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Two Essays on IPOs and Asset Prices

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by

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Dedication

To my family, thank you for everything you have done for me.

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I am solely responsible for any error this dissertation may have.

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Abstract

In the first essay we examine the effect of concurrent lending and underwriting on IPO withdrawal, we find that IPOs underwritten by the firms' concurrent lending banks are significantly more likely to be withdrawn. The result is robust to controlling for the common factors that affect IPO withdrawal and also for endogeneity using a propensity score matching portfolio. Our evidence suggests a cost to IPO firms' hiring concurrent lending banks as underwriters despite the potential benefit of informational scope economies such intermediaries may provide. It is consistent with an alternative argument that a current lending and underwriting bank has less incentive to help sell its client firms' securities because of its lock-in of the firms' subsequent borrowing needs even when it fails to sell the securities.

In the second essay, we examine the investment decisions of second-time IPO firms after successfully going public. Our findings show that, contrary to first time IPOs, second-time IPOs are not active acquirers and spend significantly more on CAPEX and R&D than first-time IPOs. Unlike acquisitions in the post-IPO period, CAPEX and R&D spending benefit second-time IPOs' long run performance.

The Impact of Concurrent Lending and Underwriting on IPO Withdrawal

1. Introduction

The repeal of Class-Steagall in 1999 removed the last legal barriers in the United States that had separated lending and underwriting services by financial intermediaries (banks). The rationale for the repeal is well understood. Banks are viewed as an efficient producer of information on their client firms, and because of information reusability, banks potentially enjoy significant informational economies of scope. As a possible testament to such benefits, the U.S. financial services industry has experienced waves of mergers and acquisitions, resulting in a significant increase in financial intermediaries' providing integrated lending and underwriting services to their client firms. Drucker and Puri (2005) show that by 2001, barely two years after the Glass-Steagall repeal, over 20% seasoned equity offerings (SEOs) were underwritten by banks that had concurrent loans with the issuing firms. They also find evidence that concurrent lending and underwriting banks discount yield spreads on concurrent loans or charge lower underwriting fees on SEOs by their borrowers, consistent with the banks sharing informational cost savings with their client firms.

While the benefits of informational scope economies of integrated financial intermediaries are well known, less obvious are the potential pitfalls of the intermediaries' cost advantages. Kanatas and Qi (2003) argue that the cost savings provided by informational scope economies may result in a lower level of underwriting efforts by an integrated intermediary because the intermediary is able to "lock in" its client firms' subsequent borrowing needs even

when it fails to sell the clients' securities. An interesting implication of their argument is that concurrent lending underwriters may be less successful in helping sell their client firms' securities. Motivated in part by this debate on the potential benefits and costs of combining lending and underwriting services, we empirically examine the failure (withdrawal) rate of planned initial public offerings (IPOs) that are underwritten by the issuing firms' concurrent lending banks relative to those that are marketed by underwriters having no existing lending relationships with the issuers.

The successful placements of IPOs require that underwriters commit substantial resources to build quality management teams that advise the issuing firms every step of the way and to undertake a variety of activities aimed at helping sell the issuers' stocks to capital market investors. An IPO event may last three to six months but the preparation journey may have begun a year or more before the IPO. For our empirical study, we choose IPOs rather than SEOs because IPO firms are typically younger, less well established, and newer to capital market investors. These characteristics of IPO firms suggest that the IPO process is much more demanding of underwriter time and efforts, and underwriting activities, such as the underwriter's production and dissemination of important issuer information as well as its marketing and selling efforts, all have a greater impact on the successful placement of an IPO.

The results of our probit regression model show that planned IPOs with underwriters that are also the issuing firms' concurrent lending banks are about twice as likely to withdraw from the public market as those marketed by underwriters having no such relationships. Our results are robust to controlling for various IPO firm and underwriter characteristics that affect IPO withdrawal and also to controlling for the endogeneity of IPO firms' choices of underwriter types using a propensity score matching approach. Following the matching method developed in

Heckman, Ichimura, and Todd (1997, 1998), we construct a propensity score matching portfolio of IPO firms that have borrowed but not from their underwriters. We use the nearest neighbor matching estimator with such criteria as industry, IPO filing year, market size, and outstanding loan status. This matching method effectively controls for the effects of the characteristics of IPO firms that may affect their likelihoods of IPO withdrawals.

We define an underwriter as having a concurrent lending relationship with the issuing firm if the underwriter has extended one or more loans to the firm within six months before the planned IPO date. This definition is also used in Drucker and Puri (2005), although in their study of successful SEOs, the concurrent period consists of six months before and after the SEO. We perform additional robustness checks, using the alternative three as well as twelve months as the concurrent lending and underwriting period. Overall, our evidence suggests that the risk of IPO failure (withdrawal) is significantly higher when the underwriters of IPOs are also the issuing firms' concurrent lenders.

Our study is closely related to the literature that examines the effect of underwriter type on the quality or price of underwritten securities. For example, differences in quality or price may arise if the underwriting bank has a conflict of interest by helping sell the securities of its poor-quality borrowers, so that they can repay the bank's loans (e.g., Benston, 1990; Kanatas and Qi, 1998). The empirical literature, however, finds little evidence to support this allegation**.** If anything, the evidence suggests that in the period either prior to Glass-Steagall or after the relaxation of its prohibition of securities underwriting by commercial banks, the securities underwritten by integrated intermediaries were not of lower quality or sold at worse price (e.g., Kroszner and Rajan, 1994 and 1997; Puri, 1994 and 1999). More recently, Autore et al. (2009) find that firms' use of equity proceeds to repay debt signals less favorable prospects than

reflected in the current stock price, and Kutsuna et al. (2007) find that large IPO firms choose not to use universal banks to avoid higher costs. There is also an allegation of underwriters' manipulating stock prices of IPO firms in the aftermarket (Aggarwal et al., 2005). In contrast to all these studies that focus only on the securities that have been sold, we examine the impact of underwriter type on the likelihood of failure of planned security issues. By documenting a higher rate of withdrawal of IPOs underwritten by concurrent lending banks, our study suggests that concurrent lending and underwriting imposes a cost on the issuing firms by making it less likely that the firms' securities will actually be sold. In other words, our study may have captured a possible conflict of interest of concurrent lending and underwriting that does not show up in the quality or price of securities which are successfully placed.

Our study is also closely related to several papers that examine IPO withdrawal. Busaba et al. (2001) argue that the option to withdraw reduces underpricing by strengthening the issuers' bargaining power vis-à-vis the investors. Dunbar and Foerster (2008) investigate issuers that withdrew their IPOs but later return for a successful second-time issuance. They find that factors such as venture capital backing, market conditions, and underwriter ranking are the important determinants on the second-time IPO success. We contribute to this literature by showing that the type of underwriter, concurrent lending or otherwise, is also a significant factor on IPO withdrawal after controlling for the other factors that have been identified as being important, such as underwriter ranking (e.g., Booth and Smith 1986; Carter and Manaster, 1990), issuer quality (e.g., Fernando et al., 2005), and underwriter switching (e.g., Krigman et al., 2001).

The rest of this paper is as follows. Section II provides the literature review and develops our main hypotheses. Section III describes sample data and main variables. Section IV displays

the empirical design. Section V presents the empirical results. Section VI discusses the robust tests. Section VII concludes.

2. Literature Review and Hypothesis Development

The existing literature on IPO withdrawal generally agrees that market conditions, merger and acquisition purposes, as well as underwriter reputations all play an important role. Busaba et al. (2001) argue that an issuing firm's option to withdraw its IPO reduces underpricing by strengthening the issuer's bargaining power vis-à-vis that of the investors. Busaba (2006) finds that the ability to withdraw an IPO when demand is weak provides the issuer with an option value and increases the expected proceeds. Investigating issuers that withdrew their IPOs but later return for a successful second-time issuance, Dunbar and Foerster (2008) find that the key factors predicting a successful return are venture backing and the lead underwriter reputation. They also find that before filing for a second attempt of IPO, issuing firms tend to switch to underwriters with higher market shares and better performance. More recently, Boeh and Dunbar (2014) document significant discounts to post-withdrawal valuations of the IPO firms, suggesting that these firms would have been better off by completing their original IPO attempts at lower prices. Our study differs from the prior research on IPO withdrawals by focusing on the role played by underwriters having a lending relationship with the issuing firms, and we find that this relationship is an important factor affecting IPO success.

The role that informational scope economies play in motivating integrated intermediary lending and underwriting services is well recognized in the literature. Studying concurrent lending and underwriting of SEOs, Drucker and Puri (2005) find that both issuers and underwriters benefit from their lending and underwriting relationships. The issuers enjoy lower underwriting fees or discounted yield spreads on loans, while the underwriters increase their

probabilities of securing multiple business opportunities from the issuing firms. Their evidence is consistent with significant cost savings provided by informational scope economies in concurrent lending and underwriting. Other papers also argue that the informational economies of scope provide a cost advantage to universal banks that offer integrated lending and underwriting services, and some of the cost savings may be passed on to the banks' customers (e.g., Benson, 1990; Saunders and Walter, 1994; Ang and Richardson, 1994; Gande et al., 1996; Puri, 1996; Kanatas and Qi, 1998; Benzoni and Schenone, 2004). Relatedly, Song (2004) and Yasuda (2005) find evidence that commercial banks have increased their market share of debt underwriting, and that prior lending relationships with issuers increase the probability of future participation in debt underwriting. Chaplinsky and Erwin (2008), however, find that commercial bank underwriters have fewer follow-on SEOs after underwriting the firms' IPOs than do independent underwriters of IPOs.

Concerning possible downsides of integrated financial intermediary services, a well-known argument is the increased potential for conflicts of interest of such an intermediary. For example, it has been alleged that an integrated lending and underwriting bank has the incentive to help its poor-quality borrowers sell securities, so that the borrowers can repay the bank's loans (Benson, 1990; Puri, 1996; Rajan, 1996 and 2002; Kanatas and Qi, 1998). Empirical studies, however, generally have found little or no evidence to substantiate this allegation. For example, Kroszner and Rajan (1994), Puri (1994a), and Ang and Richardson (1994) find no higher ex post default rates for bonds underwritten by universal banks than by independent investment banks in the pre-Glass-Steagall period. Examining securities' pricing, Puri (1996) finds that investors in fact pay higher prices for securities underwritten by universal banks. Indeed, reviewing the empirical literature on the conflicts of interest of financial

institutions, Mehran and Stulz (2007) conclude that the findings are generally weak and inconsistent with what some commentators and politicians want us to believe.

So, is an integrated lending and underwriting bank sure to benefit its client firms because of its informational economies of scope? As it turns out, Kanatas and Qi (2003) show a subtle but potentially important downside from the scope economies that may enable the bank to lock in its client firms' future business. In their theoretical model, Kanatas and Qi argue that the market power provided by the informational scope economies may motivate an integrated bank to exert lower underwriting efforts when selling its client firms' securities. The intuition is that by being able to lock in the clients' subsequent funding (borrowing) needs if their securities fail to be placed, the cost to the bank from this failure is reduced or even eliminated. In contrast, an independent underwriter is unable to recoup its cost if the securities it underwrites fail to sell. Therefore, an integrated lending and underwriting bank that possesses informational scope economies generally has less incentive (exert lower underwriting efforts) to sell its client firms' securities. The Kanatas and Qi (2003) model builds on the earlier work of Sharpe (1990), Rajan (1992), and Thakor and Boot (1997), who also point out a reduced incentive for information production when an intermediary has (possibly limited) market power. An interesting empirical implication of these models is that all else the same, securities underwritten by concurrent lending and underwriting banks are more likely to fail – less likely to be placed – than those marketed by underwriters that have no existing lending relationships with the issuing firms.

In contrast to the above prediction, Laux and Walz (2008) continue the debate on the incentive effect on the intermediary of integrating its lending and underwriting functions. Laux and Walz argue that the incentive to sell its client firms' junior securities such as equity is actually greater for an underwriter that is also the issuing firms' concurrent lender. Their

intuition is that the firms' successful issues of equity reduce the default risk of their bank loans. Therefore, the concurrent lending and underwriting bank has the greater incentive to help sell the firms' equity issues. Laux and Walz also argue that cross selling or concurrent lending and underwriting reduces rents in the underwriting business. The latter prediction is consistent with the findings in Fernando et al. (2005) and Parthasarathy (2007).

Given the contrasting predictions in the theoretical literature on the likelihood of success of security issues underwritten by the different underwriter types, it is interesting to develop empirical tests that help shed light on this debate. In particular, we focus on the likelihood of failure (withdrawal) of an IPO when it is underwritten by a concurrent lending bank relative to that when it is underwritten by a non-concurrent lending underwriter. We choose IPOs rather than SEOs for our empirical study because the role of underwriter and its incentive for greater underwriting efforts are much more important for the successful issue of an IPO than a SEO.

Summarizing, we propose two competing hypotheses concerning the effect of concurrent lending and underwriting on IPO withdrawal. Our first hypothesis is based on the argument that a concurrent lending and underwriting bank can continue to profit from lending to issuing firms that fail to place their IPOs, and therefore, the bank will undertake less costly "efforts" to sell the IPOs of their borrowers. Thus, all else the same, concurrent lending banks will see a higher rate of IPO withdrawal by their borrowers.

Hypothesis 1: IPOs underwritten by concurrent lending banks have a lower probability of success – a higher rate of withdrawal – than IPOs underwritten by banks that have no existing lending relationships with the issuers.

Our second hypothesis is a competing hypothesis of the first. Here, the argument is that a concurrent lending bank actually benefits from the IPOs of their borrowers because a successful

issue of borrower IPO reduces the default risk of the issuer's bank loan and increases the loan's value to the bank. Thus, all else the same, concurrent lending banks will undertake more "efforts" to underwrite the IPOs of their borrowers, and as a result, such underwriters will have a higher rate of IPO success – a lower rate of IPO withdrawal – by their borrowers.

Hypothesis 2: IPOs underwritten by concurrent lending banks have a higher probability of success – a lower rate of withdrawal – than IPOs underwritten by banks that have no outstanding loans to the issuers.

3. Data and Variables

Our main data source is the Thomson Reuters SDC Platinum database. This database provides specific IPO filing and withdrawn dates. Since the number of banks being both commercial lenders and security underwriters was few until 1994, our sample period is from 1995 to 2013. The starting year of our sample period is consistent with that in Drucker and Puri (2005), and the entire period is also limited by the SDC Platinum database availability. Unlike in a usual study of IPOs, we keep in our sample IPOs with an offer price below five dollars. These IPO firms are small and not well known, and as such, they generally need more help from the underwriters; that is, the role of underwriters is more important for IPOs of small issuers. Our overall sample consists of 2,874 IPO firms. To test the concurrent loan effect, we construct a matching portfolio of IPOs. We first identify all IPO filings within the same year as the original concurrent loan firms. We then select the IPO firms that have outstanding loans but not from their underwriters. Our IPO cohort data (1999, 2000) and underwriter ranking data come from Jay Ritter's website.

Since we only test whether concurrent lending affects IPO withdrawal, we modify Drucker and Puri's (2005) definition of a concurrent lending period by using only six months prior to the IPO issuance date. In their study of successful SEOs, Drucker and Puri define a concurrent lending period as an issuing firm's receiving loans from its SEO underwriter between six months before and after the SEO. Since the period of six months is somewhat arbitrary, in our robustness checks, we also exploit alternative durations of a concurrent lending period as in Drucker and Puri (2005). Our regression results remain qualitatively the same.

4. Empirical Design

Our main empirical test employs a probit regression model:*

$$\textit{Withdrawn dummy} = \beta_1 \textit{Concurrent loan} + \beta_2 \textit{VC backing} + \beta_3 \textit{Debt retirement} + \beta_4 \textit{Technology Industry} + \beta_5 \textit{File range} + \beta_6 \textit{Bond spread} + \beta_7 \textit{Exchange market} + \beta_8 \textit{Underwriter ranking} + \beta_9 \textit{Total assets} + \beta_{10} \textit{Firm Characteristics} + \theta \quad \text{(I)}$$

The dependent variable, *Withdrawn dummy*, is equal to one if the firm's IPO is withdrawn after filing, and is zero if otherwise. *Concurrent loan* is another dummy variable that is equal to one if the IPO firm has a concurrent loan from its underwriter at the time of the IPO filing, and is zero if otherwise. Following Dunbar and Foerster's (2008) study on withdrawn IPOs, we also check the use of IPO proceeds. *Debt retirement* is a dummy variable that is equal to one if the proceeds are slated for debt repayment, and is zero if otherwise. *Technology industry* is another dummy variable which equals one if the firm belongs to the Fama-French technology industry classification, and so is *File range* which equals one if the IPO price is higher than the filing price range. To control for the overall market conditions (Drucker and Puri, 2005), variable *Bond spread* measures the difference between the average yields on Aaa-rated and Baa-rated corporate bonds. *Underwriter ranking* is from Jay Ritter's IPO database website.

Dummy variable *Exchange market* equals one if the firm is listed in a major stock exchange, and *VC backing* equals one if the IPO is backed by venture capital. We also control for fixed year effect as well as firm characteristics such as size, market-to-book ratio, and return on equity.

Our robustness test applies a matching portfolio to control for the potential issue of endogeneity. The probit regression has the same setup as model (I) but the loan dummy variable now equals one if the firm has an outstanding loan but not from the underwriter.

$$Withdrawn\ dummy = \alpha_1 Loan\ Dummy + \alpha_2 VC\ backing + \alpha_3 Debt\ retirement + \alpha_4 Technology\ Industry + \alpha_5 File\ range + \alpha_6 Bond\ spread + \alpha_7 Exchange\ market + \alpha_8 Underwriter\ ranking + \alpha_9 Total\ assets + \alpha_{10} Firm\ Characteristics + \theta' \quad \text{(II)}$$

We first run the univariate probit regression test with the main control variables. We then run both models (I) and (II) to test the overall effect. In the main regression tables, there are dummy variables AMEX, NYSE, NASDAQ, and OTC because the majority of our sample firms have planned to list in these major stock exchanges. We attempt to test whether the planned listing in any one of the stock exchanges has any impact on IPO withdrawal.

5. Empirical Results

We describe our summary statistics in Table 1, including the number and the percentage of successful and withdrawn IPOs. The third column in Panel A of Table 1 provides the number of successful IPOs in each year while the fourth column shows the number of withdrawn IPOs in the same year. The last two columns present these numbers in percentage terms. The sample size of withdrawn IPOs is smaller in our study than in Dunbar and Foerster (2008) because we require that all firms that filed for IPOs must also have available loan information. Thus, our sample selection is more restrictive than in their study although our primary database, Thomson Financial Securities Data's (TFSD) New Issues Database, is the same as in theirs. In terms of the

percentage of IPOs that are withdrawn, our sample is comparable to that in Boeh and Dunbar (2014); both their and our samples exhibit an upward trend in IPO withdrawals until the end of the tech-bubble period in 2000, and a downward trend afterwards. Also similar to Boeh and Dunbar, the IPO success rates are higher both before and after the years of tech bubbles, and the number of IPO filings is higher in the years before the end of tech bubble than in the subsequent years.

Panel B of Table 1 shows the percentage of IPOs that were withdrawn before but subsequently return for a second attempt at going public. This percentage is less than 10% in our sample of withdrawn IPOs, consistent with that in Dunbar and Foerster (2008). In our case, the withdrawn IPOs that used concurrent lending underwriters in the first time are more likely to choose different underwriters in their second IPO attempts than those that did not hire concurrent lending banks in the first place. This suggests that the IPO firms that failed in the first attempt may have recognized that their concurrent lending underwriters were a factor in the failure of their original IPO attempts.

Table 2 lists by year the number of IPOs underwritten by concurrent lending banks. As suggested by the uptrend until year 2000, on an annual basis, the tech-bubble period has more withdrawn IPOs than the rest of the sample. Overall, the first half of our sample period (1995-2003) has 86 concurrent lending IPOs while the second half (2004-2013) only has 29 concurrent lending IPOs. Particularly notable is that there are 20 concurrent lending IPOs in 1997 but none in 2007. This type of skewness in our sample is also evident in the previous studies. For example, the SEO sample in Drucker and Puri (2005) displays a similar pattern of concurrent lending between 1995 and 2001. Note that their sample size in these years is about twice that of ours in the same years. This is not surprising because their concurrent lending period is a total of

twelve months (six months before, as in ours, but also six months after).

Figure 1 illustrates the trend of the number of concurrent lending and underwriting IPOs. Although the Glass-Steagall Act was formally repealed in November 1999, the relaxation of its many restrictions had begun long before the repeal. In April 1987, U.S. regulators started to allow commercial bank holding companies (BHCs) to establish investment banking affiliates and permit a number of such affiliates to engage in underwriting corporate bond issues. While concurrent lending and underwriting was very rare in the early years of the 1990s, after 1994, many BHCs started to provide lending and underwriting services to client firms. This fact is neatly captured in Figure 1 by the jump in concurrent lending and underwriting beginning in 1995. After 2000, however, with the bursting of tech bubble, there is an overall decline in the number of concurrent lending IPOs despite a temporary rebound in 2004. Our final sample consists of 115 withdrawn IPOs that have concurrent loans outstanding at the time of their IPO withdrawals.

Table 3 presents our preliminary univariate test result from a paired characteristic test between withdrawn IPOs and successful IPOs. The last column shows the p-values of the differences between the two groups. Our main focus is whether concurrent loans occur more frequently in one group than in the other. As shown, 5.05% of IPO firms in the withdrawn group have concurrent loans while only 2.21% the successful group do. Thus, the percentage in the withdrawn group is over twice as much as in the successful group, and the difference between these two groups is statistically significant at the 5% level. This result is supportive of our hypothesis 1 (not hypothesis 2), namely that concurrent lending and underwriting is associated with a higher rate of IPO withdrawals. Examining the use of IPO proceeds in the filings, we find that 25.47% of the successful IPO firms plan to use their IPO proceeds to retire their outstanding

debt while only 6.78% of the withdrawn firms do. This difference is also economically and statistically significant. In terms of IPO firms belonging to the technology industry, the sample size is fairly close, as is the case in Dunbar and Foerster (2008).

Dunbar and Foerster (2008) suggest that the size of withdrawn IPOs should be smaller than that of successful ones. As it turns out, Table 3 shows that the average IPO filing size is not much different between the withdrawn and successful groups. Perhaps, our sample is somewhat skewed towards the right-hand side of the distribution. The withdrawn IPO firms also have higher loan spreads than the successful firms possibly because the withdrawn firms are of lower quality. The majority of our sample firms plan to list in one of the main exchanges, although almost all successful IPO firms are listed in NYSE, NASDAQ, and AMEX. We use underwriter rankings from Jay Ritter's IPO database, and the average underwriter rankings are similar between the two groups.

Table 4 presents the summary description of our main variables of interest, including the use of IPO proceeds, IPO firm industry type, IPO filing price range, exchange that a firm is listed, market condition, as well as whether firms issue common shares. Our entire sample includes 2,874 firms. Our sample differs somewhat from that in Dunbar and Foerster (2008) again because we impose additional requirements. For example, the IPO firms in our sample have lower tendency and our sample includes fewer technology firms and fewer venture capital backed IPOs. Less than twenty percent of our sample firms belong to the technology industry. One fifth of our sample IPOs are priced above their filing price ranges, suggesting that these IPO's are well received by the market before the IPO and are therefore less likely to be withdrawn. About one half of our sample IPO firms are listed on NASDAQ, indicating that our sample includes a fair amount small size firms. However, our sample only has three OTC firms,

although a small fraction of our sample is not listed in the major stock exchanges. As in the IPO literature (e.g., Nenova, 2003), we include the effect of common shares, voting rights, and ownerships. Most of our sample IPOs are common stock offerings. As in Dunbar and Foerster (2008), we control for the market conditions by using yield spreads between the average rates on Aaa-rated corporate bonds and those on Baa-rated corporate bonds. We keep low-priced IPOs (usually by very small firms and priced below five dollars) mainly because we examine the incentive effect of underwriter type and the marketing efforts of underwriters are clearly more important in the successful sales of these firms' securities. In contrast, larger or better-known firms generally have a much higher probability of successfully going public even when their underwriters do not do as much to market their IPOs. Because we include a whole range of sample firms, IPO offer prices vary significantly among different firms, and their IPO proceeds also range from several million to a few billion dollars.

We employ a probit regression as our baseline test to demonstrate the effect of underwriter type on IPO success. Table 5 presents the results of the regression test. Our dependent variable is the withdrawal dummy that takes value one if the IPO is withdrawn. Our key independent variable is the concurrent loan dummy which equals one if the firm has borrowed from the underwriter within six months of the scheduled IPO date. Our control variables include the usual ones used in the literature (as seen in Table 4). We control for firm and year fixed effects. We also control for firm characteristics such as size, book-to-market, and returns on equity. Since we control firm characteristics only to improve our main results rather than studying their effects on the IPO success rate, all the firm characteristic control variables are included in "Firm Characteristics" at the bottom of Table 5.

Our tests proceed in several steps. First, the univariate probit regression test is performed

to investigate the variables of interest, starting with the key independent variable, the concurrent loan dummy. As shown in Table 5, the coefficient of this dummy variable is positive and significant, indicating that concurrent loans increase the IPO withdrawal rate – decreases the IPO success rate. Next, we run the probit regression test by adding other traditional control variables on top of the concurrent loan control variable. Although these other variables absorb some of the significance of our main concurrent loan variable, the concurrent loan dummy remains both statistically and economically significant.

Several other results in Table 5 are also noteworthy. Different from the finding in Dunbar and Foerster (2008), we find that the plan to use IPO proceeds for debt repayments does not have a significant effect on the decision to withdraw the IPO. Since we control for more firm characteristics than in their study and also for the outstanding loan effect, the impact of the debt retirement dummy may be absorbed by the additional variables. Turning to our attention to the exchange in which the IPO plans to list, as expected, our results show that firms that want to list in the major exchanges are less likely to withdraw their IPOs. Also in line with our expectation and consistent with the finding in the literature (e.g., Dunbar and Foerster, 2008), IPOs underwritten by a higher ranked underwriter have lower probabilities of being withdrawn. Similarly, venture capital backed IPOs are more likely to succeed in going public.

The final step in our main regression test is to run all the control variables in a multivariate probit regression model as in equation (I). The last column of Table 5 presents the result. Our focus is still on the effect of concurrent loan on IPO success. The coefficient of the concurrent loan dummy remains significant. As seen in the overall probit regression results, although the effect of concurrent loans on IPO withdrawals is weakened somewhat by the venture capital backing and major stock exchanges dummies, it is still positive and significant (at

the 10% level). Indeed, all three variables of concurrent loan, venture capital backing, and major stock exchange appear to affect the IPO success rate. In particular, the result on our main variable of interest, the concurrent loan dummy, again indicates that the probability of an IPO being withdrawn is higher if the IPO firm has an outstanding loan with its underwriting bank. In other words, the use of an underwriter that also has a concurrent loan with the IPO firm reduces the likelihood of success of the IPO. This result supports our hypothesis 1 that concurrent lending and underwriting imposes a cost on the client firm by increasing the likelihood of withdrawal of the firm's IPO. Our results on the effects of the other variables that affect IPO success are consistent with the findings in the previous literature.

6. Robustness Test and Extention

In this section, we conduct additional robustness checks. For example, it is possible that IPOs underwritten by concurrent lending banks are more likely to be withdrawn not because of the underwriter type, but because there are certain (uncontrolled) characteristics of the IPO firms that cause them to prefer this underwriter type. To control for this endogeneity issue, we apply a propensity score matching portfolio (Heckman et al., 1997 and 1998). Essentially, we match IPO firms based on some observable characteristics, and then compare the success rate of IPOs that have outstanding loans from the firms' own underwriters with that of other IPOs that borrow from different lenders.

The criteria for our matching portfolio are as follows. First, we require that matching firms be from the same industry as the withdrawn IPOs in our sample. Second, we require that matching firms file their IPOs with the SEC in the same year as the withdrawn ones. Third, we require that matching firms also have outstanding loans but not from their underwriters. If there are multiple candidates meeting the selection criteria of matching firm, we choose the one with

market value that is closest to the withdrawn firm. Our selection criteria ensure the consistency of our matching portfolio with the sample of withdrawn IPOs in their firms' industry, IPO year, loan status, and market value, so that our results are not driven by the observably different characteristics of the withdrawn IPO firms. Past studies have suggested that the propensity score matching method is an effective way to control for endogeneity and allow for a more accurate analysis (e.g., Rubin, 1997). In their study of the quality and pricing of concurrent lending and underwriting SEOs, Drucker and Puri (2005) also argue for propensity score matching because the econometric matching method employs fewer restrictions and uses only one-dimensional measure.

Table 6 presents the result of the robustness test. The main control variable is now a non-concurrent lending dummy, which is equal to one if the IPO firm has an outstanding loan but from a lender other than its own underwriter within six months prior to the IPO. All other control variables remain the same. As shown in Table 6, borrowings by IPO firms prior to the IPOs do not have an impact on the success rate of the IPOs if the lenders are not the underwriters of the IPOs. The result is in contrast to our earlier finding that shows that concurrent lending by underwriters reduces the likelihood of IPO success. We also conduct robustness tests using alternative definitions of concurrent lending period. We re-run the probit regression using three and twelve months before the IPO as the alternative concurrent lending periods, with similar results.

7. Conclusion

We study the impact of concurrent lending and underwriting on IPO withdrawal. We find that IPOs underwritten by their firms' concurrent lending banks have a greater likelihood of withdrawal than those marketed by underwriters that have no loan relationships with the firms.

The results suggest significant costs to IPO firms from hiring concurrent lending banks as underwriters despite the potential cost savings such banks may provide.

Our evidence is consistent with the implication of the Kanatas and Qi (2003) model which argues that an integrated lending and underwriting bank may have less incentive to help sell its client firms' securities because of its lock-in of lending to the firms when it fails to sell the firms' securities. In this regard, our study is the first to empirically document a possible cost that is associated with concurrent lending and underwriting. A key assumption in Kanatas and Qi (2003) is the existence of informational scope economies by integrated intermediaries. While in their study of successful SEOs, Drucker and Puri (2005) find the evidence that is consistent with concurrent lending and underwriting intermediaries' informational scope economies, our results suggest that this cost advantage of the intermediaries may also impose a real cost on the client firms by increasing the likelihood of failure of their security issues.

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9. Tables

Table 1.1: Summary Statistics
This table contains descriptive statistics for the sample of all IPO filings as well as successful/withdrawn IPOs and in percentage by year. The sample coverage starts from January 1995 and ends in December 2013. The main database for our sample is Thomson Financial Securities Data's (TFSD) New Issues Database.

Panel A

Firms with available loan information

Year	Number of IPOs Filed	Number of Successful IPOs	Number of Withdrawals	Percentage of Successful IPOs	Percentage of Withdrawals
1995	156	150	6	96.15%	3.85%
1996	326	300	26	92.02%	7.98%
1997	224	198	26	88.39%	11.61%
1998	174	136	38	78.16%	21.84%
1999	200	180	20	90.00%	10.00%
2000	226	162	64	71.68%	28.32%
2001	106	64	42	60.38%	39.62%
2002	72	36	36	50.00%	50.00%
2003	68	42	26	61.76%	38.24%
2004	132	116	16	87.88%	12.12%
2005	140	124	16	88.57%	11.43%
2006	154	142	12	80.52%	8.45%
2007	140	128	12	91.43%	8.57%
2008	105	75	30	71.43%	28.57%
2009	140	128	12	91.43%	8.57%
2010	120	105	15	87.50%	12.50%
2011	126	111	15	88.10%	11.90%
2012	145	134	11	92.41%	7.59%
2013	165	157	8	95.15%	4.85%
Total	2,874	2,442	432	84.97%	15.03%

Panel B

Returns of Withdrawn IPOs

	Concurrent Loan Withdrawals	Non-Concurrent Loan Withdrawals
Returning Firms	12 (10.34%)	31 (7.18%)
Switched Underwriter	6 (50%)	10 (32.26%)

Table 1.2: Concurrent Lendings by Year

This table contains descriptive statistics for the sample of all concurrent lending by year. The sample coverage starts from January 1995 and ends in 2013. Concurrent lending is defined as a loan that is followed by the same lender underwriting the borrower's IPO within the next six months of the loan. The main database for our sample is Thomson Financial Securities Data SDC Platinum.

Year	1995	1996	1997	1998	1999	2000
Number of Concurrent Lending	10	14	20	12	8	12

2001	2002	2003	2004	2005	2006	2007	2008
4	4	2	14	4	2	0	2

2009	2010	2011	2012	2013	Total
1	1	2	2	1	115

Table 1.3: Paired Firm Characteristic Test

This table compares the characteristics between withdrawn IPOs and successful IPOs. Concurrent loan is defined as a loan that is followed by the same lender underwriting the borrower's IPO within the next six months of the loan. Debt retirement use is a dummy variable that is one if the IPO proceeds are used to retire firm's outstanding debt. Technology industries is a dummy variable that is equal to one if the firm belongs to the Fama-French technology industry. Filing size is in Million(s). Corporate bond spread is the difference between average rates on Aaa rated corporate bonds and average rates on Baa rated corporate bonds. Underwriter ranking is from Jay Ritter's IPO database with 9 being the highest. IPO proceeds are from SDC Platinum database. P-values are calculated using paired t-statistics.

	Withdrawn IPOs	Successful IPOs	P-Values of Differences
Concurrent Loans	5.05%	2.21%	0.0231
Debt Retirement Use	6.78%	25.47%	<0.0001
Technology Industries	20.52%	23.64%	0.8978
Filing Size	169.15	174.26	0.9012
Corporate Bond Spread	0.8001	0.7764	0.0186
Firms Listed on Amex, Nasdaq, NYSE	91.25%	97.57%	<0.0001
Underwriter Ranking	4.99	4.88	0.6792

Table 1.4: Summary of Main Variables of Probit Regressions

This table is the summary description of the main control variables of the probit regressions. Concurrent loan is defined as a loan that is followed by the same lender underwriting the borrower's IPO within the next six months of the loan. A firm uses IPO proceeds for financing if their IPO proceeds are filed for financing purpose. A firm belongs to the technology industry if they belong to the Fama-French technology industry classification. We collect venture capital backing, the filing price range, listed exchange, IPO share type, offer price, IPO proceeds from SDC Platinum database. Corporate bond spread is the difference between average rates on Aaa rated corporate bonds and average rates on Baa rated corporate bonds. Panel A lists the number of firms as well as in percentage for each control variable. Panel B lists the mean, minimum, and maximum amount of each control variable.

Panel A

	Number of Firms	Percent
IPO Proceeds Use for Financing	175	8.67%
Venture Capital Backing	164	8.08%
Technology Industry Firms	149	7.58%
IPO Price Above File Range	189	9.07%
Firms Listed on AMEX	34	1.44%
Firms Listed on NYSE	314	21.58%
Firms Listed on NASDAQ	486	25.51%
OTC Stocks	3	0.14%
Common Shares	681	36.03%
Firms Not Listed on NYSE, NASDAQ, AMEX	20	0.99%

Panel B

	Mean	Min	Max
Corporate Bond Spread	0.71	0.5	1.12
Offer Price	$28.52	$1.00	$76.00
IPO Proceeds (In Millions)	$464.88	$3.60	$7,322.40

Table 1.5: Probit Regressions

This table presents the main probit regression test result. Our sample includes 2,874 IPO firms from 1995 to 2013. The dependent variable withdrawn dummy is a dummy variable that is equal to one if the firm withdrew from IPO after filing, zero otherwise. Concurrent loan is a dummy variable that is equal to one if the IPO firm has an outstanding concurrent loan at the time of IPO filing, zero otherwise. Debt retirement is a dummy variable that is equal to one if the IPO proceeds are used to retire outstanding debt, zero otherwise. Technology industry is a dummy variable that is equal to one if the firm belongs to Fama-French technology industry classification, zero otherwise. File range is a dummy variable that is equal to one if the IPO price is higher than the filing price range. Bond spread is the difference between average rates on Aaa rated corporate bonds and average rates on Baa rated corporate bonds. Exchange market is a dummy variable that is equal to one if the firm is listed on one of the major stock exchanges, zero otherwise. Amex dummy, NASDAQ dummy, and NYSE dummy are dummy variables if the IPO firm is listed on the according exchange, zero otherwise. Underwriter ranking is from Jay Ritter's IPO database website. VC backing is a dummy variable that is equal to one if the IPO is backed by venture capital, zero otherwise. Firm characteristics include size, book-to-market, and return on equity. All tests control for fixed year effect. P-values are in parentheses. (*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.)

	1	2	3	4	5	6	7	8
Concurrent Loan	1.77	1.54	1.21	1.68	1.87	1.11	1.05	1.02
	(0.01)***	(0.04)**	(0.06)*	(0.04)**	(0.03)**	(0.06)*	(0.07)*	(0.08)*
Debt Retirement								-0.99
								(0.17)
Technology Industry		0.01						0.01
		(0.11)						(0.12)
File Range Dummy				0.09				0.08
				(0.36)				(0.46)
Bond Spread						0.22		0.12
						(0.18)		(0.21)
Exchange Market							-4.46	-3.55
							(0.01)***	(0.01)***
Amex Dummy			-4.15					
			(0.02)**					
Nasdaq Dummy			-2.36					
			(0.03)**					
NYSE Dummy			-3.12					
			(0.04)**					
Underwriter Ranking					-0.08			-0.07
					(0.04)**			(0.05)**
OTC Dummy			-3.11					
			(0.01)***					
VC Backing Dummy								-8.18
								(0.01)***
Total Assets								-0.31
								(0.16)
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES	YES
Firm Characteristics	YES	YES	YES	YES	YES	YES	YES	YES

Table 1.6: Robustness Test Using Non-Concurrent Lendings

This table presents the robust probit regression result. Our sample includes 2,215 IPO firms from 1995 to 2013. The dependent variable withdrawn dummy is a dummy variable that is equal to one if the firm withdrew from IPO after filing, zero otherwise. We construct our non-concurrent lending dummy variable that is equal to one if the IPO firm has an outstanding loan from a different lender than their IPO underwriter 6 months prior to IPO date, zero otherwise. Debt retirement is a dummy variable that is equal to one if the IPO proceeds are used to retire outstanding debt, zero otherwise. Technology industry is a dummy variable that is equal to one if the firm belongs to Fama-French technology industry classification, zero otherwise. File range is a dummy variable that is equal to one if the IPO price is higher than the filing price range. Bond spread is the difference between average rates on Aaa rated corporate bonds and average rates on Baa rated corporate bonds. Exchange market is a dummy variable that is equal to one if the firm is listed on one of the major stock exchanges, zero otherwise. Amex dummy, NASDAQ dummy, and NYSE dummy are dummy variables if the IPO firm is listed on the according exchange, zero otherwise. Underwriter ranking is from Jay Ritter's IPO database website. VC backing is a dummy variable that is equal to one if the IPO is backed by venture capital, zero otherwise. Firm characteristics include size, book-to-market, and return on equity. All tests control for fixed year effect. P-values are in parentheses. (*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.)

	1	2	3	4	5	6	7	8	9	10
	Dependent Variable: Withdrawn Dummy									
Non-Concurrent Loan	0.69	0.71	0.72	0.65	0.74	0.57	0.49	0.48	0.44	0.47
	(0.34)	(0.36)	(0.42)	(0.35)	(0.31)	(0.46)	(0.40)	(0.45)	(0.47)	(0.50)
VC Backing Dummy			−10.17							−11.79
			(0.01)***							(0.01)***
Debt Retirement		−0.71								−0.65
		(0.21)								(0.28)
Technology Industry				−0.02						−0.02
				(0.15)						(0.27)
File Range Dummy						0.22				0.17
						(0.18)				(0.28)
Corporate Bond Spread								0.10		0.09
								(0.09)*		(0.10)*
Exchange Market									4.47	
									(0.01)***	
Amex Dummy					−1.58					−1.51
					(0.04)**					(0.05)**
NYSE Dummy					−1.89					−1.45
					(0.01)***					(0.02)**
Underwriter Ranking							−0.21			−0.13
							(0.06)*			(0.10)*
OTC Dummy					2.78					2.46
					(0.01)***					(0.02)**
Total Assets										−0.22
										(0.08)*
Year Fixed Effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm Characteristics	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

10. Figures

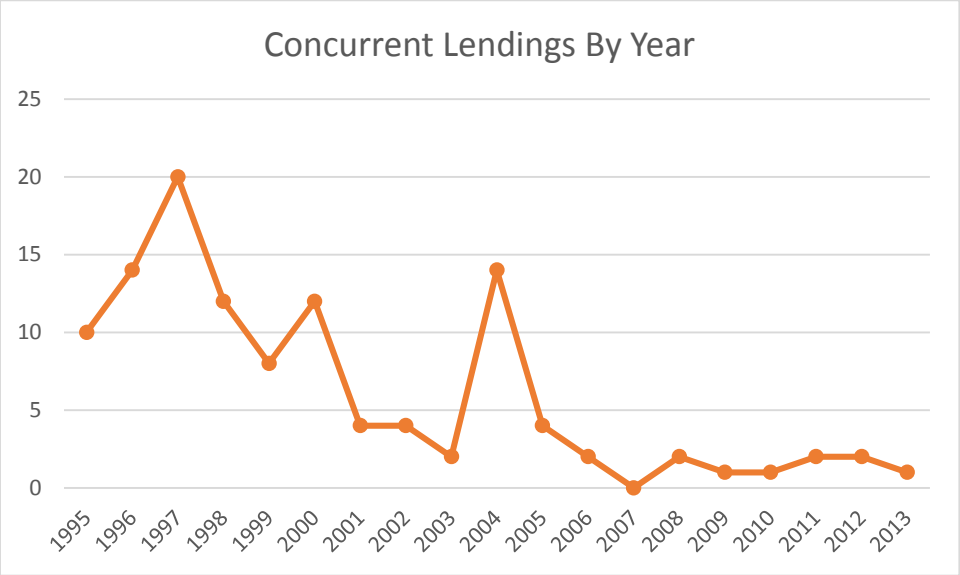

Figure 1.1: Concurrent Lending by Year

From Setback to Comeback: Motivations for Withdrawn IPO Firms to Return

1. Introduction

Recent studies have identified the desire to make acquisitions as the main motivation for private firms to go public (e.g., Brau and Fawcett (2006), Celikyurt, Sevilir, and Shivdasani (2010) and Hovakimian and Hutton (2010)). The cash raised in the IPO as well as the new public stock provide valuable financial resources for potential acquirers. Also, entrepreneurs tend to be prone to overconfidence, which may further drive the appetite for acquisitions and the poor subsequent long-run performance (e.g., see Brau, Couch, and Sutton (2012)). While the drive to become an acquirer may be the most popular motivation for going public, some private firms may have different aspirations. In particular, private firms that were unsuccessful in their first IPO attempt may have altered expectations when filing for an IPO the second time around. Studies in psychology and entrepreneurship suggest that previous experience with failure can cause managers to have more realistic expectations about the future (e.g., Ucbarsaran et al. (2010)). Thus, withdrawn IPOs that return to the market may follow a different growth strategy than traditional first-time IPOs.

Previous research on withdrawn IPOs has largely focused on why firms withdraw, and what happens to them after they do (e.g., Dunbar (1998) and Benveniste, Ljungqvist, Wilhelm, and Yu (2003)). For example, Busaba et al. (2001) argue that the option to withdraw reduces underpricing by strengthening the issuers' bargaining power with respect to investors. Furthermore, Busaba (2006) finds that the ability to withdraw IPOs when demand is weak increases the expected proceeds and provides issuers with option value. In investigating the

outcomes of withdrawn IPOs, Boeh and Dunbar (working paper) document that 42% either merge or are acquired, and 13% return for a successful IPO. Noting that most withdrawn IPOs never return to the market, Dunbar and Foerster (2008) investigate the factors that predict a successful IPO the second time around. They show that venture capital-backing, lead underwriter reputation, and switching to a better underwriter are key factors affecting issuers to return to the IPO market. Lian and Wang (2009) find that second-time IPOs sell at a significant discount relative to similar contemporaneous IPOs that succeed in the first attempt, and that switching underwriters on the second IPO attempt reduces this discount. Their findings also reveal that second-time IPOs perform similar to a matched portfolio of first-time IPOs.

The purpose of this study is to examine the post-IPO restructuring decisions of second-time IPOs to provide insights on the motivation for failed IPOs to come back to the market. Are they driven by the same desire to acquire as the general IPO population? We hypothesize that, given their experience with failure, second-timers are more cautious in their use of funds. Thus, these firms may be less inclined to pursue post-IPO acquisitions, which are often motivated by the hubris of overconfident managers who end up overpaying in the acquisition (see Roll (1986), Rau and Vermaelen (1998), and Malmendier and Tate (2008)). Instead, these returning IPOs may be driven by internal, as opposed to external, growth.

Our results show that second-time IPOs demonstrate a strong tendency to engage in organic growth, namely in capital expenditures (CAPEX) and research and development (R&D) spending. This finding stands in contrast to the most popular growth strategy followed by first-time IPOs, who show a hearty appetite for acquisitions of other firms. While previous studies suggest that entrepreneurs tend to be overly-optimistic, our results suggest that managers of previously withdrawn IPOs have more conservative expectations, as reflected by their

investment decisions in the post-IPO period. An analysis of the long-run performance of second-time IPOs indicates that this focus on internal growth, as opposed to acquisitions, benefits shareholder value.

This study contributes to the IPO literature by examining the unique motivations for previously unsuccessful IPOs to go public. These findings imply that prior experience with failure can influence a firm's post-IPO growth strategies. Our results suggest that second-time IPOs, which focus on internal growth, are different from first-time IPOs, which actively pursue acquisitions of other firms. In contrast to the post-IPO acquisition strategy, the focus on internal growth has positive implications for long-run shareholder value.

The rest of this paper is as follows. Section II is the literature review. Section III introduces our hypotheses. Section IV describes sample data and main variables. Section V presents the main test results. Lastly, Section VI is the conclusion.

2. Hypotheses

The most common motivation for going public is to enhance the ability to make acquisitions. The advantages of conducting an IPO for acquisition purposes include the capital raised from the IPO, the subsequent access to public financing, and the ability to pay with publicly traded stock for future acquisitions. Issuing stock to public investors helps generate funding for future cash-based acquisitions as well. After IPOs, firms not only have further access to the public equity market, they are also able to access the public debt market for future fundraising.

In addition, given the expanded scope of financing choices for acquisitions, a public firm may have more targets on their menu than a private firm. Given the financial resources provided by the IPO and the growth aspirations of newly-public firms, second-time IPOs may be driven by

similar motivations as first-time IPO firms:

Hypothesis 1: Second-time IPO firms return to the public market due to the desire to acquire.

Previous studies such as Baker, Ruback, and Wurgler (2006) note that entrepreneurs have a proclivity towards overconfidence. This overconfidence can cause managers to overestimate their abilities, leading to frequent acquisition activity (see Roll (1986) and Rau and Vermaelen (1998)). In examining the influence of overconfidence in mergers, Malmendier and Tate (2008) show that overconfident acquirers tend to make value-destroying acquisitions. Furthermore, Brau et al. (2012) show that newly-public acquirers perform poorly in the long-run as well. However, the mind-set of second-time IPO managers may differ from first-timers. The past experience of IPO failure may make second-time IPO firms less likely to be overconfident. As noted by Ucbarsaran et al. (2010), failure can cause entrepreneurs to have more realistic expectations. If second-time IPO managers are less likely to exhibit excessive optimism, which is a potential driver of post-IPO acquisition activity, then these firms may choose a more conservative growth path. Hence, internal growth may be preferable to external growth for withdrawn IPOs that return to the market.

Capital expenditures and R&D activities have been repeatedly found to have a positive impact on firm growth (e.g. Adamou and Sasidharan 2007, Coad and Rao 2008, etc.). Although it takes time for capital expenditures and R&D activities to be economically effective, many firms are willing to spend significant amounts on these expenditures for internal growth purposes. Therefore, private firms may choose raising capital through IPOs to fund R&D and capital expenditures. Faced with the option of internal versus external growth, withdrawn IPO

firms may be more likely to opt for internal growth, given their past history of failure in the market. This perspective leads to our second hypothesis:

Hypothesis 2: Second-time IPO firms return to the public market in order to grow internally through R&D and CAPEX.

3. Data

Our sample data of withdrawn IPOs is obtained from Thomson Reuters SDC Platinum database, which provides specific IPO filing and withdrawn dates. We maintain consistency with previous research sample screening processes by taking out financial firms, penny stocks, ADRs, real estate investment trusts (REITs), limited partnerships, foreign issuers, closed-end funds, and unit offers (e.g. Dunbar and Foerster 2008; Brau, Couch, and Sutton 2012). We calculate stock returns using both the market returns and style-adjusted returns based on data from the Center for Research in Security Prices (CRSP). We create market returns by using the value-weighted CRSP index as the benchmark. We calculate style-adjusted returns via propensity score matching by first choosing all possible firms that are listed on CRSP for at least 5 years and have a market capitalization that is between +/- 30% of that for the IPO firm. Then we use the firm with the closest market-to-book equity ratio as our matching firm, following Lyon, Barber, and Tsai (1999). Our returning IPO sample only keeps firms with information available in both SDC and CRSP. Our sample of IPO filings consists of 3,396 withdrawn IPOs over the period from 1980 through 2013.

4. Empirical Test Results

Figure 1 presents a clear image of how the returning IPOs are spread along our sample period. The peak of firms returning to the IPO market occurs around the "tech-bubble" period,

which accounts for the increase in the sample from 1998 to 2000. Given that IPO quality is more questionable during the hot IPO market, we should expect more IPOs to withdraw during this period. Therefore, our future tests will control for year fixed effects to rule out the bias from this IPO cohort. For the rest of the sample, the amount of second-time IPOs stays relatively steady.

The first question of interest is whether second-time IPOs return to the public market for the same reason as first-timers. The summary statistics in Table 1 provide some preliminary evidence. During the five-year post-IPO period, there are only 72 M&A activities, which suggests that second-time IPOs are not active acquirers. In another words, only 21% of the second time IPO firms engage in acquisitions during the five-year post-IPO horizon. Specifically, these 72 M&A activities include 57 second-time IPO firms, indicating that most of these acquirers conduct only 1 acquisition during the 5-year period. The one-year post-IPO period depicts a similar story. Only 25 firms are involved in 36 deals, or 9.2% of the second time IPOs. In contrast, Celikyurt et al. (2010) find that 54.7% IPO firms make at least one acquisition one year after the IPO, and 77.1% of IPO firms become acquirers 5 years after IPO.

We also use a matching portfolio to compare the difference between first-time and second-time IPO firms' M&A activities. Following Lyon et al. (1999), we select matching firms by first choosing all IPO firms during the same year with a market capitalization between +/- 30% of the IPO firm. Then we use the firm with the closest market-to-book equity ratio as our matching firm. As Panel B shows, the style-matched first-time IPO firms undertake significantly more acquisitions than second-time IPOs. These initial results suggest that withdrawn IPO firms are not strongly motivated by the desire to acquire when they decide to return for another IPO. It is possible that instead these firms go public to become more attractive as targets. However, this

motivation does not appear to be a strong one either, as less than 10% (25 firms) of our samples firms were acquired two years after going public.

Further descriptive statistics in Panel C of Table 1 shows that, on average, firms wait for more than two years to come back for their new IPO. The average waiting time is consistent with previous findings in withdrawn IPO studies (e.g. Dunbar and Foerster 2008, Lian and Wang 2009). There is no significant difference in waiting duration whether firms are involved in M&A's or not after their IPOs. Overall, the initial evidence from Table 1 suggests that, unlike first-time IPOs, the desire to acquire is not a strong motivation for withdrawn IPOs to return to the market.

Our second hypothesis argues that firms return to the public market with the hope to grow internally. Following recent research (e.g. Celikyurt, Sevilir, and Shivdasani 2010), we examine capital expenditures, R&D, and acquisitions, scaled by total assets. Table 2 Panel A reports the full sample summary. While firms spend more on R&D than capital expenditures at the beginning of the post-IPO stage, CAPEX increases at a faster rate than R&D; moreover, CAPEX increases monotonically through the five-year post-IPO period. Both CAPEX and R&D grow to a significant percentage in terms of total assets in the five years after going public. The combined amount sums to 44% of total assets at the end of the fifth year.

Spending on internal growth may substitute for acquisition spending to some extent. Thus, we examine the capital expenditures and R&D spending of firms that made acquisitions versus those that did not. Panel B shows the subsample of acquirers, and Panel C shows the subsample of non-acquirers. The findings suggest that acquirers experience lower CAPEX and R&D after going public. The statistical difference between acquirers and non-acquirers is presented in Panel D. Non-acquirers in the first four years after going public consistently spend

more on capital expenditures and R&D than acquirers. We argue that this is due to the original motive when withdrawn IPO firms decide to return to the public market. Although their future strategy might shift from organic growth to M&A activity as they mature, their initial aim appears to be to grow internally. CAPEX and R&D spending are competing against acquisition activities for available funds. This supports our second hypothesis.

For robustness checks, we compare the non-acquiring second-time IPOs to a matched sample of first-time IPO firms (see Heckman et al. (1997, 1998)). We first choose all of the firms that are issued in the same year as the IPO firm. We require the matched firms be listed on CRSP for at least 5 years. We also require the matching firm be within +/- 30% market capitalization of the IPO firm. Then we use the firm with the closest market-to-book equity ratio as our matching firm.

Panel E shows the summary statistics for the control group of first-time IPOs, and Panel F describes the difference between non-acquirers and the control group. Although both CAPEX and R&D are monotonically increasing in the control group, the economic values are not comparable to the non-acquirers. The results in Panel F are similar to the results in Panel D. Non-acquiring second-time IPOs demonstrate higher spending on CAPEX and R&D than contemporaneous first-time IPOs. These results support our second hypothesis.

To obtain a complete picture of the growth pattern of second-time IPO firms, we proceed to test the factors that influence the level of capital expenditures and R&D spending, as shown in Table 3. The sample used in the regression analysis includes the second-time IPOs as well as a matching portfolio that is composed of first-time IPO firms. To test the differing inclinations for internal growth for first and second-time IPOs, we use a dummy variable that is equal to one if the firm is a second-time IPO, and zero otherwise. We control for the traditional variables from

the past literature (e.g., Celikyurt, Sevilir, and Shivdasani 2010) in a multivariate regression framework. The dependent variable is the total CAPEX and R&D spending scaled by total assets. Our main variable of interest is the second time dummy variable. The significant coefficient for the second-time indicator variable suggest that firms returning to the public offerings market tend to spend more on their capital expenditures and R&D in the post-IPO period. We also find that the amount of primary capital raised from the IPO proceeds significantly increases CAPEX and R&D spending, as does venture capital backing and underwriter fees.

Our second research question is whether these returning IPOs perform differently from those contemporaneous first-time IPOs. Lian and Wang (2009) find that the performance of second-time IPOs is similar to that of first-time IPOs, which is generally poor. To relate our results to the recent literature, we compare the performance of acquirers and non-acquirers. Similar to prior studies (e.g. Ritter and Welch 2002; Brau, Couch, and Sutton 2012), we calculate the cross-sectional returns by subtracting the return over the same horizon for a similar non-issuing firm.

$$AR^{i}_{0,3} = \prod_{t=1}^{36}(1+r^{i}_{t}) - \prod_{t=1}^{36}(1+r^{b}_{t})$$

where $AR^{i}_{0,3}$ is the buy-and-hold abnormal return for firm *i* for months 1-36 after IPO, r_t^i is the raw return for firm *i* in month *t* after going public, and r_t^b is the benchmark return in month t.

Similar to previous findings (e.g. Loughran and Ritter 1995; Ritter and Welch 2002; Brau, Couch, and Sutton 2012), the results in Table 4 demonstrate that returning IPOs, on

average, significantly underperform the market in the 2-5 years after going public. In examining the influence of acquisition activity on performance, we find that acquirers actually perform well during the first year, which may encourage them to acquire, consistent with Brau et al. (2012). However, they significantly underperform the market during the rest of the 5-year period. Non-acquirers, on the other hand, still underperform during the post-IPO period, but to a significantly smaller degree. Thus, our results are similar to the findings in Brau et al. (2012) in that non-acquiring second-time IPO firms outperform those firms that make an acquisition within the first year after IPO. The overall similar stock performance between first-time and second-time IPOs is also consistent with Lian and Wang 2009.

Given that 2nd time IPO's may have a different focus from 1st time IPOs, we are interested in examining factors influencing the longrun post-IPO performance of the second-time IPOs. Our attention is mainly on capital expenditures and R&D spending, after controlling for other relevant factors such as underwriter quality and the acquisition effect. The dependent variable is the 5-year post IPO abnormal returns based on both market- and style-adjusted returns. Acquirer is a dummy variable equal to one for IPO firms that made at least one acquisition within 5 years after the IPO, and zero otherwise. One caveat of the regression design is that acquisitions may compete against CAPEX and R&D for available funds. In another words, if firms decide to participate in acquisitions, their future CAPEX and R&D spending may be scaled downward. This relationship might cause a multicollinearity problem between these two independent variables. To avoid this issue, we run two separate regressions using the acquirer dummy and CAPEX and R&D spending. A potential concern, as shown in Figure 1, is that these abnormal returns may be affected by the "tech-bubble" period in the late 1990s.

Therefore, we control for year fixed effects as well as industry fixed effect to alleviate this possible bias.

The results of the regressions explaining post-IPO performance for second-time IPOs are shown in Table 5. Our first observation is that capital expenditures and R&D spending benefit firm performance in the long run. This finding is consistent with previous studies examining CAPEX and R&D expenditures such as Guo, Lev, and Shi (2006), and Hirshleifer, Hsu, and Li (2013). In contrast, acquisition activity significantly decreases the post-IPO performance in the long run, consistent with Brau et al. (2012). Moreover, in line with previous findings (e.g. Krishnan, Ivanov, Masulis, and Singh 2011), venture capital backed IPOs perform better in the long run than non-VC backed firms.

Our regression results also confirm that underwriters influence post-IPO abnormal returns. Specifically, firms that switched underwriters perform significantly better than other firms, and higher underwriter rankings also help firms generate higher long run returns, consistent with Dunbar and Foerster (2008). Furthermore, we examine the influence of using a universal bank as an underwriter. Universal banks have a potential conflict of interest since they may have the incentive to help sell their poor quality borrowers' securities, so that they will be able to collect their loans (Benston 1990; Puri 1996). For example, Kanatas and Qi (1998) demonstrate that this conflict of interest exists due to the informational role of financial intermediaries. This can lead to post-IPO underperformance. Hence, we control for underwriter types as well. Our results reveal that IPO firms using universal bank underwriters exhibit lower firm performance in the 5-year post-IPO period.

4. Conclusion

Our paper examines the motivations behind withdrawn IPO firms that later return for a second-time IPO. Contrary to recent findings examining first-time IPOs, the results provide evidence that second-time IPOs return to the market with the motivation to grow and expand their firms internally rather than externally. Specifically, the findings show that second-time IPOs are significantly less likely to engage in post-IPO acquisition activity as compared to first-time IPOs. Instead, our multivariate regression tests suggest that second-time IPO firms tend to spend more on CAPEX and R&D. Furthermore, the findings show that capital expenditures and R&D spending, as opposed to acquisition activity, benefit firm performance in the long run.

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6. Tables

Table 2.1: Summary Statistics

This table contains descriptive statistics for the sample of IPO filings from January 1980 through December 2013. Panel A is the overall sample summary. Panel B is the style-matched firm comparison between first-time and second-time IPO firms' acquisition activities. Panel C summarizes the durations of the withdrawn period.

Panel A

Sample Date	1980-2013
Number of IPO Withdrawals	3,396
Returned for IPO and Available in SDC & CRSP	271
Acquirers within 5 years of IPO	57
Acquisitions within 5 years of IPO	72
Acquirers within 1 year of IPO	30
Acquisitions within 1 year of IPO	36
Firms Acquired 2 Years After 2nd Time IPO	25

Panel B

1-Year 2nd Time IPO Acquirers	1-Year Matching IPO Acquirers	P-Value of Difference
10.9%	23.8%	0.05
5-Year 2nd Time IPO Acquirers	**5-Year Matching IPO Acquirers**	**P-Value of Difference**
20.5%	45.8%	0.02

Panel C

Duration Between Withdrawal & IPO

All Firms	(In Days)	(In Years)
Mean	827	2.28
Min	7	0.02
Max	4,390	12.03

Acquirers within 5 years of IPO

	(In Days)	(In Years)
Mean Duration	715	1.98
Min	56	0.15
Max	4,131	11.32

Table 2.1: Summary Statistics (Continued)

Acquirers within 1 year of IPO

	(In Days)	(In Years)
Mean Duration	721	1.99
Min	56	0.15
Max	4,131	11.32

Table 2.2: Post-IPO CAPEX, R&D, and Acquisition Activity

This table reports the post-IPO capital expenditures and R&D. We use the mean CAPEX, R&D, and acquisitions, scaled by total assets and present the results in percentage. Panel A, B, C, and E are summary statistics. Panel D and F are comparisons. We use paired statistics for the differences shown in Panel D and F. P-values are in parentheses.

Panel A

All Firms

	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Capex/Assets	6.21%	12.47%	17.48%	22.45%	26.67%
R&D/Assets	13.57%	16.10%	19.22%	15.57%	17.58%

Panel B

Acquirers

	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Capex/Assets	6.06%	11.19%	16.23%	21.62%	26.50%
R&D/Assets	10.51%	12.28%	14.46%	14.03%	19.46%
Acquisitions/ Assets	58.36%	69.45%	45.94%	40.04%	53.70%

Panel C

Non-Acquirers

	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Capex/Assets	6.23%	12.63%	17.65%	22.57%	26.69%
R&D/Assets	13.96%	16.55%	19.74%	15.76%	17.33%

Panel D

Difference between Acquirers and Non-Acquirers

	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Capex/Assets	0.17%	1.44%	1.42%	0.95%	0.19%
	(0.01)	(0.07)	(0.05)	(0.07)	(0.33)
	(0.09)	(0.07)	(0.07)	(0.08)	(0.11)
R&D/Assets	3.45%	4.27%	5.28%	1.73%	-2.13%
	(0.01)	(0.01)	(0.01)	(0.04)	(0.27)
	(0.06)	(0.05)	(0.05)	(0.08)	(0.14)

Table 2.2: Post-IPO CAPEX, R&D, and Acquisition Activity (Continued)

Panel E

Control Group of 1st Time IPOS

	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Capex/Assets	5.53%	9.36%	14.20%	19.16%	23.99%
R&D/Assets	8.29%	11.46%	13.06%	14.00%	18.12%

Panel F

Difference between Control Group and Non-Acquirers

	Year 0	Years 0-1	Years 0-2	Years 0-3	Years 0-4
Capex/Assets	0.70%	3.27%	3.45%	3.41%	2.70%
	(0.37)	(0.02)	(0.02)	(0.01)	(0.11)
	(0.18)	(0.04)	(0.04)	(0.05)	(0.14)
R&D/Assets	5.67%	5.09%	6.68%	1.76%	-0.79%
	(0.05)	(0.04)	(0.02)	(0.07)	(0.19)
	(0.06)	(0.07)	(0.05)	(0.10)	(0.15)

Table 2.3: Regression Results of R&D and CAPEX by Second-Time IPO Firms

This table presents the muti-variate regression test results. Our sample includes both second-time IPO firms and the matched 1st-time IPOs from 1980 to 20013. The dependent variable is the total CAPEX and R&D spending scaled by total assets. Second time is a dummy variable that is equal to one if the firm is a second-time IPO firm, zero otherwise. Underwriter switch is a dummy variable that is equal to one if the second-time IPO underwriter is different from the first-time underwriter, and zero otherwise. Underwriter type is a dummy variable that is equal to one if the underwriter is a universal bank, zero otherwise. Underwriter ranking is from Jay Ritter's IPO database. VC backing is a dummy variable that is equal to one if the IPO is backed by venture capital, and zero otherwise. All tests control for year fixed effects. P-values are given below coefficients. (*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.)

Independent Variable	
Second Time	6.95%
	0.036**
IPO Proceeds	4.99%
	0.015**
Underwriter Switch	8.12%
	0.478
Underwriter Type	2.10%
	0.556
Underwriter Ranking	2.81%
	0.156
Underwring Fees	7.38%
	0.069*
VC Backing	2.99%
	0.049**
Year Fixed Effect	Yes
R^2	2.6%
Sample Size	300

Table 2.4: Abnormal Returns for Second-Time IPOs

This table reports the mean buy-and-hold abnormal returns using the value-weighted CRSP index as the benchmark. We calculate style adjusted returns (propensity score matching) by first choosing all possible firms that are listed on CRSP for at least 5 years, and are +/- 30% market capitalization of the IPO firm. Then we use the firm with the closest market-to-book equity ratio as our matching firm.Acquirer1 is an indicator variable for acquirers within one year of the IPO.

Mean Market Adjusted Returns			**Style Adjusted Returns**		
All Firms					
Year	Return	P-Value	Year	Return	P-Value
1 Year	3.70%	0.5400	1 Year	4.54%	0.3008
2 Years	-13.30%	0.1789	2 Years	10.57%	0.2946
3 Years	-20.07%	0.0321	3 Years	-22.43%	0.0870
4 Years	-14.24%	0.3643	4 Years	-36.50%	0.0087
5 Years	-30.80%	0.0083	5 Years	-37.04%	0.0096
Acquirers within 1 Year of IPO					
Year	Return	P-Value	Year	Return	P-Value
1 Year	39.68%	0.0728	1 Year	37.45%	0.1207
2 Years	-51.67%	0.2313	2 Years	-38.27%	0.4862
3 Years	-79.35%	0.0106	3 Years	-68.62%	0.0133
4 Years	-92.24%	0.0194	4 Years	-85.36%	0.0020
5 Years	-107.07%	0.0001	5 Years	-105.58%	0.0199
Non-Acquirers					
Year	Return	P-Value	Year	Return	P-Value
1 Year	-1.82%	0.3827	1 Year	0.99%	0.4564
2 Years	-13.64%	0.0269	2 Years	1.10%	0.4361
3 Years	-15.72%	0.0291	3 Years	-11.97%	0.2574
4 Years	-20.74%	0.0215	4 Years	-29.75%	0.0105
5 Years	-29.01%	0.0074	5 Years	-32.95%	0.0499
Difference between Non-Acquirers and Acquirers					
Year	Return	P-Value	Year	Return	P-Value
1 Year	−41.50%	0.3099	1 Year	−36.46%	0.3357

Table 2.4: Abnormal Returns for Second-Time IPOs (Continued)

Year	Return	P-Value	Year	Return	P-Value
2 Years	38.03%	0.2044	2 Years	39.37%	0.0501
3 Years	63.63%	0.0185	3 Years	56.65%	0.2441
4 Years	71.50%	0.0021	4 Years	55.61%	0.0085
5 Years	78.06%	0.0073	5 Years	72.63%	0.0300

Table 2.5: Regression Results for Second-Time IPOs

This table presents the mutivariate regression results factors explaining second-time IPO performance. Our sample includes all of the 3,396 second-time IPO firms from 1980 to 20013 in our sample. The dependent variable is the 5-year post IPO abnormal returns based on market- and style-adjusted returns. Capex and R&D is the capital expenditures and R&D spending scaled by total assets. VC backing is a dummy variable that is equal to one if the IPO firm is backed by venture capital, zero otherwise. Acquirer is a dummy variable that is equal to one if the IPO firm made at least one acquisition within 5 years post IPO, zero otherwise. Underwriter ranking and type are both from Jay Ritter's IPO database. UWswitch is a dummy variable that is equal to one if the IPO firm switched underwriter after the withdrawal, zero otherwise. Underwriter type is a dummy variable that is equal to one if the underwriter is a universal bank, zero if it is a specialized bank. All tests control for year and industry fixed effect. (*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.)

Panel A

Dependent Variable: 1-5 Year Abnormal Return

	Market-Adjusted		Style-Adjusted	
Variable	Coefficient	p-Value	Coefficient	p-Value
CAPEX and R&D	6.62	<0.001	7.71	<0.001
VC BACKING	12.01	<0.001	15.64	<0.001
UWRANK	4.69	<0.001	22.73	<0.001
UWTYPE	-33.37	<0.001	-93.16	<0.001
UWSWITCH	168.52	<0.001	110.77	<0.001
YEAR FIXED EFFECT	YES	YES	YES	YES
INDUSTRY FIXED EFFECT	YES	YES	YES	YES
Sample Size	3,396	3,396	3,396	3,396

Panel B

	Market-Adjusted		Style-Adjusted	
Variable	Coefficient	p-Value	Coefficient	p-Value
ACQUIRERER	-86.85	<0.001	-85.45	<0.001
VC BACKING	16.61	<0.001	15.50	<0.001
UWRANK	3.14	<0.001	10.89	<0.001
UWTYPE	-7.40	<0.001	-6.75	<0.001
UWSWITCH	121.51	<0.001	69.68	<0.001
YEAR FIXED EFFECT	YES	YES	YES	YES
INDUSTRY FIXED EFFECT	YES	YES	YES	YES
Sample Size	3,396	3,396	3,396	3,396

7. Figures

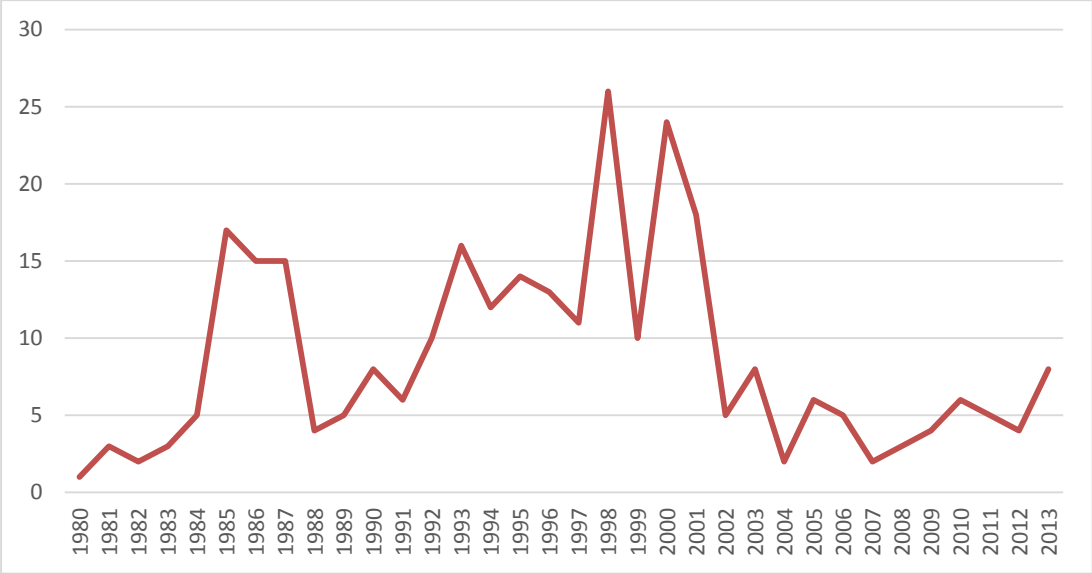

Figure 2.1: Returning IPOs Volume by Year