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Raising Capital When the Going Gets Tough: U.S. Bank Equity Issuance from 2001 to 2014

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We analyze equity issuance by publicly-traded U.S. banks during 2001-2014 through exchanges (SEOs), private placements (PIPEs), and TARP. Equity markets were important for bank recapitalization in the crisis, when SEO and PIPE issuance peaked. We find that bank characteristics predict issuance whereas trading indicators influence issuance type. Large, well-capitalized banks with quality loans were more likely to issue. PIPEs served weaker, capital-constrained banks, while SEOs and TARP were selective. Bank illiquidity was another incentive to issue. Banks with lower trading activity and wider spreads were more likely to issue TARP over SEOs. Our findings suggest TARP aided private issuance, which was used to repay TARP.

JEL Codes: G21, G28, G32

Keywords: commercial banks, equity issuance, financial crisis

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1. Introduction

The financial crisis of 2008-2009 highlighted the importance of bank capital. An emerging consensus among economists and policymakers argues that banks should be required to maintain significantly higher levels of capital.[1] Bank capital reduces the likelihood of bank failure, improves risk management incentives and enhances a bank's ability to withstand economic shocks. Raising bank capital reduces the need for asset sales during recessions and crises. Bank equity issuance is especially important for financial stability, as asset sales by capital-constrained banks could exacerbate an economic downturn (Hanson, Kashyap and Stein, 2013).[2] Despite its importance to financial stability, very little is known about bank equity issuance, especially to private investors.[3]

This paper studies equity issuance by publicly-traded U.S. banks from 2001 to 2014. To study bank equity issuance, we combine data on seasoned equity offerings (SEOs), private investment in public equity (PIPEs), and injections from the Troubled Asset Relief Program (TARP).[4] These three sources of funds were the key sources of equity capital for listed U.S. banks during this period. By focusing on publicly-traded banks, we can identify whether there were capital constraints among banks that had the greatest access to equity investors. Our sample includes the periods before, during, and after the financial crisis, which provides an opportunity to compare issuance during crisis and non-crisis years. We also study the interaction

[1] See, for example, Alan Greenspan, Financial Times, August 17, 2015, "More capital is a less painful way to fix the banks." and Anat Admati and others, Financial Times, November 9, 2010, "Healthy banking system is the goal, not profitable banks."

[2] Hanson, Kashyap and Stein (2013) also argue that bank capital constraints could frustrate the goals of an accommodative monetary policy.

[3] Most studies of banks raising capital during crises focus on funding from government sources and, in some cases, bank nationalization (see Laeven and Valencia, 2013a for a comprehensive list of interventions). The most widely researched among these is the U.S. government's TARP program of 2008-2009 (see Berger and Roman, 2015, for a survey of literature on the TARP program).

[4] To avoid confusion, we denote equity issuance through SEOs and PIPEs as issuance to private investors or "private issuance" and equity issuance through the TARP program as issuance to the government or "government issuance."

between private and government sources for banks that issued both types of equity.

Equity markets were an important source of bank recapitalization during the crisis. Issuance through SEOs and PIPEs peaked during and immediately after the crisis, resulting in almost a threefold increase (on an annual basis) in the number of SEO issuances and a twofold increase in the number of PIPE issuances. To the best of our knowledge, there is limited prior evidence that banks can tap private sources of capital in times of financial crisis. Indeed, most studies on bank recapitalizations have focused on the extent and role of government interventions during the financial crises (Demirguc-Kunt et al., 2013; Laeven and Valencia, 2013b), but not private sources of capital. Our results highlight that, at least for the recent financial crisis of 2008-2009, private sources of capital were an active and important source for bank recapitalization in the United States.[5]

Bank equity issuers for both private and government funds were almost entirely well-capitalized at the time of issuance.[6] This evidence is counter to the idea that the banks raising capital during the crisis were the weakest banks. Moreover, banks that were undercapitalized were unable to raise capital from private sources throughout the sample period. This evidence suggests that banks did face constraints to equity issuance even in non-crisis years.

Our paper provides an analysis of the determinants of equity issuance for banks. We use two types of determinants in our analysis: *bank characteristics* from financial statements and *trading indicators* from the publicly-traded bank equity. The bank characteristics include capital ratios, liquidity ratios, and performance metrics; the trading indicators include stock–market measures such bid-ask spread, turnover, and returns volatility. Our results show that bank

[5] Of course, private sources of capital were not the only sources of capital in the recent recapitalization of U.S. banks. As we point out, government intervention under the TARP program had a major role to play. As stated above, we also examine the interaction between private and government issuance.

[6] Our criterion for a well-capitalized bank include a leverage ratio of 5% or higher, a tier 1 risk-based capital ratio of 6% or greater and a total risk-based capital ratio of 10% or higher.

characteristics predict issuance whereas trading indicators influence the type of issuance (SEO, PIPE, or TARP).

We find a number of significant differences between issuing and non-issuing banks. The odds of issuance in all forms tend to increase with bank size and bank strength: smaller and weaker banks are more likely to be constrained in raising capital. Liquidity is also an important determinant for equity issuance during the crisis, especially for the largest banks. Lastly, while issuers are almost always well-capitalized at the time of issuance, they tend to be banks with significantly lower capital ratios among the well-capitalized banks. These results are also suggestive of bank capital constraints even during non-crisis years.

In addition, our results indicate that bank capital constraints were more binding during the crisis. We show that while size is an important determinant of issuance during non-crisis years, the odds of issuance are significantly greater for larger banks during the crisis. The distinction between crisis and non-crisis issuance is even more acute in terms of loan portfolio quality. Our results suggest that while poorer loan portfolio quality increases the odds of private issuance in non-crisis years, it decreases the odds of issuance in crisis years. This result suggests that information asymmetries about loan portfolio quality can increase significantly during times of crisis to generate binding capital constraints to issuance.

Our results show that trading indicators are important in determining issuance choice. For example, we find that higher turnover, lower volatility and lower bid-ask spreads make SEO issuance more likely. Interestingly, the same factors make issuance under TARP less likely. Studies on bank equity trading characteristics (Flannery et al., 2004, 2013), have long noted the importance of these trading indicators in determining the opacity of bank assets. Our analysis shows that asset opacity helps determine whether listed banks choose to recapitalize using TARP

funds or opt for private issuance by using SEOs. Lower asset opacity increases the odds of SEO issuance but reduces the odds of TARP issuance. Reservations of about asset undervaluation may lead banks to apply for TARP issuance. Moreover, they may view the TARP issuance as a means of reducing the information asymmetry about asset quality. Our results also show that it is the private market (PIPEs) that served the weakest banks, not the TARP program. Both SEO and TARP issuance have been more selective than PIPE issuance.

Lastly, we examine the interaction between government and private sources of capital. Government recapitalization of banks can have disparate effects on private sources of capital. On the one hand, government recapitalization can help mitigate some of the capital constraints that bind at the time of crises, especially those related to information asymmetries. By injecting capital into some banks and not others, governments can "certify" the soundness and viability of approved banks. This "certification effect" is hypothesized to encourage private participation. On the other hand, there is a perceived "stigma effect" associated with government recapitalizations that can adversely affect the ability of participating banks in raising capital from private sources.[7] The conventional argument in favor of such an effect is that government recapitalizations might lead investors to infer weakness of participating banks and discourage private investment. Our data is able to shed some light on the two different effects.

In the case of TARP and the associated Supervisory Capital Assessment Program (SCAP), our results provide support for the certification effect.[8] We find that issuance under

[7] The stigma problem has been attributed mostly to the Federal Reserve's discount window lending but is applicable to all forms of government intervention, especially during financial crises (Armantier et al., 2011). This was also true of the TARP program which, as many have argued, was "mandated" for the largest banks because of the perceived stigma effect (see Che et al., 2014 and references therein for a full discussion on the stigma problem and TARP).

[8] Following TARP, the Federal Reserve and regulatory agencies embarked on a comprehensive assessment of the capital needs of the 19 largest U.S. BHCs known as the SCAP. The results of the so-called "stress tests" were published on May 7, 2009. Therefore, while the certification effect of the largest banks has been attributed to SCAP, the certification effect from TARP is attributed to smaller banks that were not part of SCAP.

TARP is an important predictor of subsequent SEO issuance but not PIPE issuance. This result suggests that TARP and SCAP may have mitigated some of the informational constraints during the crisis.[9] We also examine issuance of equity to private sources around TARP repurchase dates. Issuance from private sources around TARP repayment dates suggests that banks were able to issue equity to private sources even before the repayment of TARP funds. If the stigma effect were sufficiently strong, then banks would have had difficulty issuing equity without first repurchasing TARP equity (i.e. getting rid of the stigma). Our results suggest the opposite: banks may have used issuance to private sources as a means to repay TARP funds.

The paper is organized as follows. Section 2 explains our contribution to the literature. Section 3 describes the data and provides descriptive statistics on our sample of issuers and non-issuers. Section 4 contains our empirical methodology and results. Section 5 studies the interaction between TARP issuance and private issuance. Section 6 studies the determinants of issuance amount. Section 7 concludes.

2. Contribution to the Literature

Our paper spans several strands of literature in banking and corporate finance as well as literature on the crisis and government interventions. Following the financial crisis, there has been a growing focus on bank capital structure (Admati et al., 2013; DeAngelo and Stulz, 2015). Despite the reluctance of bankers to hold higher capital, bank capital can be thought of as "private deposit insurance" with significant social benefits (Thakor, 2014). From the perspective of macroprudential regulation, Hanson Kashyap and Stein (2013, p. 10) advocate that "A better approach is to create direct incentives for the bank to raise *incremental dollars* of new capital,

[9] Examining market reactions around this time, Bayazitova and Shivdasani, (2011) conclude that there was a positive certification effect from SCAP but not from TARP.

rather than just boosting its capital ratio." Despite the importance of banks raising capital, the recent literature on bank equity issuance is somewhat limited.

The major contribution of this paper is a comprehensive study of the key forms of equity issuance for listed banks during 2001-2014. Early studies of security issuance by bank holding companies focus on the adoption of capital regulations in 1981 (Polonchek et al., 1989; Keeley, 1989; Wall and Peterson, 1991; Horvitz et al., 1991). Cornett and Tehranian (1994) study market reactions to equity issuances following the adoption of new capital standards under Basel I.[10] More recently, research on bank capital management shows that BHCs target capital ratios greater than their regulatory ratios, building and maintaining "excess capital" buffers (Berger, et al. 2008; Gropp and Heider 2010). Examining BHCs from 1992-2006, Berger et al., (2008) show how banks repurchase equity to reduce excess capital and achieve target ratios during a period of strong bank performance.[11] Because our study includes the crisis and the consequent downturn in bank profits, we add to this literature by showing how banks use new equity issuance to actively strengthen their balance sheets.[12]

Bank equity issuance to achieve a target capital ratio is often funded by government programs for bank recapitalization following banking crises (Demirguc-Kunt et al., 2013; Laeven and Valencia, 2013).[13] This paper examines private and government issuances of bank capital around the recent financial crisis and examines how government recapitalization affected

[10] Since then, studies have examined bank issuance of significant amounts of trust preferred securities (TPS) as a means of increasing Tier 1 regulatory capital (Benston et al., 2003; Harvey et al., 2003; Boyson et al., 2014).

[11] Krishnan et al. (2010) examine bank market reactions to bank SEO issuances over the same period showing undercapitalized and well-capitalized banks experience similar and significantly negative stock price reactions to SEO announcements.

[12] In concluding remarks, Berger et al. (2008, p. 147) observed, "… whether or not BHCs would use new shares to actively offset losses remains an open question…."

[13] There are three ways in which a bank replenishes depleted capital: retained earnings, asset sales, and equity issuance. For instance, when a bank experiences a negative shock to its equity, it may return to target leverage by selling assets (Greenwood et al., 2015). Banks' capital ratio adjustments are determined by control and cash flow rights (Lepetit et al., 2015). Bank equity issuance rises as capitalization declines until a threshold level of undercapitalization is reached, below which equity acquisition declines (Dahl and Spivey, 1996).

private issuance.[14] As a result, our paper is directly related to a large and growing literature on TARP—the most studied bank recapitalization program (Black and Hazelwood 2013; Duchin and Sosyura, 2014; Berger and Roman, 2015). Strong banks opted out of TARP and the equity infusions were provided to banks that posed systemic risk, faced high financial distress costs, but had strong asset quality (Bayazitova and Shivdasani, 2011).[15] By examining market reactions to announcements of large capital infusions (SEOs and TARP), Elyasiani et al., (2014) find that investors reacted negatively to SEOs but positively to TARP injections. Our paper extends the assessment on TARP in these studies by examining the effect of TARP injections on subsequent private issuances.

Our work also relates to a recent body of work on non-financial firms studying the different methods of equity issuance, namely SEOs and PIPEs (Wu, 2004; Brophy et al., 2009; Chakraborty and Gantchev, 2013). Consistent with the findings in the literature, we do find that the choice of equity selling mechanism for banks is influenced by the potential of undervaluation (Chen et al., 2010). When the firm's stock is undervalued, the issuer is more likely to turn to PIPEs (as opposed to SEOs) expecting that their due diligence will help reduce undervaluation. Our results that SEOs are the preferred form of issuance for the healthiest banks are consistent with these findings.[16] In contrast, we find that PIPEs tend to be the issuance choice of weaker

[14] The financial crisis was a period of significant external financing constraints in the United States (Campello et al., 2010; Kuppuswamy and Villalonga, 2015). U.S. life insurance companies issued equity capital during the financial crisis to support the growth of new business and to replace capital depleted by operating losses (Berry-Stolzle et al., 2014). Due to capital market frictions, bank holding companies establish internal capital markets to allocate scarce capital among their various subsidiaries (Houston et al., 2001).

[15] The market reaction to TARP injections was negative for healthy banks, but positive for weak banks (Carow and Salotti, 2014). Both strong and weak banks were more likely to receive TARP if they were experiencing liquidity issues (Cornett et al., 2013). Deposit inflows to systemically important banks tend to be explained by the perception of a too-big-to-fail policy more than bank fundamentals (Oliveira et al., 2015).

[16] Near-term cash need is a primary SEO motive (DeAngelo et al., 2010) and the negative impact of SEO issuance on bank stock prices is much weaker than for non-financial firms partly due to capital requirements (Polonchek et al., 1989). Announcements of common stock issuance are associated negative abnormal returns for bank holding companies under regulatory pressure to boost capital, but not for highly-capitalized banks (Keeley, 1989).

banks as has been shown in the case of non-financial firms.[17] PIPE investors are known to provide monitoring and certification benefits, which mitigates the information asymmetry problems in equity issuance (Billett, Elkamhi and Floros 2014).

3. Data and Descriptive Statistics

3. 1 Data Sources

Our sample is the universe of publicly traded banks in the United States during 2001-2014 as identified by the Federal Reserve Bank of New York (FRBNY).[18] This sample of 1036 publicly traded institutions include both banks and bank holding companies (BHCs) that were listed in any of the major trading exchanges during our sample period. To maintain uniformity across banks and their BHCs, we use a standard practice in the empirical banking literature of rolling up all quarterly financial variables of affiliate banks to their holding company. Data on banks and BHCs were obtained from their Call Report and Y9-C filings, respectively. The list of banks is also matched with the Federal Deposit Insurance Corporation's (FDIC's) list of failed entities during 2001-2014. Only 10 banks in our sample period failed and there are no recorded issuances of equity for these failed banks. In addition to bank data, we obtain trading data on a number of market-based measures for our sample of listed banks from CRSP-Comupstat.

Data on SEOs are drawn from the Securities Data Corporation (SDC) database (U.S. common stock issuances).[19] Our sample of PIPEs draws from the PrivateRaise database.

[17] The features of the private placement market suggest that it is an information intensive market (Carey, Prowse, Rea, and Udell 1993). In the banking sector, buyers of privately placed bank common stock provide a quality certification of capital deficient bank holding companies (Varma and Szewczyk, 1993).

[18] The list is available at https://www.newyorkfed.org/research/banking_research/datasets.html

[19] Our SEOs sample is drawn from the SDC database and includes only common stock offerings in the U.S. Specifically, the filtering criteria we employ are the following : a) all completed, common stock, firm commitment follow-on offerings with an issue date within 1/1/2001-12/31/2014, b) where the issuer is traded on any of the main U.S. stock exchanges (NYSE, AMEX, NASDAQ, NASDAQ SmallCap), c) with issuer primary SIC code not including REITs, d) with no rights issues, e) with no unit issues, f) with no closed-end funds, g) with no LBO or

Specifically, we obtain our sample of PIPE transactions from the PrivateRaise database offered by *The Deal Pipeline* with the PIPE closing dates ranging from 1/1/2001 to 12/31/2014. The data includes all completed, unregistered and registered PIPEs conducted in the U.S. The majority of SEO and PIPE issuances are common equity. Data on the TARP program was obtained from the release of documents by the U.S. Department of the Treasury. Issuance data was aggregated to the quarter to match data on bank and trading variables.

3.2 Issuance Data

Panel A of Table 1 shows the year-wise distribution of equity issuance by type. The majority of SEO and PIPE issuances are common equity. Our final sample has 375 private investor deals, of which 196 are SEOs and 179 are PIPEs. Issuance under the TARP program occurs only in 2008 and 2009. While non-financial firms have been active in the SEO and PIPE market since the early 2000s, the equity market for banks took off with the financial crisis. The number of PIPE issuances increased by almost 3 times from 2007 to 2008 and the number of SEO issuances increased more than 3-fold from 2008 to 2009. As many as 35% of all private deals occurred during 2007-2009 and more than half the issuances occurred during 2008-2010. This evidence suggests that, in addition to the issuance under TARP, the private issuance market (both SEOs and PIPEs) was particularly important during the financial crisis.

Table 1, Panel B, shows the breakdown of the number of banks by issuer type. The majority of banks (728 of them) records no issuance of equity and is termed Non-Issuers. The total number of issuers in the sample is 308. The first three rows report that 190 issuers issued only one type of equity from 2001 to 2014. The next three rows show that at least 77 banks used

RLBO firms, h) with no limited partnerships, i) with no American Depositary Receipts or American Depositary Shares.

two of the three methods of issuance. Finally, there were 41 issuers who used all three types of issuance. These results show that there is significant overlap among the different methods of issuance. A bank can and often does use more than one method of issuance and in some cases, within a short period of time.

Moreover, equity issuance by any single method was not a one-time event for many of the banks in our sample. Of the 121 SEO issuers in the sample, 42 (35%) issued more than one SEO deal. Of the 102 PIPE issuers, 46 (45%) issued more than one PIPE deal. The maximum number of SEO deals for a single bank is 7 and the maximum for PIPE deals is 6.

To the best of our knowledge, there is no legal or administrative requirement in practice such that one form of issuance precludes another form of equity issuance. Not only is there significant overlap between the different methods of issuance for single banks but also there are multiple issuances using the same method. Therefore, this simple categorization of banks by issuance type reveals that the three issuance categories considered here are not mutually exclusive. This is an important consideration in developing our econometric specification below. It is important to point out that nested logit and multinomial logit specifications are developed under the assumptions that the response categories (issuance methods, in our case) are mutually exclusive.

Figure 1 Panel A shows the issuance of SEOs and PIPEs by quarter. The quarterly issuance data confirms increased issuance activity around the time of the crisis and the relatively lower levels of issuance both before and after the financial crisis. Perhaps the most remarkable feature of quarterly issuance is the zero issuance in Q1:2009 followed by the peak of SEO issuance in Q2:2009 with the maximum of 20 issuances in that quarter. To understand such high variation in quarterly issuances, it is important to consider TARP issuances and other events

around this time. Therefore, we postpone the discussion of quarterly private issuances around the crisis to our discussion of the interaction between TARP and private issuance in Section 5.

We also measure the degree of issuance using the dollar amount of issuance as shown in Figure 1 Panel B. However, we do not possess issuance amount data for all private deals during the sample period. Therefore, our analysis of issuance amount is based on a non-random sample of issuance data. The average percentage of equity (measured as a percentage of the bank's book value of total equity) is 9.5 percent and 28.3 percent for SEOs and PIPEs, respectively. It should be noted that these percentages may exceed 100 percent with PIPEs. Because it is difficult for many of them to issue elsewhere, PIPE issuers will sometime issue more than their current (at the time of issuance) market capitalization. Three of the PIPE issuances in our sample have issuance as a percentage of equity that exceeds 200%.

3.3 Bank Characteristics and Trading Indicators

Table 2 lists the variables used in the analysis along with their definitions. As mentioned earlier, following the literature on SEOs and PIPEs, the analysis considers two sets of variables as determinants of issuance: *Bank characteristics*, which include financial ratios and performance indicators using Call Report data, and *trading indicators* for the period immediately prior to each quarter using stock market data.

Our bank controls include bank size, capital ratios, and three measures of bank liquidity: cash and liquid securities ratio, brokered deposits ratio, and the loans-to-assets ratio. We also include three measures of bank performance: non-performing loan ratio, ROA, and standard deviation of ROA for the prior 12 quarters (a standard risk measure using returns volatility).

For the trading indicators, we measure the bank's stock return volatility as the

contemporaneous quarter's standard deviation of daily stock returns. We include a number of controls for the previous quarter (over the range of 65 days prior to the beginning of the quarter).[20] These controls include median bid-ask spread divided by stock price, median turnover (trading volume divided by shares outstanding), and average (median) closing price. These trading indicators have been commonly used in the literature on publicly-traded banks (Flannery et al., 2004).

Figure 2 shows the distribution of asset size for issuing and non-issuing banks. The plots show the log of real assets on the horizontal axis, the size distribution of issuers in colored bars and the size distribution of Non-Issuers in non-colored bars. As can be seen, issuing banks tend to be larger than non-issuing banks. However, there is significant overlap in the size distributions for all three methods of issuance.

Table 3 shows the descriptive statistics for the variables used in the analysis. Panel A has the mean and standard deviation (in parentheses) for variables in our analysis by issuance type. Panel B shows the differences of the issuer types relative to non-issuers. We include all three regulatory ratios for comparison: total risk-based capital ratio, tier 1 risk-based capital ratio, and the leverage ratio. In the regression analysis below, we focus on the total risk-based capital ratio as it is the broadest measure of total bank equity relative to risk-weighted assets. The capital ratios in Panel A show that, on average, issuers tend to be well-capitalized but hold lower capital than Non-Issuers. This feature of the data is best understood in terms of the fact that banks tend to target capital ratios in excess of capital requirements thereby building and maintaining capital cushions (Berger et al., 2008). Therefore, while all issuing banks satisfy requirements to be well-capitalized (as described above), it is likely that their issuances are motivated by their desire to build-up capital cushions comparable to Non-Issuers.

[20] Specifically, these variables are measured over the days of [-66,-1].

The comparisons in Table 3 Panel B show that equity issuers differ significantly from non-issuers in a number of dimensions. First, issuers tend to be larger, which is consistent with larger banks having greater access to capital markets. Second, issuers tend to have lower capital ratios, which help explain their demand for additional capital. Third, issuers tend to have less liquid balance sheets, as indicated by lower cash and liquid securities, higher brokered deposits, and higher loan-to-asset ratios. This suggests that equity issuers may have had liquidity needs in addition to capital needs. In summary, size, capital ratios, and liquidity ratios show significant differences between issuers and non-issuers. However, there is not much to distinguish among these variables in terms of issuance choice.

Summary measure of the performance indicators can help distinguish the different methods of issuance as shown in Panel B of Table 3. First, there is not much to distinguish between TARP issuers and Non-Issuers in terms of ROA, standard deviation of ROA, and Non-Performing Loan Ratio. Therefore, TARP Issuers seem comparable to Non-Issuers in terms of performance metrics. Second, SEO issuers on average show better performance than Non-Issuers. They have lower NPL ratios, higher ROA and lower standard deviation of ROA in comparison with Non-Issuers. Lastly, PIPE issuers on average show poorer performance than Non-Issuers with higher NPL ratio, lower ROA and a higher standard deviation of ROA. The performance indicators appear to show an *ordering* by Issuer type: SEO issuers show stronger performance on average than Non-Issuers while PIPE Issuers show weaker performance on average than Non-Issuers. At the same time, there is no statistical difference among TARP Issuers and Non-Issuers in terms of performance metrics. This evidence points to SEOs as a source of equity for stronger banks and PIPEs as an important source of equity for weaker banks.

In terms of our trading indicators, two measures can help distinguish between issuance

and non-issuance. Non-Issuers have higher bid-ask spreads and lower turnover than issuers, regardless of the method of issuance. These measures have been suggested as measures of asset opacity. An increase in measures of asset opacity (higher bid-ask spreads and lower turnover) imply that "investors cannot value the asset very accurately, but (perhaps) insiders or specialists can" (Flannery et al., 2004, p. 424). This would imply that Non-Issuers on average have "more opaque" assets.

4. Empirical Methodology and Results

4.1 Baseline Regression

We study the determinants of issuance with a simple predictive analysis. We hypothesize that issuance is a function of the various bank characteristics and trading indicators. Following the same methodology in the literature on SEO and PIPE issuance, our baseline specification is a pooled logit with year fixed effects and standard errors clustered at the bank level (Chakraborty and Gantchev, 2013; Chen et al, 2010).[21] In the next subsection, we discuss the robustness of our results using the pooled logit specification.

Table 4 reports the results of the pooled logit regressions. The dependent variable is a binary variable that takes the value 1 for an SEO issuance in columns (1) and (2), for a PIPE issuance in columns (3) and (4), and for a TARP issuance in columns (5) and (6) in any quarter during 2001-2014. Columns (1), (3), (5) use the bank characteristics as regressors. Columns (2), (4) and (6) use the trading indicators in addition to the bank variables as regressors. All control variables are at the end of the previous quarter values. For the regressions of TARP issuance in

[21] At first glance, the choice of three modes of issuance may suggest a multinomial or nested logit specification. However, it is important to note that for all such models, a critical assumption is that the response categories are mutually exclusive. Our analysis of summary data reveals that this is clearly not the case. In the next subsection, we check the robustness of our results using a multivariate specification.

(5) and (6), we exclude the 8 largest recipients since they were arguably "mandated" to issue equity under the TARP program.[22]

The numbers reported are the odds ratio. First, the regressions show the importance of using year fixed effects. There is no statistically significant change in the odds of issuance for the pre-crisis years but, in comparison, the odds of issuance in the crisis and post-crisis years are significantly higher. Relative to the base year of 2001, the odds of SEO issuance are significantly larger for all crisis and post-crisis years starting from 2009. The same is true for PIPE issuance starting from 2008. This result supports the summary evidence presented in panel A of Table 1. The results also show that it is important to control for the annual variations in issuance during our sample period.

Turning to the determinants of issuance, our results show that bank characteristics help in distinguishing issuing banks from non-issuing banks whereas trading indicators help in determining issuance choice. An increase in bank size, measured in the log of real assets, increases the odds of all forms of issuance whereas an increase in the NPL ratio decreases the odds of issuance. In particular, the results under column (1) shows that doubling bank size increases the odds of SEO issuance by 47.4 percent and increasing NPL ratio by 1 percent reduces the odds of issuance by 15 percent. Overall this result suggests that larger size and better asset quality increases the odds of issuance. For banks seeking to issue equity, this evidence is suggestive of capital constraints. In section 4.3, we discuss how these constraints may have changed during the crisis. Additionally, liquidity is an important determinant of issuance. Banks with higher liquidity have lower odds of SEO issuance. For SEO issuers, the liquidity measures like liquid securities and brokered deposits appear to be more important than capital ratios.

[22] These 8 banks include Bank of America Corp.; Bank of New York Mellon Corp.; Citigroup, Inc.; Goldman Sachs Group, Inc.; JPMorgan Chase & Co.; Morgan Stanley; State Street Corp.; and Wells Fargo & Co.

We also find that trading indicators best explain the distinction between SEO issuance and PIPE issuance and SEO issuance and TARP issuance. Table 4 shows that an increase in median price significantly lowers the odds of PIPE issuance. At the same time, the odds of SEO issuance increases with median price although the estimated odds ratio for median price is small and not statistically significant. As is well known in the literature on SEO and PIPEs, firms are more likely to choose PIPE issuance over SEO issuance if they believe that their stock is undervalued (Wu, 2004; Chen et al., 2010). Therefore, an increase in median price is likely to reduce the odds that the stock is undervalued and by association, reduce the odds of PIPE issuance. The converse is true for SEO issuance: most SEO issuances (including those in our sample) are followed by decreases in price indicating that the market reaction is largely the result of the belief that the stock is overvalued.

We find evidence of greater contrast in terms of the odds ratio on trading indicators for SEO issuance and TARP issuance. Higher turnover, lower volatility, and lower bid-ask spreads *increase* the odds of SEO issuance. In contrast, the same factors *decrease* the odds of TARP issuance. As Flannery et al. (2004) point out; these trading indicators can be interpreted as measures of asset opacity, whereby banks whose assets are easier to value are more actively traded (Kyle, 1985).[23] This would suggest that banks that are more transparent and whose shares are actively traded in equity markets are more likely to do an SEO issuance. On the other hand, those listed banks that were relatively opaque and whose stocks have lower trading activity were more likely to opt for TARP issuance.

A concern here is whether this result is caused by the largest banks in the sample. Our regressions on TARP issuance do not include the 8 largest mandated banks. Largest banks would

[23] Strictly speaking, opacity can increase trading volume if opinionated investors wish to trade frequently with one another because they disagree about the correct value of the underlying asset. Therefore, theoretically, turnover could be either positively or negatively related to opacity.

likely show lower opacity in terms of our trading indicators. Excluding these banks from our TARP issuance regressions may tilt the result in favor of more opaque banks. A related concern here is that the bias would also hold for the largest banks that were examined under SCAP. Therefore, to check the robustness of this result, we repeat the analysis without the SCAP banks. Table 5 presents the results of Table 4 after excluding all observations from the SCAP banks in our sample. Table 5 shows similar results as table 4 in terms of issuance choice: the same distinction is observed between SEO issuance and TARP issuance in terms of the estimated odds ratios on the trading indicators. The evidence shows that the observed difference in issuance choice is not purely a large bank phenomenon.[24]

Upon further examination of Tables 4 and 5, we conclude that all other the results discussed previously hold in the sample of non-SCAP banks as well. The only exception being that the Cash and Liquid Securities Ratio has a similar odds ratio as Table 4 but is not statistically significant in Table 5. This could imply that the association between liquidity and private issuance is predominantly a large bank phenomenon. Equity issuance can help banks reduce uncertainty about their solvency and thereby reduce counterparty risk for their trading partners. Such liquidity concerns were more likely in markets (such as tri-party repo) where larger banks were more active.

4.2 Robustness of Results under Baseline Regressions

At this point it may be important to list the set of robustness checks that were conducted on the baseline regression. First, as we have already shown, the result is robust to the exclusion of the SCAP banks. Second, the results are robust to the use of any of the three capital ratios

[24] We should point out that prior research has shown that assets of smaller banks were not unusually opaque (Flannery et al., 2004)

listed in Tables 2 and 3. Third, the results are also robust to alternative measures of liquidity such as cash ratio, core-deposit ratio and alternative measures of performance such as return on equity. Fourth, we find similar results if we conduct our analysis both including and excluding the banks that failed in our sample.

Finally, we perform a robustness check by relaxing the assumption of independence among the alternatives of issuance choice in the pooled logit regressions. In relaxing the assumption of independence, it is important to remember two features of our data and analysis. First, the response categories in our data are *not mutually exclusive*. This implies that a multivariate setting is more appropriate than a multinomial or nested logit specification. Second, since the TARP program was closed in the end of 2009, all three methods of issuance were available for only two years during the sample period. This makes estimation in a multivariate setting for the entire sample significantly more difficult. To get around this problem and to show the robustness in our results from the pooled logit regressions, we estimate a multivariate probit for a crisis subsample and a bivariate probit for PIPEs and SEOs for the full sample. The crisis subsample includes all observations in the sample during 2007-2009.[25] The bivariate and multivariate probit regressions estimate the joint likelihood of issuance using SEOs, PIPEs and TARP by relaxing the assumption of independence among the alternatives in the pooled logit regressions. The results of both are similar to those in the pooled logit regressions and are available upon request.

4.3 Issuance and the Financial Crisis

All the results described above are obtained from the full sample. An obvious question here is how did the crisis affect the determinants of issuance? Did the capital constraints

[25] A crisis subsample that includes private issuances in 2010 yields similar results as well.

discussed here become more or less binding during the crisis years? To answer these questions we interact a crisis dummy with our regressors. The crisis dummy takes the value of 1 for observations in our sample during 2008-2009 and zero otherwise. Since TARP issuance occurs only during the crisis years, we focus our attention on the differences in private issuance between crisis and non-crisis years.

The results of the interacted regression are presented in Table 6. The odds ratio on the interaction terms reflect how the determinants of issuance changed during the crisis. Conversely, the non-interaction terms show the odds-ratio for the non-crisis years. We focus on the two determinants of issuance, namely bank size and NPL ratio. The estimated odds ratios on these covariates are statistically significant across all issuance methods in our baseline regressions in Tables 4 and 5. Doubling asset size in non-crisis years under model (1) increases the odds of issuance by almost 35 percent. This effect appears smaller than that in the baseline regressions. The difference can be explained by the odds ratio on bank size and crisis interaction term for the crisis years. The odds ratio on this interaction term is significant and greater than one and the overall effect is multiplicative. That is, the odds ratio for size during the crisis years is (1.347 times 1.273 or) 1.72. This implies that doubling size raises the odds of issuance by an even greater amount during crisis years. Stated differently, larger size has greater odds of issuance during the crisis than the non-crisis years.

The distinction between crisis and non-crisis years is even more relevant for the NPL ratio. From our baseline regressions, we predict that increasing NPL ratios decreases the odds ratio of issuance. Using the interacted regressions, we find that the overall effect can be decomposed into two different and opposite effects for the crisis and non-crisis years. The odds ratios for just the NPL ratio in the interacted regression are greater than 1 (as opposed to those in

the baseline regressions, where they were less than 1). This implies that, at least for the non-crisis years, higher NPL ratios increase the odds of issuance. Stated differently, banks with a higher proportion of NPLs are more likely to issue new shares to offset the losses and replenish depleted capital during non-crisis years. Interestingly, the odds ratio for the NPL ratio and the crisis interaction term are significant and less than 1. Again the overall effect for the crisis years is multiplicative: Under model (1), an increase in the NPL ratio by 1 percent reduces the odds of issuance by 10 percent (the odds ratio being 0.9 =0.861 times 1.05) indicating that a higher proportion of NPLs reduces the odds of issuance in crisis years. This is in contrast with non-crisis years where higher NPLs increase the odds of issuance. The contrast is particularly acute for PIPEs. Notably, the effect of the crisis years dominates in the overall sample because our baseline regressions show that increasing NPL ratios decrease the odds of issuance.

Our results suggest that while poorer loan quality increases the odds of private issuance in non-crisis years, it decreases the odds of issuance in crisis years. In concluding remarks, Berger et al. (2008, p. 147) observed, "… whether or not BHCs would use new shares to actively offset losses remains an open question…." Our results do seem to provide an answer. Indeed, banks are able to offset losses from NPLs by issuing new equity during non-crisis periods. However, they were significantly more constrained in doing the same during the recent crisis. This result suggests that information asymmetries about loan quality can increase sufficiently during times of crisis to generate binding capital constraints to issuance.

5. Private Equity Issuance and TARP

This section examines the interaction between bank equity issuance to the government under TARP and that to private sources using SEOs and PIPEs. We develop a framework of analysis by

examining two competing effects of government issuance. As we describe below, there appears to be significant anecdotal evidence in support of both these effects under TARP.

First, as has been mentioned above, injections of funds under TARP may have helped mitigate the significant information constraints that deter equity issuance around the time of the crisis. To protect taxpayer funds, banks were screened under TARP by their primary regulator before any issuance was approved by the Treasury. In other words, the TARP (and the SCAP) served to "certify" the solvency and viability of participating banks going forward. As Duchin and Sosyura (2014, p. 187) point out, "a bank's approval for federal funds implied that the regulators viewed it as sufficiently healthy and/or systemically important to receive a federal back-up (Paulson, 2008)." Since the SCAP program was limited to the largest banks, it is likely that the impact of the TARP program was more relevant in certifying the health of smaller banks. We call this the *certification effect* of TARP.[26]

The second effect is the *stigma effect* associated with application and participation under TARP (Che et al., 2014). Veronesi and Zingales (2010) have argued that this stigma effect was the rationale behind the use of a "mandate" or forced participation for the largest 8 banks under TARP.[27] Bayazitova and Shivdasani (2011) also find that 51 banks disclose that they received approval from their regulators but opted not to receive funds.[28] Many bankers have claimed that one of the major motivations behind repayment under TARP was the "the stigma attached to

[26] Using market reactions, Bayazitova and Shivdasani (2011) find little evidence of the certification effect under TARP but significant certification effects under the SCAP program.

[27] There have been news reports suggesting the existence of such a "mandate," yet this has never been confirmed by the Treasury. See, for example, Jon Hilsenrath and others, "At Moment of Truth, U.S. Forced Big Bankers to Blink." WSJ Oct 15, 2008. http://www.wsj.com/articles/SB122402486344034247

[28] The choice not to receive funds after approval from the primary regulator can also be for reasons other than stigma. First, merely disclosing that the bank was approved may have certification benefits as well. Second, the TARP program did place restrictions on payout policies, share repurchases, and executive compensation. See https://www.treasury.gov/press-center/press-releases/Documents/document5hp1207.pdf

firms that had taken money."[29]

Our hypothesis is that the certification effect and the stigma effect of TARP should lead to different outcomes in terms of private issuance. The certification effect is likely to encourage more banks to apply for funds under TARP and thereby reduce the odds of private issuance *ex ante*. However, conditional on issuance under TARP, the certification effect increases the odds of private issuance for the bank *ex post*. If the regulator's approval under TARP helps mitigate adverse selection and moral hazard problems, it raises the odds of subsequent injections of equity by private investors.[30] In contrast, the stigma effect leads to opposite outcomes. The stigma effect discourages banks from applying under TARP, and conditional on the same demand for equity, increases the odds of private issuance *ex ante*. If banks fear the stigma attached with government issuance, they would prefer to issue equity to private investors. Moreover, conditional on issuance under TARP, the stigma effect is likely to reduce the odds of private issuance *ex post* as investors infer weakness of participating banks.

Given that these two effects generate opposite predictions on the effect of government issuance, it would be interesting to see the evidence in terms of realized outcomes. It may help us determine which effect was dominant for TARP. Needless to say, some caveats are in order: The evidence presented here are not formal tests of either effect. On the contrary, they are largely a framework for analyzing the different incentives to bankers and investors to study the interactions between private and government issuance.

[29] See Eric Dash, "Four small banks are the first to pay back TARP funds." NYT March 31, 2009. It is difficult to verify this claim because restrictions on executive compensation were important motivations to repurchase as well.

[30] Institutions seeking to buy back their preferred shares also had to meet the standards required by their respective banking supervisor. For SCAP banks, this would also require them to demonstrate access to public equity markets. As we show below, our results on private issuance is robust to the exclusion of SCAP banks. Also, the requirement does not imply that private investors would be willing to invest in SCAP banks.

5.1 Private Issuance around the time of TARP

As a first step in explaining this interaction, it is useful to recount the issuance patterns around the time that the TARP program was initiated. For this, we study quarterly issuance of SEOs and PIPEs in late 2008 and early 2009 as shown in Figure 1. We record 5 SEO issuances and 8 PIPE issuances in Q3:2008 and 6 issuances each for both SEOs and PIPEs in Q4:2008. Going by the data on prior issuances in which issuances averaged around 2-3 per quarter, issuance from private sources even at the peak of the financial crisis was significantly high. However, this was followed by 2 PIPE issuances and zero SEO issuances in Q1:2009. Even more surprisingly, SEO issuance peaked at 20 issuances in Q2:2009 and 17 issuances in Q3:2009. On the other hand, there were 3, 6 and 9 PIPE issuances in Q2:2009, Q3:2009 and Q4:2009 respectively.

We believe that the TARP and the SCAP program may help explain this anomalous pattern of issuances. Of the 241 issuances under the TARP program in 2008-2009, there were 142 issuances in Q4:2008 and 91 issuances in Q1:2009. There were only 15 issuances under TARP in the last 3 quarters of 2009. Moreover, all domestic BHCs with year-end 2008 assets exceeding $100 billion were required to participate in the SCAP program conducted by the federal regulatory agencies from Feb 25, 2009 to late April 2009.

The combined effect of the TARP issuance and SCAP may have temporarily halted issuance to private sources in late 2008 and early 2009. There are a couple of reasons to support this hypothesis. First, issuance under the TARP program may have reduced the immediate demand for bank equity capital for a large number of banks. For banks that were actively involved in funding markets, this need for bank capital was immediate to mitigate counter-party risk and to regain access to these markets. Second, investors may have adopted a “wait and

watch" strategy on the outcome of the TARP and SCAP. From the viewpoint of the investor, it made perfect sense to use the regulator's approval to mitigate the significant information asymmetries that plagued markets at the peak of the crisis before any injection of equity into troubled banks. This second reason lends support to the certification hypothesis.

5.2 Estimating the impact of TARP issuance on Private Issuance

To estimate the impact of prior TARP issuance on other forms of private issuance, we add a dummy variable that takes the value 1 if the bank has a prior TARP issuance and zero otherwise to our baseline regression. The results are shown in Panel A of Table 7. Our estimates reveal that *Prior TARP Issuance* significantly increase the odds of SEO issuance but also reduce odds of PIPE issuance, although the latter effect is only statistically significant at the 10 percent level. The increase in the odds of issuance for Prior TARP issuance is estimated to be significantly high—around 300 percent. The asymmetric effect of TARP issuance on the odds of SEO and PIPE issuance suggests that the SEO and PIPE markets served different groups of banks. Given our prior results on the difference between SEO issuers and PIPE issuers, it appears that the TARP and SEO issuance was likely more selective than PIPE issuance, especially for listed banks.

Another important consideration here is that the estimates of odds ratio for *Prior TARP Issuance* may be driven by the largest banks. First, the largest banks were the required to participate in SCAP and 8 of the largest were mandated to receive TARP assistance. Second, as our prior results have shown, bigger banks are more likely to opt for SEO issuance than PIPEs. Third, SCAP banks were required to demonstrate access to public equity markets before they could repurchase under TARP. Therefore, this result could simply be a SCAP bank phenomenon.

To check the robustness of these results for smaller banks, we run our regressions excluding the SCAP banks. The results are reported in Panel B of Table 7 and reveal that *Prior TARP Issuance* is an important determinant of SEO issuance for non-SCAP banks as well. The evidence that Prior *TARP Issuance* increases the odds of private issuance would also lend support to the certification hypothesis.

5.3 Private Issuance and repurchase under TARP

This subsection will present a final set of evidence on the effect of TARP issuance by examining the timing of private issuance following TARP. So far the evidence has largely supported the certification hypothesis. There was a lull in private issuance around the time of TARP and *Prior TARP Issuance* is an important determinant in the surge in private issuance following TARP. However, there is also strong anecdotal evidence in support of the stigma effect.

As to which effect dominates can also be understood by analyzing the timing of new public issuances following a TARP issuance. If the stigma effect dominates, a bank would find it difficult to issue new shares without convincing the market of its ability to repurchase the equity under TARP (i.e. getting rid of the stigma). Therefore, under this hypothesis private issuance is more likely after the repayment of TARP funds. Conversely, if the certification effect is dominant, a bank should likely be able to issue equity after TARP issuance irrespective of its demonstrated ability to repurchase equity under TARP. It should be added that not all banks have succeeded in repurchasing equity under the TARP program.

Panel A of Figure 3 shows the pattern of issuance around the quarter of repayment of TARP funds. Our results show that for 21 private issuances, the issuance quarter was the same as

the repayment quarter under TARP. For another 32 issuances, the repayment date was in the 4 quarters prior to the repayment date. In contrast, there were only 10 issuances in the 4 quarters following the repayment date. This pattern of repayment appears to suggest less support for the stigma effect under the TARP program.

What appears to be more likely is that most TARP issuers were able to tap equity markets soon after their approval for TARP funds. Given the significant restriction of banks that were funded under the TARP program, especially in the form of executive compensation, listed banks used equity capital from private issuance to repurchase equity under the TARP program. It is possible that some banks with minimal capital needs repurchased equity under TARP to avoid the stigma, but for the majority of listed banks private issuance appears to have been the exit route from TARP.

Panel B of Figure 3 shows the distribution of private issuances around TARP repurchase dates. As the graphs show, the majority of issuances around repurchase dates were SEOs. Almost all mandated and SCAP banks were able to issue privately before they repurchased equity under TARP. This may have to do with the certification effect of the SCAP. Lastly, more than half of the private issuances around TARP repurchases occur before 2010.

6. Amount of Equity Issuance

This section studies determinants of issuance amount under the different forms of equity issuance. The dependent variable is the relative amount of issuance measured as the dollar amount of new equity issuance as a percentage of the bank's (initial) common equity (book value).[31] Because most publicly-traded banks are Non-Issuers and have zero issuance, we use a

[31] We used an alternative specification using the market value of equity. The results are not materially different.

Tobit regression for this analysis. We include year fixed effects and the standard errors are clustered by bank.

The results of the Tobit regression are shown in Table 8 and are similar to those in our baseline pooled logit regressions. Here too, bank financial variables help predict the relative amount of issuance and the effect of the trading indicators varies by the method of issuance. The numbers show the percentage of new equity issuance. For example, a one-percent increase in the NPL ratio by is associated with decreases in the percentage of new SEO or TARP issuance by about 5-7 percent. The effect on PIPE issuance is smaller and not always statistically significant.

The relative size of issuance increases with bank size and to a much lesser extent reliance on brokered deposits. The relative size of issuance decreases with higher capital ratios, cash and liquid securities ratios, and NPL ratios. In essence, the factors that help determine issuance are the same factors that help determine the relative size of issuance. These results further support the notion of capital constraints in that they are applicable not only to the issuance decision but also to the size of issuance as well.

As with the issuance decision, the trading indicators show different effects depending on the method of issuance. Higher bid-ask spreads, higher volatility of returns, and lower turnover increase the (relative) size of TARP issuance but decrease the size of SEO issuance. Again, this effect shows the importance of asset opacity and stock tradability to the choice of issuance method.

7. Conclusion

We study equity issuance by U.S. banks during 2001-2014 using data on SEOs, PIPEs, and TARP. We document that private sources of capital were an active and important source for

bank recapitalization during the financial crisis. Consistent with previous episodes of crisis and government invention elsewhere in world, government issuance under TARP played an important role in recapitalizing the banking sector as well.

Bank characteristics help predict issuance whereas trading indicators influence issuance type. Banks that issue equity were almost always well-capitalized at the time of issuance. They tend to be larger, with better asset quality and lower capital ratios than their well-capitalized peers. These results are suggestive of capital constraints that allow only the larger and the stronger banks to issue equity. Moreover, these constraints are applicable not only to the issuance decision but also to the size of issuance as well. Finally, the results show that the constraints were more binding for other banks during the crisis. Liquidity needs are an important factor in the equity issuance of the largest banks. In terms of stock trading indicators, higher turnover, lower volatility of returns, and lower bid-ask spreads increase the odds of private issuance but decrease the odds of government issuance. Interestingly, it is the PIPE market that is the issuance choice of the weaker banks; SEO issuance and TARP issuance were more selective.

Our results suggest a certification effect under TARP in facilitating subsequent private issuance. Private issuance was lower around the time of TARP and SCAP. Prior TARP issuance strongly predicts SEO issuance. Moreover, a majority of the subsequent private issuance occurs before the bank repurchased equity under TARP. Our results suggest that subsequent private issuance may have been used to repay TARP.

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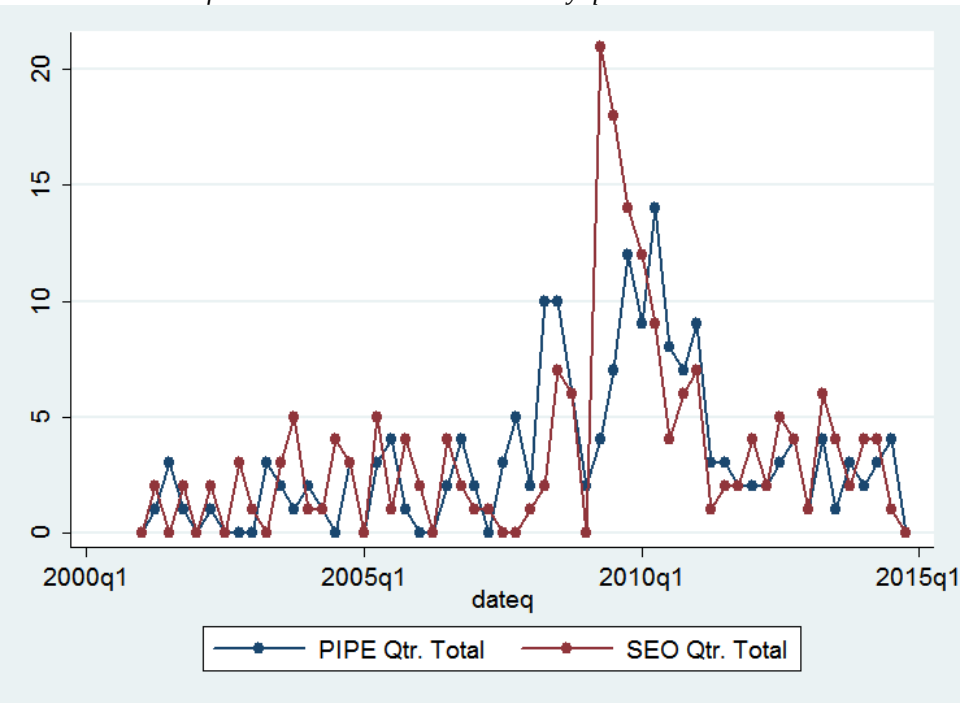
Figure 1: Bank equity issuance to private investors from 2001 to 2014
Plots of quarterly equity issuance by publicly-traded U.S. banks during 2001-2014 through seasoned equity offerings (SEOs) and private investment in public equity (PIPEs), Panel A shows number of deals and Panel B shows dollar amount.

Panel A: Number of bank SEO and PIPE issuances by quarter



Panel B: Dollar Amount ($millions) of SEO and PIPE issuances by quarter

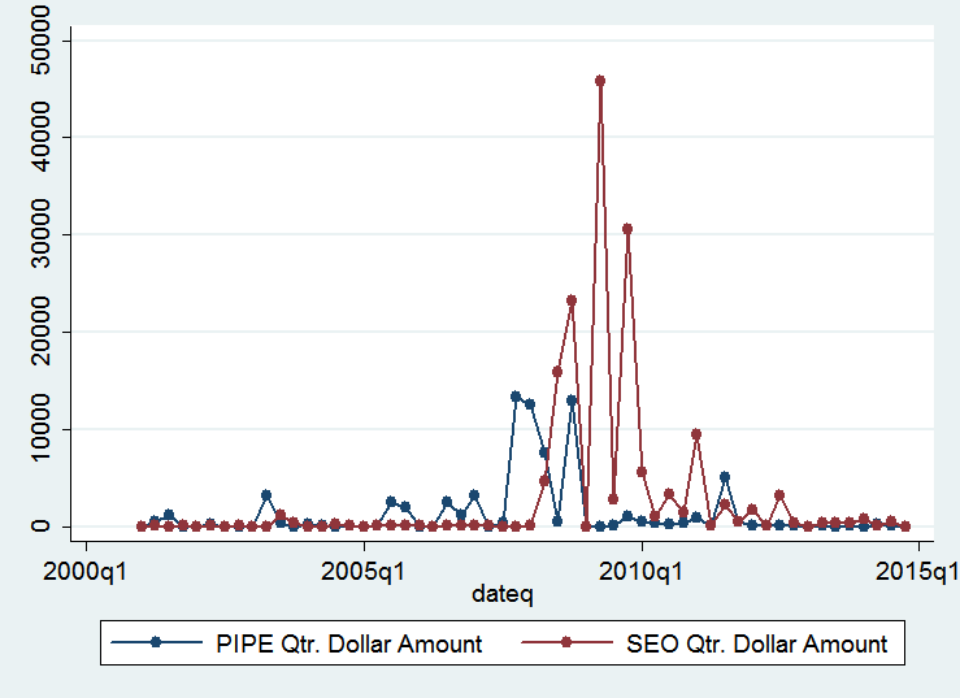


Figure 2: Distribution of bank asset size and issuance method
Histograms of the bank size distributions comparing issuer and issuer type to non-issuing banks and banks that did not issue the particular type of equity.

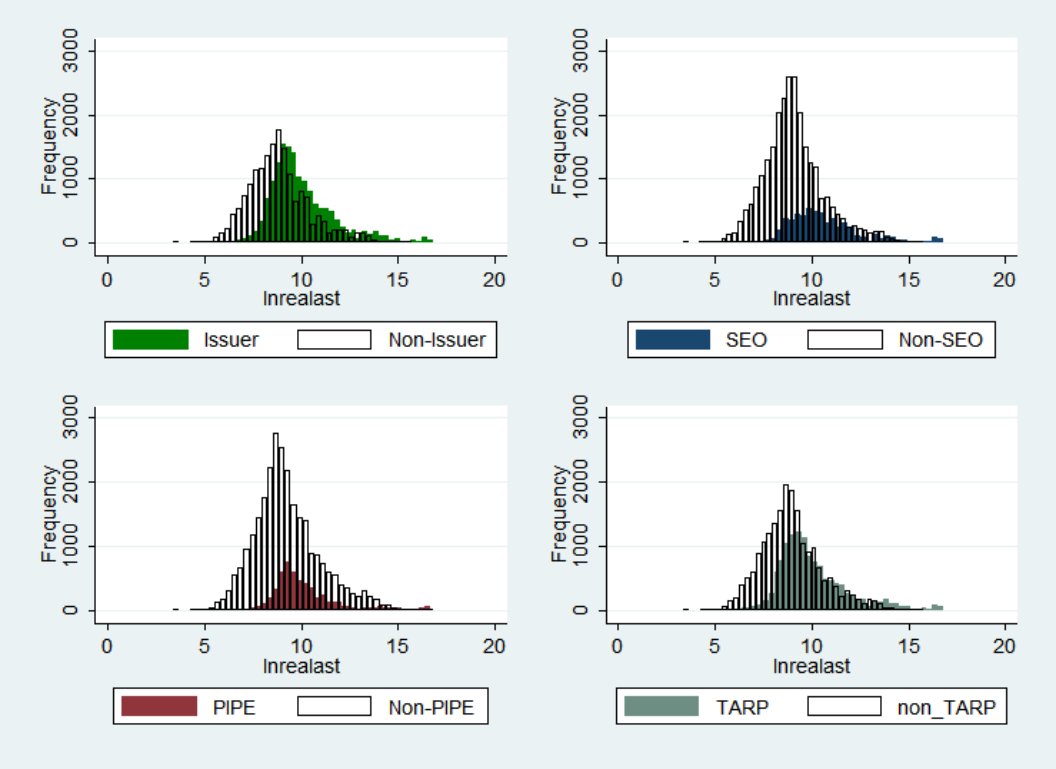
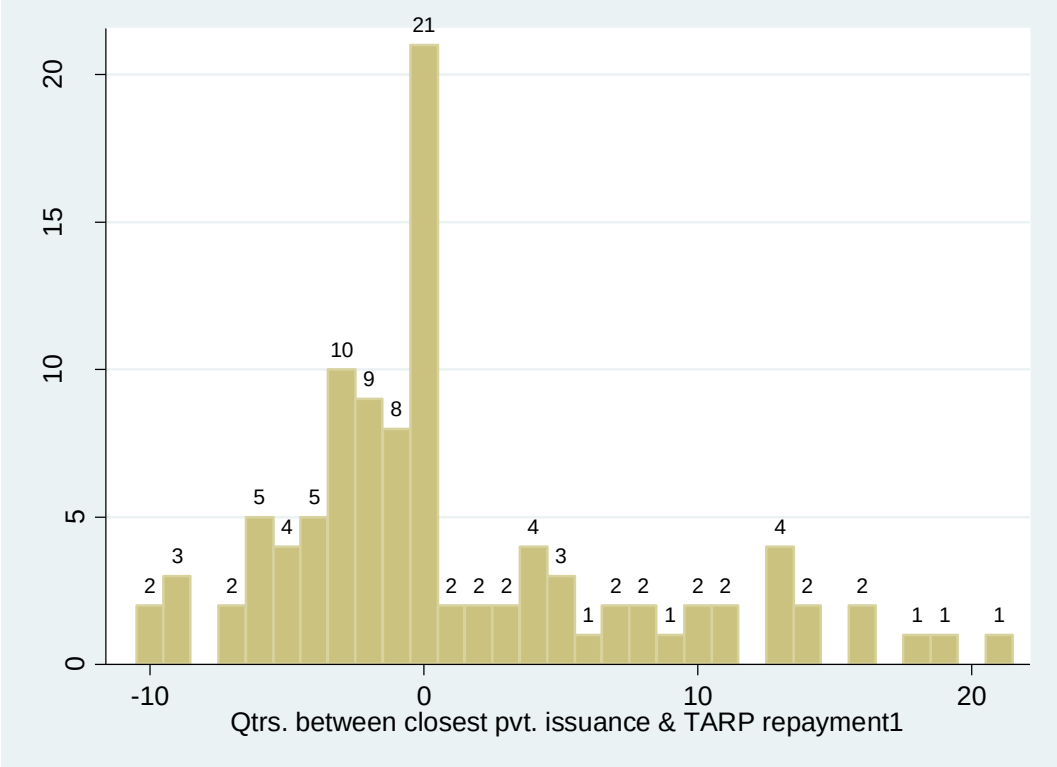


Figure 3: Private issuance around TARP repurchase quarter
Histogram of private issuance around TARP repayment. The zero on the horizontal axis marks the repurchase quarter under TARP. The bars show the frequency of private issuances before and after the repurchase quarter. For each banks with multiple issuances, the issuance quarter chosen is the closest to the repurchase date.

Panel A: Private issuance around TARP Repurchase date



Panel B: Distribution of private issuance around TARP Repurchase date
Histograms of private issuance around TARP repayment separated for issuance type (PIPE versus SEO), mandated TARP recipients, SCAP banks, and before/after 2010.

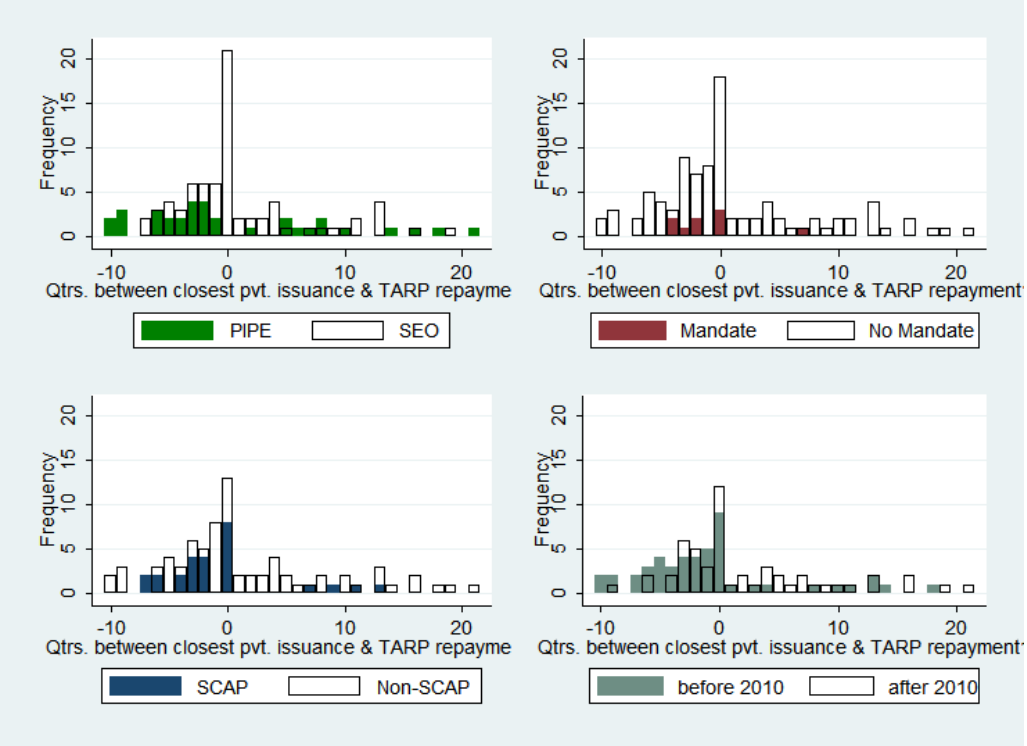


Table 1: Number of Equity Issuances from 2001 to 2014

This table shows the number of equity deals by year for listed banks from 2001 to 2014. Deals are reported separately for seasoned equity offerings (SEOs), private investment in public equity (PIPEs), and injections from TARP. The three numbers in bold indicate the year with the highest number of deals in that category.

Panel A: Issuance by Year

Year	N	SEO	PIPE	TARP
2001	786	4	5	0
2002	750	5	1	0
2003	737	9	6	0
2004	715	9	6	0
2005	667	10	8	0
2006	631	8	6	0
2007	592	2	10	0
2008	547	16	28	**143**
2009	525	**53**	25	109
2010	513	31	**38**	0
2011	478	12	17	0
2012	463	15	11	0
2013	448	13	9	0
2014	428	9	9	0
		196	179	252

Panel B: Issuance by Bank

Issuer Type	Number of Banks
SEO only	34
PIPE only	22
TARP only	134
SEO and PIPE	8
SEO and TARP	38
PIPE and TARP	31
SEO, PIPE, and TARP	41
Non-Issuer	728
Total	1036

Table 2: Definition of variables
This table includes the names and definitions of variables used in the analysis.

Variable	Definition
Bank Characteristics	
Total Assets (Real)	Logarithm of Total Assets adjusted for inflation
Capital Ratios	
Total RBC ratio	Total capital to risk-weighted assets
Tier1 RBC ratio	Tier 1 capital to risk-weighted assets
Tier1 Leverage ratio	Tier 1 capital to total average assets
Liquidity Ratios	
Loans to Assets Ratio	Total Loans/Total Assets
Cash and Liquid Securities Ratio	Cash and Treasury Securities/Total Assets
Brokered Deposits Ratio	Brokered Deposits/ Total Assets
Performance Ratios	
Non-Performing Loan Ratio	Non-performing Loans/Total Assets
ROA	Net Income/Total Assets
St. Deviation of ROA	Standard deviation of ROA for the prior 12 quarters
Trading Indicators	
Volatility of stock return	Contemporaneous quarter's standard deviation of daily stock returns
Adjusted Bid-Ask Spread	Median bid-ask spread divided by stock price, per day [averaged over -66, -1]
Median Turnover	Median volume divided by shares outstanding, per day [averaged over -66, -1]
Closing stock price (median)	Average (median) closing price for the period [-66,-1]

Table 3: Characteristics of Issuers and Non-Issuers

Table shows mean values of bank and market characteristics of listed banks by issuance type. The Non-issuer is a listed bank that did not issue equity from 2001 to 2014. The other categories include at least one issuance under SEO, PIPE and/or TARP. The numbers in parentheses indicate standard deviation of the variable.

Panel A: Mean (and standard deviation) of Bank and Market characteristics by Issuer

	Non-Issuer	SEO	PIPE	TARP
Total Assets (Real)	$61.12 M	$640.89 M	$503.78 M	$377.09 M
	($328.58 M)	($2.464 B)	($2.164 B)	($1.816 B)
Total RBC ratio	14.29	13.15	13.08	13.06
	(9.15)	(3.17)	(4.74)	(2.67)
Tier1 RBC ratio	13.05	11.59	11.62	11.57
	(9.26)	(3.30)	(4.89)	(2.77)
Tier1 Leverage ratio	9.19	8.76	8.90	8.85
	(3.55)	(2.06)	(2.27)	(1.93)
Cash and Liquid Securities Ratio	10.79	8.81	9.05	9.04
	(8.38)	(7.49)	(7.31)	(7.15)
Brokered Deposits Ratio	3.75	5.60	6.37	5.02
	(7.83)	(11.89)	(11.28)	(9.14)
Loans to Assets Ratio	66.14	66.91	68.52	68.11
	(14.60)	(12.67)	(12.67)	(11.96)
Non-Performing Loan Ratio	2.07	1.88	2.34	2.20
	(3.12)	(1.93)	(2.59)	(2.16)
ROA	1.91	2.08	1.44	1.81
	(3.74)	(3.00)	(11.16)	(3.36)
St. Deviation of ROA	1.85	1.87	2.58	1.92
	(1.48)	(1.70)	(10.24)	(1.91)
Volatility of stock return	2.53	2.29	2.62	2.59
	(2.49)	(1.84)	(2.07)	(2.13)
Bid-ask spread/stock price	0.95	0.56	0.86	0.86
	(2.25)	(0.99)	(1.47)	(1.68)
Median Turnover	0.15	0.39	0.31	0.31
	(0.25)	(0.54)	(0.52)	(0.51)
Closing stock price (median)	19.38	25.69	21.16	21.14
	(19.26)	(19.46)	(20.70)	(18.48)
N	17,468	6,137	5,398	12,740

Panel B: Differences in Mean values of Characteristics by Issuance

The columns show tests for differences in mean for bank characteristics between Issuers and Non-Issuers by Issuance type. We report the t-stat for difference in means t-tests and under the null hypothesis that the difference is zero. The notations *, **, *** denote statistical significance at the 10 percent, 5 percent and 1 percent levels.

	SEO Issuer vs. Non Issuer		PIPE Issuer vs. Non-Issuer		TARP Issuer vs. Non-issuer	
	mean	(t-stat)	mean	(t-stat)	mean	(t-stat)
Total Assets (Real)	$558.48 M***	(30.21)	$418.06 M***	-25.82	$279.58 M***	-21.39
Total RBC ratio	-2.146***	(-8.17)	-2.263***	(-8.06)	-2.177***	(-11.66)
Tier1 RBC ratio	-2.470***	(-9.36)	-2.498***	(-8.85)	-2.413***	(-12.86)
Tier1 Leverage ratio	-0.934***	(-4.18)	-0.816***	(-3.42)	-0.805***	(-5.07)
Cash and Liquid Securities Ratio	-2.533***	(-20.69)	-2.288***	(-17.84)	-1.925***	(-20.38)
Brokered Deposits Ratio	1.901***	(13.58)	2.545***	-17.93	1.086***	-10.72
Loans to Assets Ratio	0.41	(1.91)	2.020***	-9.03	1.601***	-9.98
Non-Performing Loan Ratio	-0.288***	(-7.20)	0.170***	-3.84	0.002	-0.06
ROA	0.318***	(5.75)	-0.294**	(-3.02)	0.01	-0.28
St. Deviation of ROA	-0.0973**	(-3.23)	0.568***	-7.02	-0.0559*	(-2.23)
Volatility of stock return	-0.242***	(-6.51)	0.0871*	-2.14	0.05	-1.70
Bid-ask spread/stock price	-0.387***	(-12.43)	-0.0812*	(-2.31)	-0.0846**	(-3.11)
Median Turnover	0.236***	(35.8)	0.151***	-22.87	0.155***	-26.83
Closing stock price (median)	6.511***	(20.45)	1.997***	-5.84	1.934***	-7.44

Table 4: Determinants of Equity Issuance from 2001 to 2014

Logit regression: The dependent variable is 1 if there was an SEO, PIPE or TARP issuance in any quarter during 2001-2014. The explanatory variables include bank and market characteristics for the previous quarter. All explanatory variables are defined in Table 1. Explanatory variables for columns (1), (3) and (5) include bank-characteristics only. Explanatory variables for columns (2), (4) and (6) include market variables in addition to banks characteristics. The estimates reported are the odds ratio from each regression. Standard errors (in parentheses under each estimate) are clustered by bank. Estimates followed by the symbols ***,**, and * are statistically significant at the 1%, 5%, or 10% levels, respectively.

	(1) SEO	(2) SEO	(3) PIPE	(4) PIPE	(5) TARP	(6) TARP
Total Assets (log)	1.474***	1.143***	1.291***	1.232***	1.211***	1.566***
	(9.69)	(2.85)	(5.36)	(2.66)	(5.16)	(6.00)
Total Risk-Based Capital Ratio	0.971	0.920*	0.835***	0.815***	0.791***	0.840***
	(-1.03)	(-1.83)	(-4.63)	(-4.90)	(-6.02)	(-3.77)
Cash and Liquid Securities Ratio	0.970**	0.968**	0.981	0.983	0.971*	0.948**
	(-2.34)	(-2.47)	(-1.06)	(-0.86)	(-1.66)	(-2.46)
Brokered Deposits Ratio	1.017***	1.017***	1.019***	1.021***	1.007	1.004
	(2.86)	(3.57)	(3.18)	(3.05)	(1.16)	(0.77)
Loans to Assets Ratio	1.013	1.010	1.012	1.006	1.014**	1.021***
	(1.50)	(1.24)	(1.21)	(0.61)	(2.03)	(2.66)
Non-Performing Loan Ratio	0.848***	0.872***	0.945*	0.921**	0.846***	0.729***
	(-3.85)	(-2.81)	(-1.85)	(-2.18)	(-5.61)	(-6.58)
ROA	1.013	1.025	0.987	0.985	0.915***	0.927***
	(0.67)	(1.26)	(-1.05)	(-1.03)	(-3.59)	(-2.81)
Std. Dev. of ROA	1.015	1.008	1.008	1.009	0.720***	0.718***
	(1.64)	(0.35)	(0.20)	(0.19)	(-3.38)	(-3.06)
Volatility of stock return		0.889**		0.935		1.233***
		(-2.38)		(-1.58)		(6.57)
Bid-ask spread/stock price		0.926***		0.989		1.093***
		(-4.54)		(-0.36)		(3.03)
Median Turnover		2.051***		1.224		0.644***
		(5.55)		(1.37)		(-3.61)
Closing price (median)		1.003		0.976***		1.008
		(0.68)		(-2.84)		(1.57)
Year=2002	0.930	0.846	0.189	0.249		
	(-0.12)	(-0.28)	(-1.49)	(-1.20)		
Year=2003	1.614	1.367	1.122	1.512		
	(0.86)	(0.56)	(0.20)	(0.66)		
Year=2004	1.549	1.255	1.108	1.525		
	(0.72)	(0.38)	(0.16)	(0.59)		
Year=2005	1.598	1.251	1.403	1.826		
	(0.78)	(0.37)	(0.63)	(0.86)		
Year=2006	1.221	0.908	1.017	1.255		
	(0.32)	(-0.15)	(0.03)	(0.32)		
Year=2007	0.319	0.223*	1.570	1.832		
	(-1.31)	(-1.71)	(0.79)	(0.90)		
Year=2008	2.384	1.671	3.575**	4.171**		
	(1.58)	(0.90)	(2.27)	(2.27)		
Year=2009	13.53***	10.06***	3.970**	4.509**	1.091	0.941

	(4.93)	(4.26)	(2.36)	(2.23)	(0.53)	(-0.31)
Year=2010	10.69***	7.892***	8.788***	9.327***		
	(4.56)	(3.92)	(3.96)	(3.59)		
Year=2011	4.091**	3.310**	5.340***	5.792***		
	(2.43)	(2.04)	(2.91)	(2.73)		
Year=2012	3.979**	3.345**	3.074*	3.570*		
	(2.33)	(2.01)	(1.80)	(1.84)		
Year=2013	2.967*	2.395	2.920	3.369*		
	(1.79)	(1.41)	(1.62)	(1.67)		
Year=2014	1.939	1.501	3.104*	3.263*		
	(1.08)	(0.66)	(1.84)	(1.71)		
Pseudo R-squared	0.129	0.137	0.0910	0.0875	0.0671	0.151
Observations	30319	22004	30319	22004	4010	3159

Table 5: Bank Equity Issuance from 2001 to 2014, excluding SCAP banks

Logit regression: The dependent variable is 1 if there was an SEO, PIPE or TARP issuance in any quarter during 2001-2014 and the bank is not an SCAP bank. The explanatory variables include bank and market characteristics for the previous quarter. All explanatory variables are defined in Table 1. Explanatory variables for columns (1), (3) and (5) include bank-characteristics only. Explanatory variables for columns (2), (4) and (6) include market variables in addition to banks characteristics. The estimates reported are the odds ratio from each regression. Standard errors (in parentheses under each estimate) are clustered by bank. Estimates followed by the symbols ***,**, and * are statistically significant at the 1%, 5%, or 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	SEO	SEO	PIPE	PIPE	TARP	TARP
Total Assets (log)	1.475***	1.114	1.359***	1.294**	1.211***	1.640***
	(6.72)	(1.52)	(5.15)	(2.46)	(4.43)	(5.89)
Total Risk-Based Capital Ratio	0.973	0.918	0.842***	0.819***	0.788***	0.835***
	(-0.99)	(-1.61)	(-4.32)	(-4.47)	(-5.98)	(-3.76)
Cash and Liquid Securities Ratio	0.981	0.981	0.989	0.994	0.974	0.948**
	(-1.43)	(-1.37)	(-0.62)	(-0.31)	(-1.52)	(-2.44)
Brokered Deposits Ratio	1.018**	1.018***	1.014**	1.016**	1.003	1.001
	(2.26)	(3.54)	(2.14)	(1.98)	(0.54)	(0.13)
Loans to Assets Ratio	1.016	1.010	1.016	1.010	1.016**	1.021**
	(1.54)	(1.10)	(1.58)	(0.95)	(2.17)	(2.53)
Non-Performing Loan Ratio	0.832***	0.855***	0.950*	0.925**	0.845***	0.735***
	(-3.69)	(-2.67)	(-1.71)	(-2.00)	(-5.49)	(-6.38)
ROA	1.014	1.027	0.982	0.980	0.901***	0.905***
	(0.65)	(1.18)	(-1.23)	(-0.99)	(-3.81)	(-3.10)
Std. Dev. of ROA	1.014	1.008	0.987	0.980	0.675***	0.649***
	(1.41)	(0.37)	(-0.26)	(-0.41)	(-3.61)	(-3.17)
Volatility of stock return		0.828***		0.905***		1.221***
		(-3.07)		(-2.61)		(6.25)
Bid-ask spread/stock price		0.930***		1.000		1.096***
		(-3.70)		(0.01)		(3.06)
Median Turnover		2.261***		1.304		0.622***
		(4.50)		(1.37)		(-3.60)
Closing price (median)		0.999		0.971***		1.008
		(-0.15)		(-3.20)		(1.44)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.108	0.116	0.0931	0.0925	0.0680	0.146
Observations	29541	21251	29541	21251	3939	3088

Table 6: Private Issuance (Crisis vs Non-Crisis Years)

Logit regression: The dependent variable is 1 if there was an SEO, PIPE or TARP issuance in any quarter during 2001-2014 and the bank is not an SCAP bank. The explanatory variables include bank and market characteristics for the previous quarter. All explanatory variables are defined in Table 1 and interacted with a Crisis dummy if the observation belongs to 2008 or 2009 and zero otherwise. Explanatory variables for columns (1), (3) and (5) include bank-characteristics only. Explanatory variables for columns (2), (4) and (6) include market variables in addition to banks characteristics. The estimates reported are the odds ratio from each regression. Standard errors (in parentheses under each estimate) are clustered by bank. Estimates followed by the symbols ***,**, and * are statistically significant at the 1%, 5%, or 10% levels, respectively.

	(1)	(2)	(3)	(4)
	SEO	SEO	PIPE	PIPE
Crisis	0.251	0.618	0.344	2.624
	(-0.70)	(-0.20)	(-0.41)	(0.33)
Total Assets (log)	1.347***	1.096	1.264***	1.314***
	(5.89)	(1.40)	(4.28)	(3.05)
Total Assets (log) × Crisis	1.273***	1.243*	1.186*	1.000
	(2.83)	(1.69)	(1.88)	(0.00)
Total Risk-Based Capital Ratio	0.989	0.975	0.908***	0.891***
	(-0.49)	(-0.84)	(-2.86)	(-3.12)
Total Risk-Based Capital Ratio × Crisis	1.043*	1.021	0.918	0.896
	(1.71)	(0.26)	(-0.79)	(-0.97)
Non-Performing Loan Ratio	1.050*	1.055	1.099***	1.043
	(1.68)	(1.18)	(4.18)	(1.36)
Non-Performing Loan Ratio ×Crisis	0.861***	0.883*	0.816***	0.850**
	(-2.66)	(-1.79)	(-3.27)	(-2.12)
Cash and Liquid Securities Ratio	0.961**	0.964**	0.985	0.985
	(-2.02)	(-1.99)	(-0.78)	(-0.70)
Cash and Liquid Securities Ratio × Crisis	1.030	1.018	0.981	0.981
	(1.16)	(0.66)	(-0.48)	(-0.44)
Brokered Deposits Ratio	1.014**	1.015**	1.021***	1.024***
	(2.16)	(2.18)	(3.45)	(3.50)
Brokered Deposits Ratio × Crisis	1.012	1.008	1.003	1.001
	(0.80)	(0.47)	(0.36)	(0.15)
Loans to Assets Ratio	1.014	1.009	1.009	1.006
	(1.18)	(0.81)	(0.83)	(0.49)
Loans to Assets Ratio × Crisis	0.991	0.987	1.022	1.017
	(-0.60)	(-0.87)	(1.15)	(0.79)
ROA	1.000	1.011	0.986	0.989
	(0.02)	(0.44)	(-0.64)	(-0.64)
ROA×Crisis	0.997	0.964	0.984	0.981
	(-0.12)	(-0.77)	(-0.43)	(-0.48)
Std. Dev. of ROA	1.014	1.013	0.990	1.013
	(1.41)	(1.19)	(-0.13)	(0.21)
Std. Dev. of ROA× Crisis	0.969	0.898	0.973	0.961
	(-0.53)	(-0.75)	(-0.24)	(-0.36)

Volatility (stock return)		0.813**		0.975
		(-2.29)		(-0.60)
Volatility (stock return) × Crisis		1.118		0.958
		(1.12)		(-0.54)
Bid-ask spread/stock price		0.959		1.027
		(-0.98)		(0.59)
Bid-ask spread/stock price × Crisis		0.948		0.937
		(-1.13)		(-1.12)
Median Turnover		2.605***		1.031
		(3.87)		(0.12)
Median Turnover × Crisis		0.618*		1.291
		(-1.75)		(0.93)
Closing price (median)		0.995		0.966***
		(-0.88)		(-4.19)
Closing price (median) × Crisis		1.008		1.020
		(0.87)		(1.24)
Pseudo R-squared	0.0963	0.101	0.0649	0.0668
Observations	31480	22933	31480	22933

Table 7: TARP Issuance and Private Issuance

Logit regression: The dependent variable is 1 if there was an SEO, PIPE or TARP issuance in any quarter after Q2:2008. The explanatory variables include bank and market characteristics for the previous quarter. *Prior TARP Issuance* is an indicator variable that takes the value 1 if there was a prior issuance under TARP and zero otherwise. All other explanatory variables are defined in Table 1. Explanatory variables for columns (1) and (3) include bank-characteristics only. Explanatory variables for columns (2) and (4) include market variables in addition to banks characteristics. The estimates reported are the odds ratio from each regression. Standard errors (in parentheses under each estimate) are clustered by bank. Estimates followed by the symbols ***,**, and * are statistically significant at the 1%, 5%, or 10% levels, respectively.

Panel A: All Banks

	(1)	(2)	(3)	(4)
	SEO	SEO	PIPE	PIPE
Prior TARP Issuance	3.440***	3.162***	0.506	0.415*
	(3.89)	(3.34)	(-1.47)	(-1.89)
Total Assets (log)	1.551***	1.171***	1.166***	1.185*
	(9.10)	(3.12)	(3.10)	(1.76)
Total Risk-Based Capital Ratio	0.952	0.899***	0.857***	0.824***
	(-1.32)	(-2.87)	(-3.66)	(-4.03)
Cash and Liquid Securities Ratio	0.974	0.976	0.991	1.001
	(-1.61)	(-1.51)	(-0.46)	(0.04)
Brokered Deposits Ratio	1.010	1.010	1.013*	1.013
	(1.17)	(1.29)	(1.76)	(1.52)
Loans to Assets Ratio	1.016	1.014	1.014	1.007
	(1.43)	(1.43)	(1.31)	(0.57)
Non-Performing Loan Ratio	0.884***	0.933	0.949	0.925*
	(-2.77)	(-1.47)	(-1.53)	(-1.69)
ROA	1.053*	1.061**	0.984	0.989
	(1.82)	(2.29)	(-0.59)	(-0.34)
Std. Dev. of ROA	1.027***	1.011	1.016	1.017
	(2.89)	(0.44)	(0.45)	(0.38)
Volatility of stock return		0.811***		0.898**
		(-3.68)		(-2.15)
Bid-ask spread/stock price		0.904***		0.978
		(-5.47)		(-0.81)
Median Turnover		2.120***		0.960
		(4.91)		(-0.13)
Closing price (median)		1.004		0.958**
		(0.74)		(-2.57)
Year Fixed Effects	Yes	Yes	Yes	Yes
Pseudo R-squared	0.142	0.159	0.0498	0.0680
Observations	11303	8717	11303	8717

Panel B: Without the SCAP Banks

	(1)	(2)	(3)	(4)
	SEO	SEO	PIPE	PIPE
Prior TARP Issuance	3.272***	3.615***	0.524	0.434*
	(3.55)	(3.60)	(-1.40)	(-1.80)
Total Assets (log)	1.634***	1.192**	1.233***	1.352***
	(6.80)	(2.16)	(3.57)	(2.62)
Total Risk-Based Capital Ratio	0.967	0.903**	0.862***	0.827***
	(-1.11)	(-2.33)	(-3.54)	(-3.84)
Cash and Liquid Securities Ratio	0.989	0.993	0.998	1.013
	(-0.77)	(-0.49)	(-0.10)	(0.59)
Brokered Deposits Ratio	1.010	1.011	1.008	1.008
	(0.82)	(1.28)	(1.09)	(0.85)
Loans to Assets Ratio	1.018	1.011	1.017	1.012
	(1.38)	(1.06)	(1.58)	(0.96)
Non-Performing Loan Ratio	0.882***	0.928	0.953	0.934
	(-2.61)	(-1.35)	(-1.39)	(-1.47)
ROA	1.055*	1.072**	0.982	0.983
	(1.85)	(2.50)	(-0.67)	(-0.52)
Std. Dev. of ROA	1.023**	1.005	1.000	1.000
	(2.52)	(0.19)	(-0.01)	(0.01)
Volatility of stock return		0.745***		0.870***
		(-4.04)		(-3.11)
Bid-ask spread/stock price		0.909***		0.983
		(-4.58)		(-0.56)
Median Turnover		2.371***		0.753
		(4.79)		(-0.72)
Closing price (median)		0.997		0.954**
		(-0.52)		(-2.56)
Year Fixed Effects	Yes	Yes	Yes	Yes
pseudo R-squared	0.121	0.140	0.0511	0.0711
Observations	10915	8329	10915	8329

Table 8: Relative Size of Equity Issuance

Tobit regression: The dependent variable is the ratio of Issuance Amount for the SEO, PIPE or TARP issuance to the bank's Total Equity in the prior quarter in any quarter from 2001 to 2014. The explanatory variables include bank and market characteristics for the previous quarter. All explanatory variables are defined in Table 1. Explanatory variables for columns (1) and (3) include bank-characteristics only. Explanatory variables for columns (2) and (4) include market variables in addition to banks characteristics. The estimates reported are the odds ratio from each regression. Standard errors (in parentheses under each estimate) are clustered by bank. Estimates followed by the symbols ∗∗∗,∗∗, and ∗ are statistically significant at the 1%, 5%, or 10% levels, respectively.

	(1) SEO	(2) SEO	(3) PIPE	(4) PIPE	(5) TARP	(6) TARP
Total Assets (log)	14.20***	1.905	7.444***	5.085***	5.095***	9.720***
	(5.90)	(0.91)	(5.12)	(2.64)	(3.73)	(4.48)
Total Risk-Based Capital Ratio	-1.132	-2.518*	-6.368***	-7.109***	-6.953***	-4.722***
	(-1.10)	(-1.68)	(-3.12)	(-3.19)	(-4.97)	(-3.69)
Cash and Liquid Securities Ratio	-1.436**	-1.544**	-0.492	-0.458	-0.799	-1.232**
	(-2.26)	(-2.32)	(-1.03)	(-0.88)	(-1.39)	(-2.14)
Brokered Deposits Ratio	0.871***	0.831***	0.717***	0.783***	0.330	0.288
	(3.13)	(3.07)	(3.06)	(3.25)	(1.23)	(1.13)
Loans to Assets Ratio	0.223	0.119	0.153	-0.00726	0.303	0.377
	(0.76)	(0.41)	(0.58)	(-0.03)	(1.14)	(1.46)
Non-Performing Loan Ratio	-7.212***	-5.779**	-1.473	-2.494*	-4.892***	-7.983***
	(-3.51)	(-2.54)	(-1.49)	(-1.96)	(-4.37)	(-4.66)
ROA	0.318	0.658	-0.377	-0.322	-1.794***	-1.220*
	(0.43)	(0.77)	(-1.09)	(-0.85)	(-2.71)	(-1.74)
Std. Dev. of ROA	0.400	-0.112	0.590	0.830	-6.529***	-5.698**
	(0.89)	(-0.08)	(0.57)	(0.79)	(-2.59)	(-2.09)
Volatility of stock return		-4.708**		-1.636		5.479***
		(-1.99)		(-1.16)		(5.87)
Bid-ask spread/stock price		-3.199***		-0.213		2.626***
		(-3.37)		(-0.22)		(3.40)
Median Turnover		34.97***		10.30**		-7.864*
		(4.93)		(2.29)		(-1.88)
Closing price (median)		0.218		-0.692***		0.224*
		(1.30)		(-2.85)		(1.65)
Constant	-438.5***	-262.3***	-246.5***	-175.0***	-57.77*	-146.0***
	(-6.34)	(-4.98)	(-6.13)	(-4.34)	(-1.79)	(-3.85)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0664	0.0694	0.0545	0.0527	0.0298	0.0719
Observations	30374	22004	30374	22004	4018	3159