*
Investment bank market share	-0.008	-0.013	*-0.60*			
Number of filings prior 30 days	-0.002	-0.018	*-0.83*	-0.021	-0.089	*-4.17*
Venture Capital backing dummy				0.886	0.350	*3.95*
1980s dummy	-0.041	-0.016	*-0.24*			
Late 1990s dummy	-0.710	-0.275	*-5.08*	-1.507	-0.377	*-6.87*
Psuedo R^2		0.062			0.270	
Number of Observations		1108			346	

Table 7

Probit analysis of the decision to switch investment banks for IPOs that return to the market after previously being withdrawn between 1985 and 2000

The dependent variable equals one for IPO filings that are withdrawn and return to the market using a different investment bank from the initial (unsuccessful) attempt and zero for IPO filings that are withdrawn and return to the market using the same investment bank from the initial (unsuccessful) attempt. Independent variables are defined as follows. Log of filing size equals the natural logarithm of the filing size, defined as the average filing price multiplied by the number of shares to be sold as indicated in the initial filing. Carter-Manaster Rank is the Carter-Manaster (1990) ranking on a 0-9 scale for the book manager of the IPO (the maximum rank if there is more than one book manager). Investment bank market share is the sum of gross proceeds (not including the overallotment option) over the year prior to the IPO of all offerings where the IPO book manager is the book manager (equal credit given if there is more than one manager) divided by the sum of gross proceeds on all IPOs over the same period. Number of filings prior 30 days is the number of IPOs filed with the SEC during the 30 days prior to the filing date for the IPO. The 1980s dummy takes the value 1 if the IPO is filed between 1985 and 1989. The late 1990s dummy takes the value 1 if the IPO is filed between 1997 and 2000. Marginal effect is defined as $\phi(\beta x)*\beta*\sigma_x$ where $\phi()$ is the standard normal probability density function, β is the coefficient estimate, x is the mean of the independent variable for the sample and σ_x is one standard deviation for the independent variable (σ_x is set to 1 for dummy variables). Pseudo R^2 is defined as 1 subtract the log likelihood for the estimated model divided by the log-likelihood for a model with only an intercept as an independent variable.

		Marginal			Marginal			Marginal	
	Coefficient	effect	t-stat	Coefficient	effect	t-stat	Coefficient	effect	t-stat
Intercept	1.743	0.152	*2.17*	1.083	0.240	*1.87*	1.590	0.179	*2.11*
Log of filing size	-0.124	-0.047	*-0.70*	-0.278	-0.074	*-2.08*			
Carter-Manaster rank	-0.145	-0.067	*-1.45*				-0.186	-0.059	*-2.24*
Investment bank market share	0.000	0.000	*-0.01*						
Number of filings prior 30 days	0.009	0.066	*1.40*	0.010	0.071	*1.62*	0.010	0.067	*1.48*
1980s dummy	0.066	0.026	*0.16*						
Late 1990s dummy	-0.191	-0.076	*-0.57*						
Psuedo R^2		0.071			0.052			0.052	
Number of Observations		123			123			123	

Table 8
Tests of the graduation hypothesis
This table presents descriptive statistics on variables for a subsample of IPOs that are withdrawn and later return for a successful IPO using a different investment bank from the first attempt. Variables examined are defined as follows. IPO market share is the sum of gross proceeds (not including the overallotment option) over the year prior to the IPO of all offerings where the IPO book manager is the book manager (equal credit given if there is more than one manager) divided by the sum of gross proceeds on all IPOs over the same period. Market share is defined as of the date of the filing leading up to the successful offering. IPO industry market share is defined similarly to overall IPO market share where only issues in the IPO firm's Fama-French industry (see Fama-French 1997) are considered. IPO industry market share is defined as of the date of the filing leading up to the successful offering. Carter-Manaster Rank is the Carter-Manaster (1990) ranking on a 0-9 scale for the book manager of the IPO (the maximum rank if there is more than one book manager).

	initial bank on first failed filing	subsequent successful filing	change	t-statistic
Panel A - IPO market share				
Mean	3.420	4.750	1.330	1.970
Median	1.220	3.040	0.360	
Number of observations	99	99	99	
Panel B - IPO industry market share				
Mean	2.400	9.850	7.450	2.850
Median	0.000	4.330	2.850	
Number of observations	99	99	99	
Panel C - Carter Manaster Ranking				
Mean	7.310	7.500	0.190	0.820
Median	8.100	8.100	0.000	
Number of observations	99	99	99	

Table 9
Tests of the IPO performance hypothesis

This table presents descriptive statistics on variables for a subsample of IPOs that are withdrawn and later return for a successful IPO. Subsamples are examined based on whether the issuer changes investment banks from the first failed attempt to the eventual successful offering. Variables examined are defined as follows. IPO filing size – initial unsuccessful filing equals the average filing price (average of the high and low price indicated in the initial filing) multiplied by the number of shares to be sold as indicated in the initial (unsuccessful) filing. IPO proceeds equals the offering price multiplied by the number of shares offered (in millions). Change in offering size equals IPO proceeds subtract IPO filing size from the initial unsuccessful filing. BE/ME based on filing terms at the initial unsuccessful filing equals the book value of equity at the time of the filing (from the initial prospectus and includes IPO expected proceeds) divided by the market value of equity implied by the average filing price (average filing price multiplied by the number of shares to be outstanding after the offering). BE/ME based on offering terms at successful IPO equals the book value of equity at the time of the IPO (from the final prospectus and includes IPO proceeds) divided by the market value of equity implied by the IPO offering price (offering price multiplied by the number of shares to be outstanding after the offering). Change in BE/ME equals BE/ME based on offering terms at successful IPO subtract BE/ME based on filing terms at the initial unsuccessful filing. Industry VW return over 2 months beginning 1 month after the initial unsuccessful filing equals the return on the Fama-French VW portfolio of firms in the same 48 group industry as the IPO issuer (see Fama and French, 1997)

	All withdrawn IPOs that later return for a successful offer	Returning IPOs where the investment bank is switched from initial unsuccessful filing	Returning IPOs where the investment bank is not switched	t-statistic (H_0: switchers = non-switchers)
IPO filing size - initial unsuccessful filing				
mean	55.700	49.160	75.830	1.420
number of observations	118	89	29	
IPO proceeds - successful IPO				
mean	72.100	71.240	74.780	0.170
number of observations	118	89	29	
Change in offering size				
mean	16.400	22.080	-1.050	1.370
number of observations	118	89	29	
t-statistic	1.84	2.00	-0.08	
BE/ME based on filing terms at initial unsuccessful filing				
mean	0.316	0.330	0.284	0.870
number of observations	33	23	10	
BE/ME based on offering terms at successful IPO				
mean	0.242	0.237	0.251	0.280
number of observations	33	23	16	
Change in BE/ME				
mean	-0.074	-0.093	-0.032	1.240
number of observations	33	23	10	
t-statistic	2.96	2.89	0.88	
Industry VW return over 2 months beginning 1 month after initial unsuccessful filing				
mean	2.480	2.450	2.500	0.030
number of observations	138	99	39	
t-statistic	3.64	2.94	2.19	

Table 10
Descriptive Statistics – Successful IPOs broken down by whether the firm goes public on first attempt or after a previously withdrawn attempt

Panel A reports descriptive statistics on a number of issuer and market characteristics as follows. Average filing price is the average of the high and low price indicated in the initial filing. Filing size equals the average filing price multiplied by the number of shares to be sold as indicated in the initial filing. High-tech industry dummy takes the value 1 if the issuer is in Fama-French industries 34 (business services) or 36 (chips) and 0 otherwise (see Fama and French, 1997). Carter-Manaster Rank is the Carter-Manaster (1990) ranking on a 0-9 scale for the book manager of the IPO (the maximum rank if there is more than one book manager). Investment bank market share is the sum of gross proceeds (not including the overallotment option) over the year prior to the IPO of all offerings where the IPO book manager is the book manager (equal credit given if there is more than one manager) divided by the sum of gross proceeds on all IPOs over the same period. Number of filings prior 30 days is the number of IPOs filed with the SEC during the 30 days prior to the filing date for the IPO. Annual revenue pre filing is the sales (in million dollars) for the 12 month period prior to the filing month for the issuing firm. Venture capital backing dummy takes the value 1 if the issuing firm has received venture capital investments prior to filing and 0 otherwise. Overhang based on filing terms is $(S_1\text{-}S)/S$ where S_1 is the shares outstanding after the IPO (based on filing terms) and S is the shares proposed to be offered in the IPO. Use of proceeds dummy takes the value 1 if the primary stated use of proceeds is retirement of debt. Total debt pre filing is the total debt outstanding at the time of the IPO filing. Total assets pre filing is the total assets at the time of the IPO filing. Debt to assets ratio is total debt pre filing divided by total assets pre filing. Panel B reports descriptive statistics on IPO pricing and performance variables as follows. Gross spread is the gross underwriter spread in the IPO as a percentage of the gross proceeds raised. IPO price adjustment is the IPO offer price divided by the average of the high and low initial filing price. IPO initial return is defined as $100*(P_1\text{-}P_0)/P_0$ where P_1 is the first-day closing stock price or bid-ask average (from CRSP) and P_0 is the IPO offer price. The 1-year raw return is the12 month buy and hold return (or return until delisting) starting the end of the first month of trading for the issuing firm. The 1-year abnormal return is the 1-year raw return subtract the return on a portfolio matched based on market capitalization and book-to-market over the same period.

	Successful IPOs on first attempt		Previously withdrawn IPOs returning for a successful offer		p-values (from t-test) first time successful vs returner
	mean	obs	mean	obs	
Panel A: Issuer and Market Characteristics					
Average Filing Price	11.728	5552	13.526	133	0.000
Filing Size	61.215	5552	89.159	133	0.194
High-Tech Industry Dummy	0.274	5552	0.263	133	0.785
Carter-Manaster Rank	7.061	5552	7.709	133	0.000
Investment Bank Market Share	4.307	5552	5.355	133	0.073
Number of filings prior 30 days	49.165	5552	47.729	133	0.455
Annual Revenue pre filing	268.580	5552	542.730	133	0.313
Venture Capital Backing Dummy	0.382	5552	0.549	133	0.000
Overhang based on filing terms	2.750	5352	2.709	128	0.806
Use of Proceeds Dummy	0.318	5352	0.313	128	0.898
Total Debt pre filing	96.064	3114	84.836	84	0.650
Total Assets pre filing	285.460	3114	178.630	84	0.092
Debt to Assets Ratio	0.304	3114	0.334	84	0.316
Panel B: IPO Pricing and Performance					
Gross Spread (%)	7.313	5845	6.880	138	0.997
IPO price adjustment (%)	0.895	5832	0.150	138	0.683
IPO initial return	20.057	5851	26.480	129	0.232
1-year raw return	-1.635	5782	15.220	126	0.091
1-year abnormal return	-0.673	5777	4.690	126	0.548

Table 11
Initial return and 1-year abnormal return regressions for IPOs between 1985 and 2000

The dependent variables are defined as follows. Initial return defined as $100*(P_1-P_0)/P_0$ where P_1 is the first-day closing stock price or bid-ask average (from CRSP) and P_0 is the IPO offer price. Abnormal 1-yr return is the 12 month (or until delisting) return starting the end of the first month of trading for the issuing firm subtract the return on a portfolio matched based on market capitalization and book-to-market over the same period. Independent variables are defined as follows. Price Revision is the IPO offer price divided by the average of the high and low initial filing price. Price Revision + is the IPO offer price divided by the average of the high and low initial filing price if positive and zero otherwise. Overhang is $(S_1-S)/S$ where S_1 is the shares outstanding after the IPO and S is the shares offered in the IPO. Venture Capital Backing equals 1 if the issue is venture capital-backed and 0 otherwise. AMEX equals 1 if the IPO lists on the American Stock Exchange and 0 otherwise. Firm Std. Deviation equals the standard deviation of daily stock returns for the issuing firm from days 21 to 50 relative to the IPO. Market Return equals the buy and hold CRSP value-weighted index return from days -50 to -2 relative to the IPO. Market Return + equals the buy and hold CRSP value-weighted index return from days -50 to -2 relative to the IPO if positive, 0 otherwise. Market Std. Deviation is the standard deviation of daily returns for the CRSP value-weighted index from days -50 to -2 relative to the IPO. Lagged Avg. Underpricing is the average initial return for issues on days -60 to -1 relative to the IPO. Number of Prior IPOs is the number of issues from days -60 to -1 relative to the IPO. Carter-Manaster Rank is the Carter-Manaster (1990) ranking on a 0-9 scale for the book manager of the IPO (the maximum rank if there is more than one book manager). Market Share is the sum of gross proceeds (not including the overallotment option) over the year prior to the IPO of all offerings where the IPO book manager is the book manager (equal credit given if there is more than one manager) divided by the sum of gross proceeds on all IPOs over the same period. Previously withdrawn IPO dummy takes the value 1 if the IPO was from a firm that previously attempted and withdrew their offering. Previously withdrawn IPO with change in bank takes the value 1 if the IPO was from a firm that previously attempted and withdrew their offering and are using a different investment bank on their successful offering. Previously withdrawn IPO with no change in bank takes the value 1 if the IPO was from a firm that previously attempted and withdrew their offering and are using the same investment bank on their successful offering.

	Initial return		Initial return		Abnormal 1yr return		Abnormal 1yr return	
	Coefficient	*t-stat*	Coefficient	*t-stat*	Coefficient	*t-stat*	Coefficient	*t-stat*
Intercept	-1.102	*-0.49*	-1.171	*-0.52*	4.457	*0.78*	4.299	*0.75*
Price Revision	26.861	*6.49*	26.782	*6.47*	-3.536	*-0.33*	-3.627	*-0.34*
Price Revision +	84.713	*14.88*	84.793	*14.90*	6.120	*0.41*	6.454	*0.43*
Overhang	1.785	*9.33*	1.779	*9.30*	1.641	*3.30*	1.628	*3.28*
Venture Capital Backing	1.385	*1.47*	1.441	*1.53*	0.843	*0.35*	0.971	*0.40*
NYSE	-5.965	*-4.11*	-6.022	*-4.15*	-3.933	*-1.05*	-4.071	*-1.09*
AMEX	-5.872	*-2.62*	-5.881	*-2.63*	-0.868	*-0.15*	-0.892	*-0.16*
Firm Std. Deviation	2.161	*9.67*	2.169	*9.70*	0.993	*1.70*	1.017	*1.74*
Market Return	-0.309	*-1.19*	-0.314	*-1.21*	-0.881	*-1.29*	-0.887	*-1.29*
Market Return +	0.463	*1.49*	0.468	*1.51*	0.020	*0.02*	0.024	*0.03*
Market Std. Deviation	2.140	*1.32*	2.136	*1.32*	-4.551	*-1.09*	-4.546	*-1.09*
Lagged Avg. Underpricing	0.329	*12.52*	0.328	*12.46*	-0.674	*-9.83*	-0.678	*-9.88*
Number of Prior IPOs	-0.915	*-0.67*	-0.008	*-0.58*	-0.144	*-4.08*	-0.140	*-3.99*
Carter-Manaster Rank	-1.430	*-6.82*	-1.433	*-6.84*	2.340	*4.35*	2.330	*4.34*
Market Share	0.603	*7.30*	0.602	*7.30*	0.503	*2.35*	0.502	*2.35*
IPO initial return					-0.038	*-1.15*	-0.040	*-1.20*
Previously withdrawn IPO dummy	1.267	*0.45*			9.583	*1.30*		
Previously withdrawn IPO with change in bank			-2.421	*-0.74*			0.367	*0.04*
Previously withdrawn IPO with no change in bank			10.694	*2.05*			31.278	*2.33*
Adjusted R^2	0.442		0.443		0.038		0.039	
Number of Observations	5946		5946		5846		5846	