Going public in bear markets

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Abstract

We find that Japanese firms relying on bank debt are more likely to go public in bear markets than those with outstanding bonds. Firms going public in bear markets stockpile less cash from IPO proceeds, show less financing constraints, and make more efficient investment decisions during the post-IPO period than do companies going public in non-bear markets. Those results suggest that firms relying on bank finance put relatively low priority on equity issues as a purpose of IPO, and thus can go public even in bear markets. Meanwhile, firms going public in bear markets incur high interest rates at the time of IPO and before, but issue bonds and decrease interest rates during the post-IPO period. IPOs improve firms' negotiation power over lending banks.

Key words: IPO; Bank; Bear market; Investment;
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1. Introduction

This paper explores characteristics of firms going public in bear markets. Previous studies stress that initial public offerings (IPOs) are disproportionally distributed in the period following bull market (e.g., Ritter, 1984; Loughran et al.,1994; Helwege et al., 2001; Lowry and Schwert, 2002; Alti, 2005; Pastor and Veronesi, 2005; Yung et al., 2008; Chemmanur and He, 2011). Although IPOs provide private companies with an opportunity of equity issues, it is likely difficult for young companies to sell stocks in favorable conditions when the stock market is going down (Lerner et al., 2003). In the recent matured economy, however, the stock market can show relatively long-run slump. For instance, CAC 40 (representative French stock price index) showed 30 month reversal after it recorded its historical high (6,922.33) on September 4, 2000, during which the index declined to 2,618.46 on March, 2003. Although CAC 40 recovered to about 6,100 on May 2007, it declined again to around 2,700 on February 2009. As of August 2015, CAC 40 index is approximately two-thirds of the historical high. Given that firms go public for various purposes (e.g., reputation increase, non-pecuniary utility, cash-out, market share, etc.), managers of young companies may need to consider IPO in a bear market. Indeed, more than one-fourth of our sample companies (1,913 Japanese firms that went public during the period from 1997 to 2014) decided to go public after a significant decline of the Tokyo Stock Price Index (TOPIX) (specifically, after -10% or worse six-month index return). It is important to uncover what firms go public in bear markets to understand IPOs in recent matured economy. Exploring bear market IPOs also highlights objectives of IPOs other than equity issuance. To the best of our knowledge, however, there are only few studies to address the issue. This paper attempts to fill this void.

Generally, financing in securities markets are highly vulnerable to market conditions as well as problems arising from information asymmetry. It is likely difficult for young companies without established reputation to timely issue securities whenever they find profitable projects. Meanwhile, previous studies commonly suggest that banks tend to keep long-term relations with borrowing companies, which significantly decrease renegotiation costs and information asymmetry. Although venture capitals (VCs) are generally viewed as important finance providers for private companies, bank debt is also an important financing source for private companies (Berger and Udell, 1995, 2002). A distinct difference between those two financing sources is that VC-firm relation generally terminates at the firm's IPO while bank-firm relation can continue even after IPO. It is plausible to presume that relationships with banks which young companies have established before their IPOs enable them to timely finance their projects after the IPO. Bond issues are also

available to private companies, but bond issues are generally one-time financing activities in which suppliers of funds are not supposed to continuously provide credits to the firm. Therefore, companies which prefer securities financing to bank finance should consider IPOs as an important opportunity to raise external capital, and thus favor bull markets for their IPOs. Taken together, we hypothesize that firms relying on bank debt put relatively low priority on equity issues as a motive for IPO, and are more likely to go public in bear markets than those relying less on bank finance.

We address the issue by using Japanese IPO data. Since 1990s, the Japanese stock market has shown a long-term downturn trend. After Tokyo Stock Price Index (TOPIX) recorded its historical high price (2,884.80) on December 18, 1989, it sharply declined during 1990s, and the current price is less than half of its peak. This fact suggests that many Japanese private companies need to consider IPO in a bear market to pursue non-equity finance objectives. Another advantage of Japanese data is that Japanese private firms are likely to rely on bank debt, given the well-known fact that Japanese companies establish long-term relations with their main banks.

Our main analysis defines bear market IPOs as firms going public after the TOPIX records six month buy-and-hold return lower than -10%. Investigating Japanese IPOs during the period from 1997 to 2014, we find that the ratio of bank loans to debt, bank ownership, and director appointment from a bank are positively associated with the probability of firms going public in bear markets. In contrast, firms which have relatively large outstanding bonds are less likely to go public in bear markets. Consistent with our hypothesis, these findings suggest that firms relying on bank finance are likely to go public in bear markets.

Our hypothesis stands on the premise that firms going public in bear markets put relatively low priority on equity issues as an objective of IPO. Consistent with this view, we find that IPOs in bear markets have significantly smaller proceeds and stockpile cash less than do bull market IPO companies. We also suppose that bank debt enables IPO firms to timely finance their projects while it is difficult for young companies to timely issue securities. Following Hoshi et al. (1991), we compare the investment-to-cash flow sensitivity between bear and bull markets IPOs. Consistent with our premise, bear market IPO firms show significantly smaller investment-to-cash flow sensitivity during the post-IPO period than non-bear market IPO firms. Besides, we find that the investment-to-Tobin's Q sensitivity is significantly larger for bear market IPO firms than for non-bear market IPO companies. A plausible interpretation of the result is that firms going public in bear markets can timely finance projects since they have a stable financing source. The timely financing ability should contribute to superior firm performance. Indeed, we find that bear market IPOs significantly outperform other IPOs in sales growth,

Tobin's Q, and long-term stock returns during the post-IPO period.

Those results raise an important question. Why do not all firms rely on bank financing, which generate substantial benefits? To address the issue, we examine potential costs associated with reliance on bank debt and find that firms going public in bear markets incur significantly higher interest rates. Director appointments from a bank are also likely to decrease discretion of managers of young companies. Taken together, reliance on bank financing generates both costs and benefits for private companies. On the other hand, firms going public in bear markets have outstanding bonds as much as other IPO companies do during the post-IPO period, and the significant difference in interest rates disappears. This result suggests that IPOs provide firms with alternative financing sources and thereby increase firms' negotiation power over banks.

This paper makes significant contributions to the literature. To the best of our knowledge, this is the first research to examine characteristics of companies going public in bear markets. Previous studies have paid particular attention to hot market IPOs. For instance, Ritter (1984) indicates that risky companies such as natural resource firms tend to go public in hot markets. Yung et al. (2008) and Chemmanur and He (2011) suggest that low quality firms go public in good market conditions. In addition to exploring a non-negligible aspect of IPO, our analyses show new evidence that reliance on bank financing significantly decreases firms' incentives to go public in good market conditions. Secondly, it would be a novel finding that market condition at the IPO is correlated with financing constraints, investment efficiency, and long-term performance during the post-IPO period. Ritter (1991) shows that firms going public in active IPO markets show significantly worse underperformance than those going public in less active years. Although Ritter (1991) attributes this pattern to managers' "windows of opportunity" behaviors, we argue that firms going public in bear IPOs show superior performance due to their access to timely finance. Thirdly, we present new evidence of roles of banks for young private companies. Although previous studies have stressed that VCs support young companies in finance and management, we argue that banks provide young firms with a stable financing channel which continues even after the IPO, and thereby enable firms to go public even in bear markets. Previous studies indicate that banks expropriate wealth from borrowing firms (Pinkowitz and Williamson, 2001; Rajan, 1992; Weinstein, and Yafeh, 1998). We contribute to the literature by showing that wealth extraction is also evident for private companies and IPOs provide borrowing firms with an opportunity to increase negotiation power.

The reminder of the paper is organized as follows. Section 2 presents literature review and hypotheses. Section 3 descries sample selection, data, and definition of

bear market IPOs. Section 4 presents empirical results. Section 5 is a brief summary and conclusion of this research.

2. Literature review and hypothesis

It is well-documented that initial public offerings are disproportionally concentrated in the period after significant stock price increases. Large body of literature attempts to explain the phenomenon of hot IPO market. Ritter (1984) indicates that risky companies tend to go public during a specific period (hot market), in which significant underpricing exists due to the high risk nature of IPO companies. Chemmanur and He (2011) show evidence that IPOs can increase market shares in product market, and thus IPO waves tend to occur in competitive industries. Chemmanur and He (2011) also argue that positive economic shocks motivate less productive firms to go public for market share increases. Indeed, they find that less productive firms are more likely to go public in hot markets. Consistent with those arguments, Yung et al. (2008) find firms going public in hot markets have high average initial return, large cross-sectional variance in long-term stock returns, and high probability of post-IPO delisting.

Stoughton et al. (2001) suggest that firms in industries characterized by small differences in marginal production costs (such as high technology industries) tend to go public in hot markets to improve reputation. Lowry and Schwert (2002) report a positive lead-lag relation between initial return and IPO volume, which is likely attributable to information on investors' sentiment learned during the registration period. Pastor and Veronesi (2005) argue that clustering of IPOs during certain periods is attributable to firms' market timing behaviors.

IPO is one of important financing activities in corporate life, in which firms raise substantial equity capital. Generally, firms can raise funds in good conditions from the securities market when the market goes well. Indeed, many previous studies show evidence that managers time the market to conduct seasoned equity offerings (Baker and Wurgler, 2002; Graham and Harvey, 2001). That should be the case for IPOs, since the book-building system determines offering price in consideration of concurrent investors' demands. In terms of equity issues, firms will have an incentive to time the market in their IPO decisions to raise as large amount of funds as possible (Pagano et al., 1998; Pastor and Veronesi, 2005). IPOs also provide shareholders (e.g., founder, venture capitalist) with an opportunity to realize capital gains, which also incentivizes them to time the market (Lerner, 1994). Loughran and Ritter (1995) show that companies issuing stocks during 1970 to 1990 (IPO and seasoned equity offering) significantly underperform non-issuing firms for five years after the offering date.

Using a sample of 350 privately held venture-backed biotechnology firms going public between 1978 and 1992, Lerner (1994) shows that firms go public (employ private financings) when equity valuations are high (low). Kim and Weisbach (2008) find that high market to book firms tend to save more cash from proceeds of IPOs and offer a higher fraction of secondary shares in SEOs than low market to book firms.

A complexity of IPO is that firms may go public for various purposes other than equity issues and capital gain realization. IPO can significantly increase the firm's reputation (Stoughton et al., 2001) and market share in the product market (Chemmanur and He, 2011) as well as managers' nonpecuniary utility (such as self-respect and sense of achievement). IPO also provides firms with alternative financing methods (public market finance) and thereby improve firms' negotiation power over existing fund suppliers. A survey of 336 CFOs by Brau and Fawcett (2006) suggests that an important motivation for IPO is to facilitate potential takeover transactions. IPO reduces valuation uncertainty and allows firms to pursue a more efficient acquisition strategy (Hsieh et al., 2011).

Firms may desire to go public for a particular reason, other than equity financing and capital gain realization, when the stock market is going down. To the degree that firms believe bull market will come soon, they are likely to wait and time the market to conduct IPO. In the recent matured economy, however, stock markets can be slumping over relatively long period of time and it is not easy to predict when bull market will come. Such a situation makes private firms encounter a trade-off problem. By going public in bear markets, firms can immediately achieve non-equity issue objectives of IPOs while they need to accept poor conditions for equity issues. A plausible prediction is that firms go public irrespective of market conditions when they do not put high priority on equity issues as a purpose of IPO.

We posit that firms' financing patterns before IPOs are associated with importance of IPO as a place of equity issuance. Although it is commonly described that VCs are important suppliers of funds for young private companies, those companies also use bank borrowings as a main financing source (Berger and Udell, 1995, 2002). One might argue that banks hesitate to provide credits to immature private firms, but previous studies find that investments of bank-affiliated VCs significantly increase firms' access to bank debt (Hellmann et al., 2008; Sun and Uchida, 2016). Sun and Uchida (2016) also find that Japanese banks provide credits to large IPO companies with substantial tangible assets. A distinctive feature of bank finance is long-term relation between lenders and borrowers, which lasts even after IPO. Besides, banks tend to provide financial supports (Hoshi et al., 1990b) and privately restructure debt for financially distressed companies (Gilson et al., 1990). These facts suggest that banks can serve as a stable finance provider for IPO companies once a relationship is

established. Accordingly, we predict that firms do not need to raise funds as much as possible in good conditions by IPO, if they mainly use bank finance.

In contrast, VCs generally exit from investee firms after the IPO (VCs do not provide capital after the IPO). Private companies also issue bonds, but bond issues are generally viewed as one-time financing transactions which do not suppose continuous trading between lenders and borrowers. Besides, issues of securities are susceptible to market conditions, and inherently subject to uncertainty.[1] These facts will increase importance of IPOs as a financing vehicle for firms which do not rely on bank finance. These discussions give rise to the following prediction.

Hypothesis: *Private firms with access to bank finance are more likely to go public in bear markets than those without.*

We test the hypothesis by using Japanese IPO data. As mentioned, the Japanese stock market has suffered from long-term slump since the 1990s. In addition, it is well-documented that Japanese companies establish long-term relations with their main banks. Hoshi et al. (1991) show evidence that Japanese firms affiliated with large banks show significantly smaller investment-to-cash flow sensitivities than un-affiliated firms do, which is commonly interpreted that main banks mitigate information asymmetry and release firms from financial constraints. The relationship lending is also evident for young private companies in Japan. Bank-affiliated VCs are one of predominating forms in the Japanese VC industry, and their investments help young companies build relation with parent banks (Sun and Uchida, 2016). Takahashi (2015) argues that banks establish lending relations with start-up companies even before equity investments by their subsidiary VCs. These facts suggest that Japanese IPO data are advantageous to address the hypothesis.

3. Sample selection and data

We collect information of firms that went public in the Japanese stock market during the period of 1997 to 2014 from Nikkei NEEDS. We start our sample period at 1997, since the book-building system was introduced at that year.[2] For those companies, we manually collect detailed IPO information from Prof. Takashi

[1] Recent studies on the global financial crisis also argue that banks' lending behaviors are affected by financing structures. Ivashina and Scharfstein (2010) and Cornett et al, (2011) show that banks relying more on core deposit and equity capital financing, which are stable sources of financing, continued to lend relative to other banks during the global financial crisis.

[2] Auction method is also allowed for offering price determination in Japan. However, no IPOs have adopted the auction method since the introduction of book-building system.

Kaneko's website (offering price, proceeds, firm age, and so on) and Japanese IPO White Papers (the number of primary and secondary shares, offering price, first trading date opening price, firm age, lead underwriter, banks which have business relationship with the IPO firm, main bank and its ownership, VC ownership, and so on).[3] When the Prof. Kaneko's data are inconsistent with the data from White Papers, we adopt data of White Papers. The IPO data are merged with financial and stock price data, which are available from Nikkei NEEDS Financial Quest and Portfolio Master. Financial institutions and utilities are removed from the sample. As a result, our entire sample consists of 1911 IPO companies. When a sample firm has VC shareholders, we manually identify affiliations of the VCs by using the Handbook of Venture Capital (issued by Venture Enterprise Center, a Japanese institute of venture capitalists) to compute ownership of bank-affiliated VCs. We also hand-collect data of directors appointed by banks from the firms' prospectus, which is available only from 2001.

To identify firms that decided to go public in bear market, we calculate buy-and-hold return (BHR) of TOPIX during the 126 trading days ending at 22 days before the first trading day (from day -147 to day -22, where day 0 is the first trading day) for each of sample companies. Previous studies commonly identify hot market IPOs by using market condition variables (index return, underpricing, and the number of IPOs) during several months before listing date. However, this method may not accurately capture IPO decisions in bull markets, because approximately one month interval exists between the submission date of the first prospectus, which is also the date of shareholder meeting for IPO approval, to the first trading date. We do not include data during one month preceding the first trading date for index return calculation to prevent unpredictable market condition changes in the one month interval from contaminating the identification variable (we assume that one month has 21 trading days). Specifically, our main analysis defines as bear market IPOs (BEAR IPOs) those with the 126 day BHR lower than -10%. All the other sample companies are classified as non-bear market IPOs (Non-BEAR IPOs).

We also employ various definitions of BEAR IPOs as robustness checks. For instance, we define BEAR IPOs as IPO firms with 3-month TOPIX return (from day -84 to day -22) lower than -5% and those with 12 month TOPIX return (from day -273 to day -22) lower than -20%. We also replicate the analyses by deleting BEAR IPOs with positive (or larger than 1% or 2%) market returns during day -21 to day -1 to exclude firms going public in improved market conditions from BEAR IPOs. We also use monthly stock return data (from month -7 to month -2, where month 0 is the

[3] Prof. Kaneko is a Japanese IPO researcher. The web-site URL is: http://www.fbc.keio.ac.jp/~kaneko/KP-JIPO/top.htm.

month of going public) instead of daily data. Finally, we adopt JASDAQ index (JASDAQ is a main IPO market in Japan) rather than TOPIX. These analyses present qualitatively same results (results become stronger in some analyses). The following part of the paper presents results when we define BEAR IPOs as IPO companies with the 126 trading day BHR lower than -10%.

Table 1 presents sample distribution by year as well as the closing price of TOPIX for the corresponding year. It is noticeable that about one-fourth of sample companies are classed as BEAR IPO. Under the recent Japanese market condition, it is not extremely rare that companies decide to go public when the market is going down. In other words, bear market IPO is a non-negligible aspect of IPO. Table 1 also indicates significant variation of the proportion of BEAR IPOs across years. For instance, BEAR IPOs dominate Non-BEAR IPOs in frequency for year 1998, 2001, 2002, and 2008, when stock prices went down. In contrast, we find no BEAR IPOs for years of strong stock price movements (year 2005, 2006, 2013, and 2014).

Leverage is a potential proxy variable for bank-firm relation, since firms relying on bank debt tend to have high leverage, and firms which have mainly raised funds from VCs will have low leverage. We compute leverage by total liabilities over assets (LEVERAGE). However, we do not employ LEVERAGE as our key proxy variable for bank reliance, since highly leveraged firms have an incentive to raise substantial equity capital at IPO to rearrange their capital structures (see Appendix for definition of variable). Instead, we employ the ratio of bank loans to total debt (LOANDR), which is commonly used as a measure of firms' reliance on bank debt in the literature of main bank (Morck and Nakamura, 1999; Kang and Stulz, 2000; Kang et al., 2000). LOANDR becomes small as firms choose bond issues rather than bank debt. We also compute ratios of loans and bonds (including commercial papers) respectively over assets (LOANAR and BONDAR) to test our hypothesis. Japanese banks are allowed to hold up to 5% of outstanding shares of companies. Sun and Uchida (2016) find that bank lending to IPO companies is significantly associated with percentage ownership of the bank. We adopt percentage ownership by banks (BANKOWN), which have business relationships with the firm in the IPO White Paper. Given that Japanese banks send directors to borrowing firms (Kaplan and Minton, 1994; Sun and Uchida, 2016), a dummy variable indicating existence of directors appointed from banks is also adopted (BDIRECD).

[Insert Table 1 about here]

Table 2 presents summary statistics separately for BEAR IPO and Non-BEAR IPO. For financial variables, data for the year before IPO are presented while BDIRECD and ownership variables are from IPO prospectus. Consistent with our hypothesis, the mean LOANDR is 80.2% for BEAR IPOs, which is significantly higher than that of

Non-BEAR IPOs (74.4%). The mean BONDAR is 1.5% for Non-BEAR IPOs, which is significantly greater than that of BEAR IPOs (0.9%). Although the median LOANDR and BONDAR are zero for the two subsamples, the presented findings suggest that BEAR IPOs tend more to issue bonds than do Non-BEAR IPOs. Table 2 also suggests that BEAR IPOs have strong relationship with banks in terms of shareholdings. BANKOWN is about 2.6% for BEAR IPOs, which is significantly greater than that for Non-BEAR IPOs (2.0%). Similarly, BEAR IPOs have significantly greater main bank ownership (MBANKOWN) than Non-BEAR IPOs do. Besides, Panel B of Table 2 indicates that BEAR IPOs have significantly greater probability of having directors appointed from banks than Non-BEAR IPOs do (8% versus 4.5%).

[Insert Table 2 about here]

Our hypothesis stands on the view that Bear IPOs do not mainly pursue fund raising. Consistent with this notion, the median primary proceeds over assets for BEAR IPOs is almost half of that for Non-BEAR IPOs (8.7% versus 15.4%). Previous studies commonly find that hot market IPOs are accompanied by high underpricing. We also find that BEAR IPOs have significantly lower underpricing than Non-BEAR IPOs do (36.6% versus 70.4%). With regard to other variables, BEAR IPOs are significantly larger and older than Non-BEAR IPOs. This fact is in spirit consistent with our hypothesis, given the conventional wisdom that banks tend to provide credits to larger and matured firms.[4]

4. Empirical results

4.1 What firms do go public in bear markets?

The univariate analysis in the former section shows evidence that BEAR IPOs have greater dependence on bank finance before their IPO than Non-BEAR IPOs do. This section implements logit regressions, in which the dependent variable takes a value of one for BEAR IPOs and zero for Non-BEAR IPOs (BEARIPOD), to test our hypothesis with controlling for various factors. As with the univariate analysis, data before the IPO are employed for financial variables while prospectus data are used for BDIRECD and ownership variables. We do not include year dummies due to inherent high correlation between BEARIPOD and year dummies. Results are shown in Table 3. Model (1) engenders a positive and significant coefficient on LOANDR, suggesting that firms relying on bank loans are likely to go public in bear markets. Holding all other variables at their mean values, a one standard deviation increase in LOANDR

[4] Sun et al. (2012) also find that Japanese IPOs owned by finance-affiliated VCs are more matured than those owned by independent VCs.

increases the likelihood of conducting BEAR IPOs by 3.7%. We interpret the negative and significant coefficient on LEVERAGE that highly-leveraged IPO firms tend to time the market for IPOs since they need substantial equity capital to adjust capital structure.

[Insert Table 3 about here]

Model (2) replaces LOANDR by LOANAR, BONDAR, and a dummy variable which takes a value of one for firms with positive BONDAR (BONDD). We include BONDD, since BONDAR takes a value of zero for many observations. The estimation carries a negative and significant coefficient on BONDAR, indicating that firms with more outstanding bonds are less likely to go public in bear markets. The insignificant coefficient on LOANAR is attributable to its high correlation with LEVERAGE (correlation coefficient is 0.6. That is, LOANR is likely to absorb effects of leverage and bank debt reliance on bear market IPO. The presented coefficient suggests that a one standard deviation increase in BONDAR decreases the likelihood of conducting BEAR IPOs by 5.1%. The economic impact is significant, given that the unconditional frequency of BEAR IPO is 25.6%. We also examine whether firms highly using bonds tend less to go public in bear markets. Specifically, we make a dummy variable which takes a value of one for firms with BONDAR greater than 10% and zero otherwise (BONDHIGHD). Model (3) carries a negative and significant coefficient on BONDHIGHD, suggesting that the probability of going public in bear markets significantly declines when a firm has outstanding bonds beyond a certain level. Given that bond issues generally do not build long-term relations with lenders, those results suggest that firms using non-relationship-based financing tend less to go public in bear markets.

We also adopt non-capital structure variables as a proxy for reliance on bank finance. Model (4) carries a positive and marginally significant coefficient on BANKOWN. Besides, Model (5) indicates that firms with directors appointed from banks are more likely to go public in bear markets than those without (sample size declines to 1181 since director appointment data are only available since 2001). Finally, Model (6) includes all the proxies for reliance on bank finance and those variables are still statistically significant in predicted signs. Taken all together, results in Table 3 are generally consistent with our hypothesis that private firms relying on bank finance are more likely to go public in bear markets than those without. With respect to control variables, large firms have greater probability of going public in bear markets. We interpret that large companies do not put high priority on equity issuance as a motivation of IPOs since they have stable financing sources. We do not find significant coefficients for other variables.

One can raise a concern that our result is attributable to the fact that firms going

public in bear markets had to rely on bank debt due to poor market condition. As mentioned, however, results are qualitatively unchanged even when we define BEAR IPOs by using TOPIX return in shorter (3-month) period, which should decrease the number of firms that began to heavily rely on bank debt due to poor index return (remember that we use financial data at the year before IPO to compute financial variables). To further address the endogeneity concern, we also employ two-stage probit regression by using two-year and three-year lagged LOANDR as instrument variables (for one-year lagged LOANDR). This analysis also suggests that firms relying on bank debt are more likely to go public in bear markets.

4.2 Is fund raising objective less important for bear market IPOs?

Our hypothesis stands on the view that firms relying on bank finance have access to stable and timely financing source and thus put relatively low priority on fund raising among purposes of IPOs. Although Table 2 shows that BEAR IPOs raise significantly smaller proceeds in IPO than Non-BEAR IPOs do, the result might be simply due to poor market conditions at the IPO. This subsection presents further analyses on the underlying view. We firstly examine cash stockpiling behaviors of sample companies. Kim et al. (2008) show evidence that firms tend to increase cash holdings by 49.0 cents before and after IPO for every dollar raised by IPO. Although the result suggests that IPO firms generally raise funds greater than their urgent investment needs, the cash stockpiling should be less important for firms with stable and timely financing sources. If our presumption is correct, BEAR IPOs should show smaller increase in cash holdings than Non-BEAR IPOs do.

Table 4 presents cash holdings variables. Although cash holdings scaled by assets are not significantly different at the year before IPO (Year -1) between the two subsamples, BEAR IPOs have significantly smaller cash holdings at the end of IPO year (Year 0) than Non-BEAR IPOs do (25.6% versus 28.9% in mean values). Accordingly, BEAR IPOs show significantly smaller increases in cash (scaled by assets at Year -1) surrounding IPO than Non-BEAR IPO firms do. For instance, the median of one year increase in cash (scaled by total assets at the fiscal year end before IPO) for Non-BEAR IPOs is more than double of that for BEAR IPOs (9.5% versus 3.7%). However, those results might be attributable to the fact that BEAR IPOs could not raise large funds due to poor market condition. To address the concern, we follow Kim et al (2008) to examine the proportion of retained cash over proceeds by IPO. Table 4 suggests that the median BEAR IPO holds approximately 46% of IPO proceeds at the end of IPO year while the median Non-BEAR IPO firm saves about 64% of its proceeds. Although there is no significant difference in the proportion of change in cash over proceeds from Year -1 to Year 1, the presented result is consistent

with our premise that BEAR IPOs have weaker incentives to raise funds by IPO for future investment needs.

[Insert Table 4 about here]

We next examine financing constraints and investment efficiency during the post-IPO period, given the notion that firms with stable and timely financing sources should make timely investment decisions. Hoshi et al. (1991) show evidence that firms affiliated with a large Japanese bank have significantly smaller investment-to-cash flow sensitivities than unaffiliated firms. This result suggests that bank finance mitigates firms' financial constraints. Given our premise that BEAR IPOs have stable access to bank finance, we expect that those firms can conduct profitable investments regardless of the level of internal financing. Previous studies also investigate the investment-to-Tobin's Q sensitivity to examine firms' investment efficiencies (Chen et al. 2007; Jian et al., 2011). Given that finance literature commonly employs Tobin's Q as a proxy for investment opportunities, high sensitivity of capital expenditures to Tobin's Q represents efficient investment decisions. Since investment efficiency should be affected by availability of timely financing, we predict that BEAR IPOs should show greater investment-Tobin's Q sensitivities than Non-BEAR IPOs do.

We run regression of firms' investments by using data during five years following IPO (we exclude firms from the analysis, for which less than 3 years data are available). The dependent variable is capital expenditure (the change of PPE plus depreciation) scaled by book value of assets at the previous year. Cash flow is calculated as net income plus depreciation scaled by the one-year lagged assets (CASHFLOW). We also add cash holdings as an additional proxy for corporate liquidity, which is the sum of cash and cash equivalents scaled by one-year lagged assets (Cashholding). Tobin's Q is defined as the market value of equity plus book value of total liabilities divided by the book value of asset (one-year lagged data are used). To test our prediction, the regression includes the interaction terms of BEAR IPO dummy (BEARIPOD, one for BEAR IPOs and zero for Non-BEAR IPOs) with CASH FLOW and Tobin's Q. All estimations adopt firm-fixed effects models with year dummies.

Table 5 presents regression results. Consistent with previous studies, both CASHFLOW and Tobin's Q have a positive and significant coefficient. Importantly, Models (1) and (3) engender a negative and significant coefficient on the interaction term of CASHFLOW and BEARIPOD, suggesting that post-IPO investments of BEAR IPOs are less susceptible to the level of cash flow compared to those of Non-BEAR IPOs. Noticeably, the estimated coefficients suggest that the investment-to-cash flow sensitivity for BEAR IPOs is about half of that for

Non-BEAR IPOs (0.09 versus 0.04). In conjunction with the logit regression result, we argue that firms going public in bear markets have stable access to bank financing. Availability of stable financing source should enable efficient investment decisions. Indeed, Models (2) and (3) of Table 5 engenders a positive and significant coefficient on the interaction term of Tobin's Q and BEARIPOD. The estimated coefficients suggest economically significant difference exists in the investment efficiency between the two subsamples. Specifically, the investment-to-Tobin's Q sensitivity for BEAR IPOs is more than double of the sensitivity for Non-BEAR IPOs (0.009 versus 0.004).

[Insert Table 5 about here]

As an additional analysis, we simultaneously include concurrent and one-year lagged Tobin's Q to address the concern that CASHFLOW may contain information about future investment opportunities which is not incorporated in one-year lagged Tobin's Q (Hoshi et al., 1991. The additional analysis generates the qualitatively same results. Overall, our analyses show robust evidence that firms going public in bear markets have access to stable financing sources. The result supports our view that those firms put relatively low priority on fund raising as a motive of IPO.

4.3 Post-IPO long-term performance

Since we argue that BEAR IPOs make efficient investment decisions irrespective of cash flow level, it is a plausible prediction that BEAR IPOs outperform Non-BEAR IPOs in the long run following IPO. Panel A of Table 6 reports operating performance variables (ROA, ROE, sales growth ratio (SGR)) as well as Tobin's Q over the five years following IPO. We present the adjusted performance variables, which subtract the performance variable for the control firm from the raw variable, to control for macro-economic and industry-level factors. For each of sample companies, we choose as a control firm a listed company from the same industry which is similar in firm size (market value of equity) and M/B ratio (M/B ratio is defined as the market value of equity divided by the book value of equity at the IPO year). Controlling firms are also required not to issue new shares during three years ending at the IPO year of the sample firm. Specifically, we choose a firm which is closest in M/B ratio among listed companies whose size rages between 70% and 130% of size of the sample firm. When a matching firm is delisted at a year during five years following the sample firm's IPO, we splice the industry average (for the delisting year and onward) with the controlling firm data to avoid sample size reduction due to lack of controlling firm data.

[Insert Table 6 about here]

Panel A indicates that BEAR IPOs have greater operating performance (adjusted ROE and adjusted SGR are marginal significant at 10% level) at the IPO year (Year

0) than Non-BEAR IPOs do. In conjunction with the fact that Non-BEAR IPOs raise greater proceeds and stockpile cash more than BEAR IPOs do, the result suggests that BEAR IPOs utilize IPO proceeds more efficiently than Non-BEAR IPOs do. We also find that the mean adjusted SGR is significantly greater for BEAR IPOs during the last three years than for Non-BEAR IPOs (median is also significant for Year 3, 4 and 5). We argue that efficient investments by BEAR IPOs contribute to high sales growth. There is no evidence that BEAR IPOs underperform Non-BEAR IPOs in adjusted ROA during the five year period following IPO.

Panel A shows that Non-BEAR IPOs have significantly greater raw Tobin's Q for Year 0 and 1 than BEAR IPOs do. This result is attributable to the fact that BEAR IPOs go public when stock prices are low. However, we find no significant difference in the adjusted Tobin's Q for Year 0 and 1 between the two subsamples, since the matching analysis mitigates biases due to the difference in market conditions at the time of IPO. Importantly, both raw and adjusted Tobin's Q become significantly greater for BEAR IPOs than for Non-BEAR IPOs at Year 3 and onward. Untabulated analyses find the same pattern for M/B ratio. The result is consistent with the idea that BEAR IPOs have superior performance than Non-BEAR IPOs.

Panel B of Table 6 presents stock price performance during the post-IPO period. We calculate buy-and-hold returns starting from the month after IPO. Since our interest is to measure the long-term performance, firms with less than one year stock price are dropped. We present index- and control firm-adjusted returns to avoid biases due to the difference in market condition at the time of IPO. If a matching firm is delisted during the return computation period, we use TOPIX index return as the matched firm's return for the period after the delisting date.

Consistent with the well-known long-term underperformance of IPO firms, Non-BEAR IPOs experience negative adjusted returns. For instance, 3-year index-adjusted return of the average Non-BEAR IPO is -37.2% (median is -42.9%). Although BEAR IPOs also show negative adjusted returns in most investment horizons, those firms show significantly better index-adjuster returns than Non-BEAR IPOs do. The control-firm adjusted BHR is also significantly superior in the 3-year investment horizon for BEAR IPOs than for Non-Bear IPOs. Overall, results support our view that BEAR IPOs have superior long-term performance than Non-BEAR IPOs because BEAR IPOs have stable access to bank finance and thereby make efficient investment decisions. The result is also consistent with the Yung et al.'s (2008) finding that bad firms are more likely to pool in hot IPO markets.

4.4 Costs and benefits for bear market IPOs

We have so far stressed positive aspects of BEAR IPO firms. Firms going public in

bear markets establish stable access to bank finance and make efficient investment decisions. The argument naturally raises a question: why do not all firms rely on bank debt for stable financing channel? A potential answer to this question is that long-term relation provides banks with monopoly power, and enables banks to extract wealth from borrowing firms (Pinkowitz and Williamson, 2001; Rajan, 1992;). Weinstein and Yafeh (1998) find that firms closely affiliated with their main banks tend to pay high interest rates on their bank loan. Pinkowitz and Williamson (2001) show evidence that Japanese banks require firms to have large cash holdings. Banks also decrease managerial discretion by sending directors and intervening management especially when firms perform poorly (Aoki and Patrick, 1994). Those costs incentivize firms to unbind close ties with a bank. Indeed, Hoshi et al. (1999) point out that large Japanese firms have curtailed bank borrowings since 1980s in favor of equity and equity-related debt instruments (warrant and convertible bonds).

According to the strand of literature, we expect that BEAR IPOs pay higher interest rates than Non-BEAR IPOs do. We employ the average short-term and long-term interest rates, which are available from Nikkei NEEDS FinancialQuest, as a measure of interest rate which sample firms incur. Panel A of Table 7 indicates that BEAR IPOs bear significantly higher interest rates than Non-BEAR IPOs do for Year -1 and 0 (Year 0 is the IPO year), despite that leverage is not significantly different between the two subsamples (Table 3). The result is consistent with the rent extraction hypotheses.

[Insert Table 7 about here]

In panel B of table 7, we run OLS regressions of interest rates for the year before IPO with controlling for various firm characteristics. Again, year dummies are not included due to high correlation with BEARIPOD, which is the key independent variable. The coefficient of BEARIPOD is positive and significant, suggesting that BEAR IPOs pay approximately 0.2% higher interest rate than Non-BEAR IPOs do. Taken together, our results show clear evidence that BEAR IPOs incur costs at the exchange of the access to stable financing source. Our argument highlights a tradeoff problem which young private companies encounter. Reliance on bank debt charges significant costs on them while it provides stable access to bank finance which continues even after IPO. In contrast, young private companies need to time the market for their IPO if they do not establish stable access to bank finance. The lack of stable financing source also makes their investment decisions inefficient after the IPO.

With respect to control variables, LEVEARGE has a positive and significant coefficient, suggesting that highly levered firms have to pay high credit premium. Firm size has a negative and significant coefficient, which is consistent with conventional wisdom that large firms incur low costs of debt. Matured firms in firm

age tend to pay low long-term interest rates. Intangible assets are commonly viewed as risky asset. Accordingly, firms with more intangible assets (INTANGIBLE) incur high short-term interest rates.

Generally, IPOs substantially increase firms' ability to issue new securities. The access to public finance (seasoned equity offerings and public debt issue) will increase their negotiation power over banks. Although BEAR IPOs incur high interest rates at the year of IPO and before, those firms may be able to improve borrowing conditions after the IPO due to increased negotiation power. Panel A of Table 7 also traces interest rates for sample companies for five years following the IPO, suggesting that the significant difference in interest rates disappears for Year 1 and afterwards. Panel C of Table 7 indicates public debt scaled by total assets at Year -1 to examine whether BEAR IPOs actually access to public finance. The presented figures suggest that the average BEAR IPO substantially increases outstanding bonds during the five years following IPO (public debt at Year 5 is about 7.4 times of the pre-IPO level). Although the median public debt is still zero at Year 5, the finding implies that IPOs provide firms with alternate financing source which will increase their negotiation power over banks. Nevertheless, bank debt is still important for BEAR IPOs even after IPO. Panel C suggests that the average bank debt at Year 5 for BEAR IPO is about 2.5 times of the Year -1 level, and the median bank debt is as large as the pre-IPO level. Firms relying on bank debt go public even in bear markets and successfully improve financing conditions. This finding highlights an important objective of IPO rather than equity issue and capital gain realization.

4.5 Additional analyses

We have argued that firms relying on bank finance go public even in bear markets. A potential alternative explanation for bear market IPOs is that firms with near-term cash needs go public even in bear markets. Investigating US seasoned equity offerings (SEOs), DeAngelo et al. (2010) show evidence that around 60% of SEO firms would have fallen into negative cash holdings without SEO proceeds. We follow DeAngelo et al. (2010) to examine pro forma cash, which is hypothetical cash holdings when we assume that IPO firms received no primary proceeds with holding all other variables unchanged. Table 8 suggests that both BEAR and Non-BEAR IPOs have pro forma cash greater than 10% of the assets at the end of IPO year. Besides, the median pro forma cash (scaled by assets) is significantly greater for BEAR IPOs at Year 1 and 2 than for Non-BEAR IPOs. The proportion of negative pro forma cash is also smaller for Bear IPOs (the difference is statistically significant for Year 1). Those results do not support the idea that firms with urgent cash needs go public in bear markets.

[Insert Table 8 about here]

Another possible explanation for bear market IPOs is that they have urgent needs to finance large projects. If this explanation is true, BEAR IPOs should conduct substantial capital expenditures immediately after the IPO. However, untabulated results shows no evidence that BEAR IPOs conduct more fixed investments than Non-BEAR IPOs do.[5] We also find that the change in capital expenditures surrounding IPO is greater for Non-BEAR IPOs than for BEAR IPOs. In sum, we cannot support the alternative explanation that BEAR IPOs go public in bear markets because they have urgent financing needs for investment projects.

Although we show evidence that reliance on bank debt is associated with bear market IPOs, we have not examined whether BEAR IPOs establish close relationships with a specific bank. Traditionally, Japanese companies keep main bank relations with a specific bank, which is supposed to effectively monitor the borrowing firm (Aoki and Patrick, 1994). On the other hand, rent extraction will become serious when firms rely on a single specific bank. To further understand characteristics of bear market IPOs, we rerun the logit regression of BEARIPOD by employing a variable for main bank relationship. Specifically, we adopt percentage ownership of the main bank (MBOWN). For young private companies, investments by bank-affiliated venture capitals (BVCs) may substitute for banks' direct ownership. Hellmann et al. (2008) find that the likelihood that a bank lends to a start-up increases when the bank invests in the firm directly or indirectly through its subsidiary venture capitalists. Sun and Uchida (2016) use Japanese IPO data and find that banks have more opportunities to lend to IPO companies when their subsidiary BVCs own shares of the IPO firms. Accordingly, we also employ total percentage ownership by the main bank and main bank-affiliated VC (MBVCOWN).

Logit regression results are presented in Table 9. Results show that coefficients of MBOWN and MBVCOWN are not statistically significant. In contrast, Model (3) in Table 9 shows that the number of lending banks (N_BANKS) has a positive and statistically significant coefficient. The estimated coefficient suggests economically significant impact of N_BANKS. A one standard deviation increase in N_BANKS increases the likelihood of choosing bear market IPO by 5.3% (remember that the unconditional probability of conducting bear market IPO is 25.6%). Overall, results suggest that relationship with multiple banks is an important factor associated with bear market IPOs rather than a close tie with a specific bank. Transactions with multiple banks provide firms with access to stable and timely financing, which depreciates IPOs as a place of equity issues.

[Insert Table 9 about here]

[5] We do not examine R&D expenditures due to many missing values.

5. Conclusion

Non-trivial number of firms go public in bear markets when the stock market is slowing down. Indeed, approximately one-fourth of Japanese IPO firms during the past 17 years went public after the market index significantly declined. This paper examines characteristics of those companies to highlight an aspect of IPO, which has not been well-documented in the literature.

We find that firms relying on bank finance are more likely to go public in bear markets than those with outstanding bonds. Firms going public in bear markets raise significantly smaller proceeds and stockpile cash less than other IPO firms do. Those results suggest that private firms with access to stable financing source can go public even in bear markets since they put relatively low priority on new equity issues as a purpose of IPO. We also find that firms going public in bear markets suffer less from financing constraints, make more efficient investment decisions, and show superior performance during the post-IPO period than other IPO companies do. This result is also consistent with the view that bear IPO firms have access to stable financing sources. On the other hand, bear market IPO companies incur high interest rates at the year of IPO and before. This result highlights a cost which young private companies encounter to rely on bank finance. Put differently, young private companies need to time the market for IPO and suffer from uncertainty of future financing conditions at the exchange of low interest burden, if they seek for non-bank finance. Finally, we find that the significant difference in interest rates between the two subsamples disappear during the post-IPO period. This result suggests that IPOs provide stronger negotiation power to firms going public in bear markets, which consists of an important objective of IPO.

This paper makes significant contributions to the literature. To the best of our knowledge, this is the first research to examine characteristics of companies going public in bear markets. Our analyses show new evidence that stable access to bank finance significantly decreases firms' incentives to go public in good market conditions. It would be a novel finding that market condition at the IPO is correlated with financing constraints, investment efficiency, and long-term performance during the post-IPO period. We also shed light on roles of banks and a trade-off problem which young private companies encounter.

Reference

Allen, F., and Faulhaber, G. R., 1989. Signaling by underpricing in the IPO market. Journal of Financial Economics 23, 303-324.

Aoki, Masahiko, Hugh Patrick, and Paul Sheard, 1994. The role of the main bank in the corporate governance structure in Japan, in: Masahiko Aoki and Hugh Patrick, eds., The Japanese main bank system: Its relevancy for developing and transforming economies (Oxford University Press, Oxford).

Alti, A., 2005. IPO market timing. Review of Financial Studies 18, 1105-1138.

Berger, A.N., Udell, G.F., 1995. Relationship lending and lines of credit in small firm finance. Journal of Business 68, 351-382.

Berger, A. N., Udell, G. F., 2002. Small business credit availability and relationship lending: The importance of bank organizational structure. The Economic Journal 477, 32-53.

Baker, M., and J. Wurgler. 2002. Market Timing and Capital Structure. Journal of Finance 57:1–32.

Brau, J. C., and Fawcett, S. E., 2006. Initial public offerings: An analysis of theory and practice. Journal of Finance 61, 399-436.

Carpenter, Robert, Steven Fazzari, and Bruce Petersen, 1994. Inventory investment, internal finance fluctuations, and the business cycle. Brookings Papers on Economic Activity 6, 75-122.

Chemmanur, T. J., and He, J., 2010. IPO waves, product market competition, and the going public decision: Theory and evidence. Journal of Financial Economics 101, 382-412.

Chen, Q., Goldstein, I., Jiang W., 2007. Price informativeness and investment sensitivity to stock price. Review of Financial Studies 20, 619-650.

Campello, Murillo, John Graham, and Campbell Harvey, 2010. The real effects of financial constraints: Evidence from a financial crisis. Journal of Financial Economics 97, 470-487.

Cornett, M.M., McNutt, J.J., Strahan, P.E., and Tehranian, H., 2011. Liquidity risk management and credit supply in the financial crisis. Journal of Financial Economics 101,297-312.

Diamond, Douglas, 1984. Financial intermediation and delegated monitoring. Review of Economic Studies 51, 393-414.

Duchin, R., Ozbas, O., Sensoy, B., 2010. Costly external finance, corporate investment, and the subprime mortgage credit crisis. Journal of Financial Economics 97, 418-435.

DeAngelo, H., DeAngelo, L., Stulz, M., 2010. Seasoned equity offerings, market timing, and the corporate lifecycle. Journal of Financial Economics 95, 275-295.

Fama, E., 1985. “What’s different about banks”. Journal of Monetary Economics 15, 29-39.

Fazzari, Steven, R., Glenn Hubbard, and Bruce Petersen, 1988. Financing constraints and corporate investment. Brooking Papers on Economic Activity 1, 141-195.

Fazzari, Steven, and Bruce Petersen, 1993. Working capital and fixed investment: New evidence on financing constrains. RAND Journal of Economics 24, 328-342.

Graham, J.R., Harvey, C.R., 2001. The theory and practice of corporate finance: evidence from the field. Journal of Financial Economics 60, 187-243.

Gilson, S., John, K., Lang, L., 1990. Troubled debt restructuring: An empirical study of private renegotiations of firms in default. Journal of Financial Economics 27, 315-353.

Hoshi, Takeo, Anil Kashyap, and David Scharfstein, 1990a. Bank monitoring and investment: Evidence from the changing structure of Japanese corporate banking relationship, in R., Glenn Hubbard, ed : Asymmetric Information. Corporate Finance and Investment (University of Chicago Press, Chicago, Ill.).

Hoshi, Takeo, Anil Kashyap, and David Scharfstein, 1990b. The role of banks in reducing the costs of financial distress in Japan. Journal of Financial Economics 27, 67-88.

Hoshi, Takeo, Anil Kashyap, and David Scharfstein, 1991. Corporate structure, liquidity, and investment: Evidence from Japanese industrial groups. Quarterly Journal of Economics 106, 33-60.

Helwege, Jean, and Liang Nellie, 2004. Initial public offerings in hot and cold markets. Journal of Financial and Quantitative Analysis 39, 541-569.

Hellmann, T., 2006. IPOs, acquisitions, and the use of convertible securities in venture capital. Journal of Financial Economics 81, 649-679.

Hellmann, T., Lindsey, L., Puri, M., 2008. Building relationships early: banks in venture capital. Review of Financial Studies 21, 513-541.

Hsieh, Jim, Evgeny Lyandres, and Alexei Zhdanov, 2011. "A Theory of Merger-driven IPOs ". Journal of Financial and Quantitative Analysis 46, 1367-1405.

Ivashina, V., and D., Scharfstein, 2010. Bank lending during the financial crisis of 2008. Journal of Financial economics 97(3): 319-338.

James, C., 1987. Some Evidence on the Uniqueness of Bank Loans. Journal of Financial Economics 19(2):217-35.

Jiang, L., Kim, J.-B., Pang, L., 2011. Control-ownership wedge and investment sensitivity to stock price. Journal of Banking and Finance 35, 2856-2867.

Kaplan, Steven N., 1994. Top executives, turnover, and firm performance in Germany. Journal of Law, Economics, and Organization 10 (1), 142-159.

Kaplan, Steven N., and Bernadette A., Minton, 1994. Appointments of outsiders to Japanese boards: Determinants and implications for managers. Journal of Financial Economics 36,225-258.

Kang, Jun-Koo, and Anil Shivdasani, 1995. Firm performance, corporate governance, and top executive turnover in Japan. Journal of Financial Economics 38, 29-58.

Kang, J.-K., Stulz, R.M., 2000. Do banking shocks affect borrowing firm performance? An analysis of the Japanese experience. Journal of Business 73, 1-23.

Kang JK, Shivdasani A., Yamada T., 2000. The effect of bank relations on investment decisions: an investigation of Japanese takeover bids. Journal of Finance 55: 2197-2218.

Kaplan, Steven, and P., Stromberg, 2003. Financial contracting theory meets the real world: Evidence from venture capital contracts. Review of Economic Studies 70, 281-315.

Kim, W., Weisbach, M., 2008. Motivations for public equity offers: an international perspective. Journal of Financial Economics 87281-307.

Lerner, Josh, 1994. Venture capitalists and the decision to go public. Journal of Financial Economics 35, 293-316.

Loughran, Tim, Jay Ritter, and Kristian Rydqvist, 1994. Initial public offerings: International insights. Pacific-Basin Finance Journal 2, 165-199.

Loughran, T., and J. Ritter, 1995. The new issues puzzle. Journal of Finance 50:23-51.

Lowry, Michelle, and G., William Schwert, 2002. IPO market cycles: Bubbles or sequential learning?. Journal of Finance 57, 1171-1200.

Lerner, J., Shane, H., Tsai, 2003. Do equity financing cycle matter? Evidence from biotechnology alliances. Journal of Financial Economics 67, 411-446.

Morck, Randall, and Masao Nakamura, 1999. Banks and corporate control in Japan. Journal of Finance 54, 319–339.

Morck, R., Nakamura, M., Shivdasani, A., 2000. Banks, ownership structure, and firm value in Japan. Journal of Business 73, 539-567.

McLean, R.D., Zhao, M., 2014. The business cycle, investor sentiment, and costly external finance. Journal of Finance 69 (3), 1377-1409.

Petersen, M. A., Rajan, R. G., 1994. The benefits of lending relationships: Evidence from small business data. Journal of Finance 49, 3-37.

Pagano, M., Panetta, F., Zingales, L., 1998. Why do companies go public? An empirical analysis. Journal of Finance 53, 27-64.

Pinkowitz, L., Williamson, R., 2001. Bank power and cash holdings: evidence from Japan. Review of Financial Studies 14, 1059-1082.

Pastor, L., Veronesi, P., 2005. Rational IPO waves. Journal of Finance 60, 1713-1757.

Ritter, Jay R., 1984. The 'hot issue' market of 1980. Journal of Business 32, 215-240.

Ritter, J., 1991. The long-term performance of initial public offerings. Journal of Finance 46, 3-27.

Rajan, R.G., 1992. Insiders and outsiders: the choice between informed and arm's length debt. Journal of Finance 47, 1367-1400.

Stoughton, Neal M., Kit Pong Wong, and Josef Zechner, 2001. IPOs and product quality. Journal of Business 74, 375-408.

Sun, Y., Uchida, K., 2016. Does bank-affiliated venture capital substitute for parent bank investments?. Unpublished Working Paper.

Weinstein, D.E., Yafeh, Y., 1998. On the costs of a bank-centered financial system: evidence from the changing main bank relations in Japan. Journal of Finance 53, 635-672.

Yung, Chris, Gönül Çolak, and Wei Wang, 2008. "Cycles in the IPO Market". Journal of Financial Economics 89, 192-208.

Appendix
Variable definition

Variable	Definition
Ln(Assets)	Natural log of the book value of total asset
Firm age	Firm age at time of IPO
Cashholdings	Cash and cash equivalents, divided by total asset
LEVERAGE	Total liability, divided by total asset
Capital expenditure	The change of capital stock plus depreciation
INTANGIBLE	Intangible asset to total asset ratio
ROA	Ordinary income to total asset ratio
ROE	Ordinary income to book value of equity
SGR	Percentage sales growth ratio from previous year
BONDAR	Total issuance of bond, convertible bond and commercial paper, divided by total asset
LOANDR	The ratio of total bank loan (including both short term and long term) to total debt
LOANAR	The ratio of total bank loan (including both short term and long term) to total asset
BANKOWN	Percentage ownership by banks, which have business relationships with the firm in the IPO White Paper
MBOWN	Percentage ownership by main bank
MBVCOWN	Total percentage ownership by main bank and main bank affiliated venture capitalist
BDIRECD	A dummy variable indicating existence of directors appointed from banks is also adopted
BONDD	A dummy variable takes a value of one for firms with positive BONDAR
BONDHIGHD	A dummy variable which takes a value of one for firms with BONDAR greater than 10% and zero otherwise
Cashflow	Cashflow is calculated as net income plus depreciation, divided by lagged total assets the total asset in the beginning of fiscal year
Tobin's Q	Market value of equity plus book value of total liabilities divided by the book value of assets
N_BANKS	The number of lending banks

Table 1
Sample year distribution

This table indicates year distribution of our sample IPOs. The table also indicates the market index (TOPIX) at the end of corresponding year.

Year	BEAR	Non-BEAR	TOPIX (closing price)
1997	41	97	1147.87
1998	42	41	1088.83
1999	9	95	1712.27
2000	68	126	1291.65
2001	99	69	1013.73
2002	71	55	849.25
2003	49	84	1026.24
2004	7	168	1139.41
2005	0	161	1663.75
2006	0	190	1678.91
2007	19	110	1499.94
2008	41	19	854.44
2009	14	16	907.59
2010	4	15	898.80
2011	17	18	728.61
2012	8	36	859.80
2013	0	52	1302.29
2014	0	72	1407.51
Total	489	1424	

Table 2

Summary statistics

This table reports summary statistics. Panel A presents mean (median in the bracket) of continuous variables. Data preceding IPO are used. All continuous variables are winsorized at the 1% and 99% percentile values. P-values in Panel A are T-statistics (Z-statistics in the bracket) for mean (median) difference between BEAR and Non-BEAR IPOs. Panel B presents the proportion of observations which take a value of one for the dummy variable. P-values in Panel B for Z-statistics are for the proportion difference test. See Appendix for definition of variable.

	BEAR IPO	Non-BEAR IPO	P-value
Panel A: Non-dummy variables			
LOANDR	0.802 [1.000]	0.744 [1.000]	0.007***
	N =454	N =1314	[0.003***]
BONDAR	0.009 [0.000]	0.015 [0.000]	0.000***
	N=454	N=1311	[0.080*]
BANKOWN	2.556 [0.820]	1.956 [0.000]	0.001***
	N=457	N=1327	[0.000***]
MBOWN	1.158 [0.390]	0.958 [0.000]	0.009***
	N=456	N=1326	[0.002***]
MBVCOWN	0.589 [0.000]	0.605 [0.000]	0.827
	N=456	N=1326	[0.492]
Primary proceeds/ Total asset at the year before IPO	0.250 [0.087]	0.420 [0.154]	0.000***
	N=444	N=1295	[0.000***]
Underpricing	0.366 [0.104]	0.704 [0.322]	0.000***
	N=446	N=1314	[0.000***]
Ln(Assets)	8.743 [8.719]	8.552 [8.434]	0.013***
	N=454	N=1311	[0.008***]
Firm age	23 [20]	22 [17]	0.06*
	N=427	N=1261	[0.039**]
LEVERAGE	0.600 [0.646]	0.598 [0.628]	0.786
	N=454	N=1311	[0.665]
SGR	0.421 [0.167]	0.432 [0.173]	0.836
	N=448	N=1303	[0.538]
Sales / Total asset	1.475 [1.337]	1.550 [1.385]	0.101
	N=454	N=1309	[0.131]
Capital expenditure / Lagged total asset	0.073 [0.036]	0.083 [0.040]	0.154
	N=431	N=1255	[0.211]
INTANGIBLE	0.023 [0.006]	0.028 [0.007]	0.051*
	N=449	N=1273	[0.065*]
ROA	0.114 [0.097]	0.125 [0.103]	0.064*
	N=454	N=1309	[0.023**]
ROE	0.355 [0.296]	0.376 [0.325]	0.201
	N=454	N=1309	[0.086*]
Panel B: Dummy variables			
BDIRECD	0.080	0.044	0.019**
	N=286	N=935	
Dummy for MBOWN > 0	0.529	0.443	0.002***
	N=456	N=1326	
Dummy for Main bank affiliated venture capital's shareholdings	0.356	0.330	0.308
	N=456	N=1326	
Dummy for MBVCOWN > 0	0.660	0.584	0.004***
	N=456	N=1326	

***: Significant at the 1% level; **: Significant at the 5% level; Significant at the 10% level

Table 3

Logit regression results

This table shows logistic regression results. The dependent variable (BEARIPOD) takes a value of one for BEAR IPOs and zero for Non-BEAR IPOs. For independent variables, data preceding IPO are used. Z-statistics computed by using heteroskedasiticity-consistent standard errors are in parentheses. All estimations include industry dummies (not-reported). All continuous variables are winsorized 1% and 99% percentile values. See Appendix for definition of variable.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
LOANDR	0.452**				0.297	0.619***
	(2.47)				(1.53)	(2.84)
BONDAR		-9.304***			-6.759*	
		(-2.99)			(-1.85)	
BONDD		0.186			-0.052	
		(0.95)			(-0.20)	
LOANAR		-0.040	-0.067			
		(-0.12)	(-0.20)			
BONDHIGHD			-0.933**			
			(-2.54)			
BANKOWN				0.038*		0.076**
				(1.83)		(2.42)
BDIRECD					0.610**	0.532*
					(2.21)	(1.95)
LEVERAGE	-0.589*			-0.261		-1.435***
	(-1.65)			(-0.79)		(-3.28)
Ln(Assets)	0.123**	0.107**	0.113**			0.122*
	(2.26)	(2.00)	(2.13)			(1.79)
ROA	0.062	-0.200	-0.150			0.763
	(0.10)	(-0.32)	(-0.24)			(1.01)
SGR	0.057					0.025
	(0.78)					(0.26)
Firm age	-0.001					-0.005
	(-0.25)					(-0.90)
Constant	-1.101	-0.799	-0.847	-0.819	-0.948	-0.910
	(-0.99)	(-0.75)	(-0.79)	(-0.75)	(-0.63)	(-0.51)
Pseudo R2	0.036	0.040	0.037	0.035	0.061	0.067
N	1649	1649	1649	1649	1181	1181

***: Significant at the 1% level; **: Significant at the 5% level; Significant at the 10% level

Table 4

Cash holdings

This table presents mean (median in brackets) values of cash holdings variables. Year 0 indicates the IPO year. The most right-hand column presents p-values for mean difference test (median difference test in brackets). All continuous variables are winsorized at 1% and 99% percentile values.

	BEAR IPOs	Non-BEAR IPOs	P-value
Cash and cash equivalents over total assets			
Year -1	0.254 [0.201]	0.261 [0.213]	0.491 [0.367]
	N=454	N=1310	
Year 0	0.256 [0.196]	0.289 [0.243]	0.001*** [0.001***]
	N=479	N=1368	
Year 1	0.238 [0.184]	0.248 [0.199]	0.338 [0.362]
	N=471	N=1296	
Change of cash and cash equivalents over total assets at the year before IPO			
Year[-1, 0]	0.159 [0.037]	0.317 [0.095]	0.000*** [0.000***]
	N=453	N=1310	
Year[-1, 1]	0.220 [0.043]	0.386 [0/073]	0.000*** [0.000***]
	N=445	N=1239	
Change of cash and equivalents over proceeds			
Year[-1, 0]	0.516 [0.431]	0.718 [0.639]	0.004*** [0.000***]
	N=436	N=1276	
Year[-1, 1]	0.916 [0.468]	0.874 [0.531]	0.730 [0.226]
	N=428	N=1207	

***: Significant at the 1% level; **: Significant at the 5% level; Significant at the 10% level

Table 5
Regression of capital expenditures

This table presents results of regressions of capital expenditures (change of PPE plus depreciation expenses over one-year lagged assets). The analysis uses data during five years following the IPO (we delete firms for which less than 3 years post-IPO data are available). Our basic equation uses Tobin'q at the beginning of fiscal year as a measure of investment opportunity, which is defined as the market value of equity plus book value of total liability divided by the book value of total asset; Cashflow is calculated as net income plus depreciation, divided by one-year lagged assets; Cashholding is the sum of cash and cash equivalent, divided by one-year lagged assets. All regressions use firm-fix effects, including year dummy. Heteroskedasticity-consistent standard errors clustered at the firm level are shown in parentheses. All continuous variables are winsorized 1% in each tail to reduce the impact of outliers.

	Model (1)	Model (2)	Model (3)
Tobin's Q	0.005*** (5.22)	0.004*** (3.70)	0.004*** (3.52)
Tobin's Q*BEARIPOD		0.004** (2.03)	0.005** (2.32)
Cashflow	0.091*** (6.58)	0.078*** (6.61)	0.093*** (6.73)
Cashflow*BEARIPOD	-0.042* (-1.75)		-0.051** (-2.07)
Cashholdings	0.035*** (5.27)	0.035*** (5.27)	0.035*** (5.28)
Constant	0.080*** (7.53)	0.080*** (7.52)	0.080*** (7.55)
R2	0.057	0.057	0.058
N	7523	7523	7523

***: Significant at the 1% level; **: Significant at the 5% level; Significant at the 10% level

Table 6

Post-IPO long-term performance

Panel A of table 6 reports mean (median in brackets) of operating performance variables (ROA, ROE, sales growth ratio (SGR)) as well as Tobin's Q over the five years following IPO. We present the adjusted performance variables, which subtract the performance variable for the control firm from the raw variable, to control for macro-economic and industry-level factors. For each of sample companies, we choose as a control firm a listed company from the same industry which is similar in the market value of equity and M/B ratio at the IPO year. Controlling firms are also required not to issue new shares within the last 3 years at the IPO year of the sample firm. Panel B of Table 6 presents mean (median in brackets) of stock price performance during the post-IPO period. Specifically, we calculate the buy-and-hold returns from the month after the IPO. Since our interest is to measure the long-term performance, observations with less than 1 year stock price are dropped. All continuous variables are winsorized at the 1% and 99% percentile values. P-values are for mean difference test (median difference test in brackets) between BEAR IPO and Non-BEAR IPO. See Appendix for definition of variable.

Panel A: Annual performance variables						
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
ROA						
BEAR IPO	0.100 [0.089] N=478	0.070 [0.071] N=471	0.063 [0.061] N=465	0.067 [0.065] N=449	0.063 [0.059] N=421	0.059 [0.058] N=415
Non-BEAR IPO	0.101 [0.095] N=1364	0.072 [0.073] N=1292	0.059 [0.060] N=1230	0.050 [0.055] N=1160	0.051 [0.052] N=1102	0.050 [0.052] N=1056
P-value (Diff. test)	0.783 [0.476]	0.800 [0.592]	0.406 [0.412]	0.002***[0.002***]	0.017**[0.044**]	0.110 [0.066*]
Adjusted ROA						
BEAR IPO	0.056 [0.049] N=463	0.022 [0.013] N=453	0.007 [0.002] N=448	0.013 [0.005] N=432	0.009 [0.003] N=403	0.005 [0.010] N=396
Non-BEAR IPO	0.052 [0.045] N=1325	0.023 [0.014] N=1257	0.013 [0.009] N=1191	0.005 [0.006] N=1119	0.001 [0.003] N=1060	0.004 [0.004] N=1006
P-value (Diff. test)	0.525 [0.233]	0.837 [0.930]	0.272 [0.138]	0.215 [0.525]	0.191 [0.616]	0.864 [0.334]
ROE						
BEAR IPO	0.241 [0.239] N=478	0.175 [0.182] N=471	0.148 [0.162] N=465	0.153 [0.156] N=449	0.153 [0.143] N=421	0.139 [0.144] N=415
Non-BEAR IPO	0.227 [0.218] N=1364	0.161 [0.167] N=1292	0.134 [0.139] N=1230	0.123 [0.132] N=1160	0.121 [0.126] N=1102	0.125 [0.117] N=1056
P-value (Diff. test)	0.138 [0.065*]	0.223 [0.263]	0.304 [0.062*]	0.021**[0.004***]	0.021**[0.010***]	0.304 [0.053**]
Adjusted ROE						
BEAR IPO	0.080 [0.085] N=463	0.033 [0.029] N=453	-0.016 [0.005] N=448	-0.001 [0.010] N=432	0.001 [0.006] N=403	0.004 [0.008] N=396
Non-BEAR IPO	0.094 [0.066] N=1325	0.029 [0.025] N=1257	0.006 [0.011] N=1191	-0.002 [0.007] N=1119	-0.011 [-0.002] N=1060	0.005 [0.001] N=1006
P-value (Diff. test)	0.456 [0.091*]	0.792 [0.782]	0.246 [0.162]	0.951 [0.484]	0.568 [0.614]	0.987 [0.511]
SGR						
BEAR IPO	0.275 [0.124] N=455	0.112 [0.060] N=473	0.132 [0.070] N=467	0.154 [0.080] N=449	0.128 [0.063] N=424	0.115 [0.064] N=414
Non-BEAR IPO	0.268 [0.149] N=1307	0.154 [0.088] N=1288	0.125 [0.064] N=1224	0.084 [0.049] N=1158	0.067 [0.038] N=1108	0.065 [0.036] N=1058
P-value (Diff. test)	0.762 [0.069*]	0.017**[0.001***]	0.676 [0.423]	0.000***[0.000***]	0.000***0.000[***]	0.003***[0.000***]
Adjusted SGR						
BEAR IPO	0.224 [0.112] N=447	0.038 [0.019] N=452	0.038 [0.011] N=448	0.087 [0.033] N=431	0.052 [0.016] N=403	0.077 [0.041] N=394
Non-BEAR IPO	0.177 [0.099] N=1271	0.065 [0.037] N=1250	0.063 [0.037] N=1182	0.046 [0.026] N=1113	0.006 [0.001] N=1058	-0.001 [0.001] N=1004
P-value (Diff. test)	0.069*[0.125]	0.201 [0.072*]	0.247 [0.026**]	0.059*[0.075*]	0.039**[0.103]	0.001***[0.000***]

Table 6 (Continued)

Tobin's Q						
BEAR IPO	1.747 [1.234] N=477	1.626 [1.160] N=467	1.647 [1.202] N=462	1.700 [1.257] N=445	1.626 [1.240] N=418	1.479 [1.147] N=409
Non-BEAR IPO	2.182 [1.551] N=1362	1.775 [1.273] N=1290	1.528 [1.167] N=1224	1.385 [1.062] N=1149	1.348 [1.037] N=1091	1.300 [1.033] N=1034
P-value (Diff. test)	0.000***[0.000***]	0.024**[0.011***]	0.042**[0.025**]	0.000***[0.000***]	0.000***[0.000***]	0.001***[0.000***]
Adjusted Tobin's						
BEAR IPO	0.562 [0.101] N=464	0.272 [0.043] N=453	0.206 [0.022] N=449	0.322 [0.064] N=432	0.311 [0.078] N=405	0.112 [0.070] N=396
Non-BEAR IPO	0.731 [0.113] N=1329	0.358 [0.093] N=1261	0.191 [0.044] N=1195	0.080 [0.011] N=1120	0.010 [-0.013] N=1063	-0.060 [-0.027] N=1008
P-value (Diff. test)	0.056*[0.522]	0.265 [0.023**]	0.823 [0.312]	0.000***[0.000***]	0.000***[0.000***]	0.021**[0.000***]
Panel B: Long-term stock return						
	1 Year	2 Year	3 Year	4 Year	5 Year	3- years BHR
Raw BHR						
BEAR IPO	0.067 [-0.153] N=482	0.129 [-0.027] N=482	0.198 [0.043] N=476	0.005 [-0.075] N=463	0.010 [-0.082] N=435	0.051 [-0.241] N=482
Non-BEAR IPO	-0.252 [-0.403] N=1325	-0.073 [-0.234] N=1325	-0.078 [-0.173] N=1259	0.041 [-0.066] N=1187	0.031 [-0.025] N=1132	-0.411 [-0.627] N=1325
P-value (Diff. test)	0.000***[0.000]***	0.000***[0.000]***	0.000***[0.000]***	0.345 [0.807]	0.542 [0.108]	0.000***[0.000***]
Market adjusted BHR						
BEAR IPO	0.088 [-0.104] N=482	0.080 [-0.077] N=482	-0.067 [-0.059] N=476	-0.061 [-0.107] N=463	-0.091 [-0.151] N=435	-0.088 [-0.265] N=482
Non-BEAR IPO	-0.263 [-0.364] N=1325	-0.068 [-0.204] N=1325	-0.022 [-0.111] N=1259	0.068 [-0.040] N=1187	0.062 [0.014] N=1132	-0.372 [-0.429] N=1325
P-value (Diff. test)	0.003***[0.016**]	0.000***[0.000***]	0.010***[0.023]	0.000***[0.000***]	0.000***[0.000***]	0.000***[0.000***]
Control firm adjusted BHR						
BEAR IPO	0.035 [-0.087] N=460	0.050 [-0.019] N=456	0.063 [0.006] N=443	-0.092 [-0.096] N=423	-0.092 [-0.124] N=412	-0.094 [-0.132] N=460
Non-BEAR IPO	-0.168 [-0.221] N=1277	-0.084 [-0.127] N=1262	-0.033 [-0.051] N=1184	-0.032 [-0.072] N=1084	0.003 [-0.042] N=1045	-0.234 [-0.242] N=1277
P-value (Diff. test)	0.000***[0.000***]	0.002***[0.000***]	0.011***[0.040**]	0.112 [0.209]	0.064*[0.011***]	0.010***[0.000***]

***: Significant at the 1% level; **: Significant at the 5% level; Significant at the 10% level

Table 7

Interest rates

Panel A indicates the mean (median in brackets) of average interest rate that sample firms incur. Panel B shows results of regression of interest rate (short term or long term average interest rate) for the year before IPO. For independent variables, data before the IPO are used. Z-statistics (in parentheses) are computed by using robust standard errors. For brevity we didn't report the results for industry dummies. Panel C shows mean (median in brackets) of public debt (bonds and commercial papers) over assets. Year 0 indicates IPO year. All continuous variables are winsorized at 1% and 99% percentile values.

Panel A: Average interest rates

	Year -1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Average short-term interest rate (%)							
BEAR IPO	1.678 [1.575] N=252	1.557 [1.480] N=261	1.509 [1.400] N=280	1.531 [1.380] N=292	1.423 [1.300] N=303	1.475 [1.355] N=282	1.616 [1.390] N=278
Non-BEAR IPO	1.540 [1.390] N=616	1.485 [1.355] N=664	1.454 [1.380] N=687	1.470 [1.370] N=754	1.546 [1.380] N=714	1.548 [1.330] N=685	1.452 [1.255] N=684
P-value (Diff. test)	0.025**[0.000***]	0.234 [0.000***]	0.372 [0.793]	0.317 [0.188]	0.057*[0.018**]	0.297 [0.601]	0.018**[0.004***]
Average long-term interest rate (%)							
BEAR IPO	2.147 [2.100] N=242	2.045 [2.000] N=256	1.914 [1.850] N=273	1.877 [1.800] N=290	1.827 [1.770] N=305	1.857 [1.710] N=289	1.855 [1.780] N=293
Non-BEAR IPO	1.944 [1.870] N=669	1.927 [1.830] N=779	1.898 [1.800] N=765	1.800 [1.800] N=816	1.853 [1.775] N=708	1.803 [1.700] N=745	1.742 [1.650] N=697
P-value (Diff. test)	0.000***[0.000***]	0.025**[0.003***]	0.759 [0.308]	0.957 [0.973]	0.613 [0.892]	0.324 [0.138]	0.040**[0.007***]

Table 7 (Continued)

Panel B: Regression of average interest rate

	BEARIPOD	Total asset	LEVERAGE	INTANGIBLE	SGR	FirmAge	ROA	Constant	R2	N
Model (1): Average short-term interest rate	0.195*** (3.46)	-0.101*** (-4.27)	0.361** (2.21)	2.342*** (4.55)	0.112*** (3.21)	0.001 (0.67)	-0.177 (-0.55)	1.361** (2.47)	0.18	840
Model (2): Average long-term interest rate	0.205*** (4.01)	0.005 (0.23)	0.245* (1.75)	0.487 (1.09)	0.048 (1.40)	-0.005*** (-3.24)	-0.337 (-1.19)	1.614*** (3.89)	0.092	887

Panel C:Public debt and bank debt

	Year -1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Public debt over assets at Year -1							
BEAR IPO	0.009 [0.000]	0.013 [0.000]	0.031 [0.000]	0.044 [0.000]	0.058 [0.000]	0.065 [0.000]	0.067 [0.000]
	N=454	N=456	N=450	N=444	N=426	N=402	N=392
Non-BEAR IPO	0.015 [0.000]	0.018 [0.000]	0.035 [0.000]	0.043 [0.000]	0.049 [0.000]	0.045 [0.000]	0.049 [0.000]
	N=1311	N=1322	N=1244	N=1184	N=1110	N=1057	N=1008
P-value (Diff. test)	0.001***[0.080*]	0.059*[0.325]	0.502 [0.763]	0.893 [0.360]	0.315 [0.390]	0.021**[0.267]	0.054*[0.039**]
Bank debt over assets at Year -1							
BEAR IPO	0.241 [0.206]	0.267 [0.190]	0.347 [0.214]	0.432 [0.216]	0.481 [0.202]	0.554 [0.199]	0.603 [0.211]
	N=454	N=456	N=450	N=444	N=426	N=402	N=392
Non-BEAR IPO	0.233 [0.204]	0.255 [0.151]	0.366 [0.172]	0.441 [0.200]	0.481 [0.210]	0.493 [0.209]	0.531 [0.218]
	N=1311	N=1322	N=1244	N=1184	N=1110	N=1057	N=1008
P-value (Diff. test)	0.501 [0.293]	0.556 [0.025**]	0.570 [0.155]	0.840 [0.772]	0.997 [0.628]	0.259 [0.614]	0.217 [0.763]

***: Significant at the 1% level; **: Significant at the 5% level; Significant at the 10% level

Table 8

This table presents mean (median in brackets) of the hypothetical cash holdings (pro forma Cash), which is calculated under the assumption that sample firms received no IPO proceeds. Percentage values after the number of observation presents the percentage of observations which have negative value. Year 0 indicates the firm's IPO year. P-value (Diff. test) is for mean difference test (median difference test in brackets) between BEAR IPO and Non-BEAR IPO. P-value (Proportion diff. test) is for the null hypothesis that the proportion of observations which have negative value is identical between BEAR and Non-BEAR IPOs. Pro forma cash variables are winsorized at 1% and 99% percentile values.

	Year -1	Year 0	Year 1
Pro forma cash over assets			
Bear IPO	0.156 [0.127]	0.147 [0.122]	0.154 [0.122]
	N=479	N= 471 (Negative: 14.6%)	N=466 (Negative: 17.4%)
Non-BEAR IPO	0.167 [0.132]	0.130 [0.102]	0.130 [0.099]
	N=1368	N= 1296 (Negative: 16.4%)	N=1234 (Negative: 23.8%)
P-value (Diff. test)	0.306 [0.660]	0.115 [0.020**]	0.025** [0.002***]
P-value (Proportion diff. test)		0.124	0.001***

***: Significant at the 1% level; **: Significant at the 5% level; Significant at the 10% level

Table 9
Logit regression results: Use main bank variables

This table shows results of logistic regressions, in which the dependent variable takes a value of one for BEAR IPO and zero for Non-BEAR IPO. For independent variables, data preceding IPO are used. All estimations include industry dummies (not reported). Z statistics computed by using heteroskedasiticity-consistent errors are in parentheses. All continuous variables are winsorized at 1% and 99% percentile values.

	Model (1)	Model (2)	Model (3)
MBOWN	0.138 (1.03)		
MBVCOWN		0.021 (0.49)	
N_BANKS			0.136*** (4.07)
BONDAR	-7.090*** (-3.19)	-7.306*** (-3.32)	
LEVERAGE	-0.123 (-0.37)	-0.115 (-0.34)	-0.393 (-1.18)
Ln(Assets)	0.108* (1.92)	0.120** (2.16)	0.077 (1.39)
ROA	-0.207 (-0.33)	-0.216 (-0.35)	-0.001 (-0.00)
SGR	0.049 (0.66)	0.043 (0.58)	0.029 (0.39)
Firm age	-0.001 (-0.12)	0.000 (0.08)	-0.000 (-0.08)
Constant	-0.844 (-0.77)	-0.897 (-0.82)	-0.698 (-0.60)
Pseudo R2	0.040	0.040	0.041
N	1647	1647	1648

***: Significant at the 1% level; **: Significant at the 5% level; Significant at the 10% level