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Systemic Effects of Bank Equity Issues: Competition, Stabilization and Contagion

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This paper presents preliminary findings and will be subject to further revisions!

Abstract

We evaluate the abnormal returns of issuing and non-issuing banks around the announcement of Seasoned Equity Offerings (SEOs) and explore how the market reaction is influenced by aggregate systemic conditions and by the systemic risk contribution and exposure of banks. While we find evidence of negative abnormal returns for issuers, non-issuing banks benefit from positive abnormal returns around the SEO announcement. We show that these positive returns are not entirely explained by the competition channel, which has been well documented for non-financial firms. In contrast, we demonstrate that they also depend on a so far undocumented system-stabilizing channel. Furthermore, under certain circumstances, the system-stabilizing channel contributes to mitigating the negative reaction to SEO announcements for the issuing banks.

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1. Introduction

Bank equity issues via seasoned equity offerings (SEOs) play a crucial role for bank recapitalization (Dinger and Vallascas, 2016) and thus can have a stabilizing effect for both individual banks as well as for the banking industry as a whole. In this paper, we present the first examination of how the market reaction to an SEO for issuing and non-issuing banks depends on wide systemic conditions and on the degree of systemic risk contribution and exposure of each bank. We base our analysis on a large sample of SEOs by US banks filed with the SEC in the period ranging from 1980 to 2014.

The existing literature is critical on the short-term benefits that SEOs generate for the market value of issuing and non-issuing banks. For issuing banks (as for non-financial firms), it is widely agreed that SEOs tend to generate a negative market reaction around the announcement (Ergungor et al, 2009; Cornett and Tehranian, 1993; Slovin et al, 1992; Masulis & Korwar, 1986). This reaction is explained by the perception that the issuance reveals negative information about the stance of the firm (Ross, 1977; Myers and Majluf, 1984) and by the dilution of the claims of existing stockholders (Asquith and Mullins, 1986).

For non-issuing banks, Slovin et al. (1992) show that SEOs by peers lead to negative abnormal returns because of a contagion channel. Essentially, the opaqueness of the banking industries makes banks prone to contagion when one issuer reveals negative information by an SEO as this information is perceived as signaling wider negative industry conditions. In sharp contrast to this finding, evidence for non-financial firms documents a competitive effect from peers' SEOs. This effect leads to rival firms showing positive abnormal returns around the announcement of an SEO as the negative conditions of the issuer boosts rivals' market prospects (Bradley and Yuan, 2013).

None of the existing banking studies on the impact of SEOs for issuing and non-issuing banks account, however, for the systemic conditions around the SEO and for the systemic implications of the issuance. In other words, to date there is no evidence on the market reaction to an SEO for the issuing bank and, more importantly, for the remaining banks in the industry, when: i) the banking industry is under systemic distress at the time of the issuance; ii) the issuing bank is more likely to generate negative systemic externalities for the rest of the industry in the case of failure or iii) the peer bank is more exposed to systemic shocks, and consequently, more affected by such potential externalities.

These appear important omissions for our understanding of the industry-wide effects of an SEO. For instance, the incorporation of the systemic dimension in the context of SEOs gives the opportunity to go beyond the view that all positive externalities of the issuance are confined to competition effects as for non-financial firms (Bradley and Yuan, 2013). It also allows us to re-address the concern that banks might be particularly prone to the negative externalities of an equity issuance which has played a crucial role in shaping the debate about the optimal regulatory approach to timely bank recapitalization. The presence of such externalities has motivated the lenient paradigm of giving banks more time to strengthen their capital positions (see Dagher et al 2016 for a detailed discussion of the costs of quick recapitalization, and Basel Committee 2016 for a policy paper motivated by this paradigm), especially during bank crises when these externalities might be extremely costly for the stability of the banking system (Calomiris 2014). However, the existence of negative externalities of bank SEOs in times of systemic distress and for banks with high systemic relevance has not yet been documented. The above mentioned omissions, therefore, particularly limit the understanding of SEOs' consequences in the cases when a stronger bank capitalization is especially desirable to preserve financial stability.

Differently from the perspective above, however, our analysis is built upon the idea that non-issuing banks might experience positive abnormal returns not simply because of a competitive effect when the issuer signals a problematic condition via an SEO and thus open opportunities for its competitors but also due to the fact that the equity issuance creates systemic benefits. In this respect, the focus on systemic crises, when banks' profits are declining and regulatory monitoring is increasing with a consequent reduction of competitive prospects for non-issuing rival banks, is a good laboratory to identify the positive systemic externalities of an SEO due to a stabilization effect.

In addition, while the extant literature exclusively focuses on an issuer's capital strength as a source of cross-sectional variation in the market reaction, it is likely that measures of systemic risk at the bank level might be drivers of such reaction as well. For instance, issuers with high systemic risk contribution, namely issuers that have the potential to generate more negative systemic externalities, might be penalized less by their shareholders. This is because shareholders internalize the system stabilizing effect of the recapitalization whenever they hold diversified equity portfolios (see Armour and Gordon, 2014). Similarly, issues by such banks are more likely to exert positive externalities for the system by reducing the risk of negative spillovers on other banks. Accordingly, they could be associated with larger abnormal returns by non-issuing banks especially during periods of systemic distress. In contrast issues by banks with high systemic risk exposure might be perceived by non-issuing banks as indicating wider industry problems but they might also provide systemic benefits when occurring during banking crises.

We start our investigation by extending the evidence on the negative abnormal returns for the issuing bank and the positive as well as negative externalities in terms of peer banks' abnormal returns applying an event study methodology and an empirical setting based on univariate tests.

Consistently with existing studies on banks (Cornett and Tehranian, 1994, Ergungor et al 2010), we find statistically (and economically) significant negative abnormal returns around the announcement for the issuing banks. However, we also document that the negative market reaction is strongest in times of aggregate systemic distress and especially so for banks with high systemic risk exposure and high individual risk (that is, when the degree of opaqueness is highest). The market reaction for such banks seems to reflect, therefore, the release of particularly adverse information about the issuer. By contrast, we do not find differences in average abnormal returns by degree of systemic risk contribution of the issuing bank.

Moving onto the analysis of the market reaction of the peer banks, differently from previous studies on banks (see Slovin et al 1992), we find evidence of average positive abnormal returns. Furthermore, we also document positive, though lower, abnormal returns if the issuance takes place in periods of systemic distress that are deemed to be characterized by a higher degree of opaqueness that should amplify contagion (Flannery et al 2014 and Slovin et al 1992) and by reduced competitive benefits. When we extend the analysis to subgroups of banks with different systemic risk characteristics we further demonstrate the importance of a system stabilizing effect that seems to be distinct from a competitive effect in particular during crisis times. In short, we find that especially when the issuing banks have a high degree of systemic risk contribution before the issuance, and consequently the potential to generate in case of continued undercapitalization more negative externalities on the rest of the industry, the peers react positively around the announcement of the SEO. This latter result is especially strong in periods of systemic crises.

We next extend the analysis to a multivariate setting and not only we confirm the insights from the event study, but also find stronger evidence in favor of a role for a system stabilizing effect in driving the market reaction of a bank SEO. In sum, our findings underline that even though issuing banks tend to be penalized by the SEO, the industry as a whole tend to benefit from such issuance especially when it is conducted by a bank with high systemic risk contribution in periods of banking crises.

Our findings contribute to several strands of the extant literature. First, they are related to the limited number of studies that have investigated how SEOs affect the stock price of the issuing banks (see Cornett and Tehranian 1994; Cornett, Mehran and Tehranian 1998; Ergungor et al., 2010). These studies have debated on the importance of an issuer's capital strength in explaining the market reaction to an SEO finding that issues by banks whose equity levels are well above the levels prescribed by regulation are associated with more negative abnormal returns, while issues by banks which are close to regulatory capital thresholds are penalized less by the market. The former SEOs are assumed to reveal more adverse information since they are considered within the discretion of bank managers, while the later SEOs are involuntarily prescribed by regulation and thus expected by the market. We enrich the findings by this literature and show that issuers' abnormal returns are contingent on systemic conditions and are sensitive to systemic characteristics of the issuing bank rather than the level of capital sufficiency.

More importantly, we extend the literature on information externalities from SEOs (Slovin et al., 1992, Bradley and Yuan 2013) and other corporate decisions (Akhigbe and Madura, 1999, Bessler and Nohel, 2000; Hsu et al. 2010; Jorion and Zhang, 2010; Slovin et al., 1999) and study the post-announcement effects of bank SEOs on the stock price of the banks' peers. In the case of banks, this literature has mainly emphasized the "dark" side of the SEO's informational content. In our analysis, we put into perspective the negative externalities of the SEO announcement and the stabilizing effect of the equity issues, providing a more balanced view on the effects of an SEO. Along these lines, we extend the evidence on the importance of contagion via SEOs documented by Slovin et al. (1992) and on the information content of SEOs not only about the issuing bank but also about the peer banks. Differently from Slovin et al. (1992), and similarly to Bradley and Yuan (2013) for non-financial firms, we find generally positive effects on peers dominate, especially when the issuing bank has a significant contribution to systemic risk. This latter result suggests that contrary to the case of non-financial firms the positive effects are not exclusively drivel by competition but also by the importance of SEOs as a stabilizing mechanism for the whole financial system.

Our analysis is also related to the literature on how intra-industry externalities from corporate decisions depend on the interplay between the characteristics of the announcing firm and of the peers. Along these lines, Slovin et al. (1999) show that only dividend reductions at money center banks generate negative, contagion-type externalities whereas reductions at regional banks have positive competitive effect on geographic rivals. In a related study, Bessler and Nohel (2000) show that a dividend reduction announcements of money-center banks have a negative effect on other money-center banks and to a smaller extent on smaller regional banks. Furthermore, Akhigbe and

Madura (1999) find that a stock repurchase announcement generate positive abnormal returns for both the repurchasing banks and for the peers.

In general, by focusing on systemic risk at the bank level and on systemic conditions, our study revisits the well-established debate on the negative externalities of banks SEOs and demonstrates that the market recognizes the potential to generate positive externalities by SEOs both for the issuing banks and for their peers. Our result indicating a systemic stabilizing channel as a source of positive abnormal returns generates policy implications which differ substantially from those of the competition effect. While in terms of competition effects banks which issue are set in an adverse position and allow their competitors to benefit from the issuer's action in a zero-sum game framework, the system stabilizing channel we identify here indicates that issues by banks with high systemic risk contribution can be beneficial for the system as whole but also for the issuing bank since the stabilizing effect is endogenized by most of the shareholders. The existence of this effect thus reduces the negative externalities that regulatory pressure on systemically banks to issue new equity might generate, providing a stronger case for timely bank recapitalization. Our results, therefore, throw some doubt on the rationale for lenient regulatory treatment of undercapitalized systemically important banks.

The rest of the paper is structured as follows. Section 2 describes the data, while section 3 describes the methodology and the variables involved in the estimation. Section 4 presents the empirical results starting from the evidence offered by the univariate tests to conclude with a multivariate framework where we explore the role of systemic distress issuers' and peers' bank features. Section 5 concludes and discusses the policy implications.

2. Sample Selection and Data

To construct our sample of issuing and non-issuing banks, we start from the list of U.S. listed and delisted banks extracted from Compustat Bank and consisting of 2149 banking firms. For each bank included in the list we then identify all occasions of SEO announcements from Thomson

One Banker during the period from January 1983 to December 2013. This leads us to an initial sample of 1104 SEOs announced by 501 unique banks.

Next, we drop SEOs with missing filing date (this reduces the sample size to 1052 SEOs by 501 banks) and remove from the sample pure secondary offerings as they involve trades of existing shares without any impact on the capital structure of the bank. This results in a decrease in the sample size to 760 SEOs issued by 424 banks.[2] Further, we remove SEOs based on shelf registrations because for these issues the filings do not convey specific information on the timing of the common equity issuance. Accordingly, the sample size decreases to 734 SEOs issued by 421 banks. Finally, when a bank issues more than once on the same date (as indicated in the Thomson One Banker database), we count the different announcements as a single event. After the application of the described criteria, we obtain a sample of 685 SEOs involving 421 banks.

We match the SEO sample and the sample of non-issuing banks with the CRSP dataset containing daily bank stock returns banks and daily returns for CRSP market indexes by using the PERMCO identifier. After this merge, the final sample consists of 612 SEOs by 418 banks and of 1246 non-issuing banks.

TABLE 1

Table 1 shows the distribution of banks and SEOs by year. This distribution underlines the high variation of the number of SEOs taking place across time. Most SEOs are concentrated in the mid-1980s, the early 1990 as well as during the 2008-2009 financial crisis. However, even in less active periods, about 1-3% of the listed banks issue equity in almost all years included in the sample.

We finally rely on accounting information for the issuing and the non-issuing banks drawn from COMPUSTAT. The accounting information is employed to control for several bank characteristics of the issuing and peer banks, such as capital strength and size, as well as to conduct further tests

[2] In some cases, Thomson One Banker does not offer indications on whether an SEO is a primary or a secondary one. In such cases, we manually extract the information on the type of offering from the EDGAR filing database of the SEC.

based on more refined definitions of the groups of peers based on their business similarities with the issuing bank.

3. Methodology

Our analysis involves two steps. First, we conduct an event study and report univariate tests to measure the average impact of SEOs on different groups of issuing and non-issuing banks. Next, we estimate cross-sectional regressions where the abnormal returns associated with each SEO is modeled as a function of a number of covariates. The two types of analyses offer complementary information on the effects of an SEO. While the univariate tests show stylized facts about the average market reaction to an SEO for issuing and non-issuing banks, the regression analysis examines cross-sectional variation in the market reaction and documents how such variation is related to specific covariates.

Our primary focus on how the market reaction to an issuance depends on wide systemic conditions and on bank systemic risk. To this end, both the univariate and multivariate tests are reported not only for the full sample period but also for sub-periods characterized by differences in the degree of systemic stability. We identify these differences by looking at periods of financial system distress defined by using a similar criterion as in Liu and Ngo (2014)[3].

From the perspective of the issuers, the distinction between normal periods and systemic distress periods is important as the negative CARs, normally associated with an SEO, can be amplified by the fact that asymmetric information between bank management and shareholders is most pronounced during times of systemic distress (Myers and Majluf, 1984); namely, when the systemic benefits of better capitalized banks are higher. From the perspective of the non-issuing banks, the degree of systemic stability not only influences the chance that an issuance can be interpreted as conveying wider industry information but it also affects the related systemic benefits.

[3] Alternatively, in unreported tests we use a crisis definition based on the CATFIN measure (Allen et al 2012) as a robustness check. The systemic distress definition when CATFIN is used accounts for the interactions between bank systemic risk and macroeconomic conditions. The results are qualitatively the same as the ones reported in Section 4.

In turn, as explained below, the systemic benefits for non-issuers also depend on issuers (and non-issuers) systemic characteristics.

More precisely, in both the univariate and the multivariate tests, we utilize measures of bank systemic risk contribution (Δ CoVaR as derived in Adrian and Brunnermeier, 2016) and systemic risk exposure (defined by the marginal expected shortfall (MES) as in Acharya et al., 2016) to understand the impact of systemic risk on the market reaction to SEO announcement during normal and crises periods. Notably, the first systemic risk measure captures the potential negative spillovers that a failure of a bank can generate on the rest of the industry. The second measure provides indications on how much a bank could suffer when the market is in a distress condition. Accordingly, for the first measure the causality goes from the bank to the system while for the second it goes from the system to the bank.

From the issuer perspective, the degree of systemic risk contribution might matter for the market reaction for several reasons. First, banks that contribute most to systemic risk are normally subject to closest regulatory oversight and their recapitalization is expected to act as a stabilizer of the system. As a result, the market might anticipate the issuance by these banks with a consequent mitigated negative reaction. Second, diversified investors in banks with high systemic risk contribution might internalize the negative externalities generated by the distress of this bank and reward rather than penalize the issues by such banks (Armour and Gordon, 2014). Nevertheless, these banks are also more likely to receive government support in the case of distress. As such, shareholders of these banks might perceive the issuance as relatively costlier than in the case of other banks with a consequent more negative market reaction.

The degree of systemic risk contribution of the issuing banks might also matter for the reaction by peers. A positive market reaction for non-issuing banks is related to the possibility of a stabilization effect because of a declined risk of negative systemic spillovers from the issuing banks. While a similar positive effect might also be explained by competitive benefits, the importance of the stabilization effect versus the competitive effect varies with the overall systemic conditions.

Under the system stabilizing channel we would expect that issues by high systemic risk contribution banks have a stronger positive effect on non-issuers in times of systemic distress, since these are the periods when the system stabilizing effect generates strongest positive externalities for the peers. Under the competition channel, we expect a stronger positive effect of the SEO announcement of high systemic risk contribution banks on the stock returns of peers in normal times, since competitors are typically in sound conditions during such periods and can take advantage of the distress of a systemic player.

In contrast to the two channels discussed above, the contagion channel implies that issues by banks with a high systemic risk contribution should be perceived as particularly negative by peer shareholders since they reveal information about banks which are highly relevant for the system as a whole and this should be especially the case in periods of systemic distress.

The stabilization and the competition channels also differ in their predictions of how non-issuing banks differently react when they show a different degree of systemic risk contribution. In the framework of the competitive channel, the systemic risk contribution of the non-issuing bank should not matter for its reaction to an SEO announced by a peer while the system stabilizing effect implies that, especially in times of crises, shareholders might anticipate that they will need to issue equity as other banks with a large systemic risk contribution in response to supervisory pressure.

Finally, in terms of systemic risk exposure, it is likely that the issuance by banks with high systemic risk exposure leads to larger negative CARs around SEO announcement. Essentially, the shareholders of such more vulnerable banks might attach particular importance to the negative information revealed by the issue and this could be especially the case in times of systemic distress. With regard to the effect of such issuances on peer banks, they might lead to lower stabilization and competitive benefits, and consequently to a stronger contagion effect, to the extend they are a seen as anticipating extremely severe industry conditions. Furthermore, the degree to systemic risk exposure of a non-issuing bank could also be relevant for the market reaction. Non-issuers with high systemic risk exposure, especially during crisis periods, might anticipate the need to raise equity in the market as already done by other banks and, therefore, show lower abnormal return around the peer's SEO.

3.1 Univariate Analysis

The point of departure of our univariate tests is a standard event study methodology to compute bank cumulative abnormal returns around the SEO. Our event date is identified by the filing date with the Securities and Exchange Commission (SEC), as this date should signal the point in time when the information about the SEO is released to the market.

We estimate bank abnormal returns via a simple market-adjusted model as shown below:

$$AR_{it} = R_{it} - R_{mt} \qquad (1)$$

where the abnormal return AR_{it} of a bank *i* at time *t* is given by the difference of its return R_{it} and the market return R_{mt} at time t. We use the CRSP value weighted index as a proxy for the market portfolio returns, R_{mt}, which is common practice in the literature (see Ergungor et al., 2009, Eckbo, Masulis and Norli, 2007, Bruno et al., forthcoming).

The estimated abnormal returns are then cumulated to compute cumulative abnormal returns (CAR), over the event windows (-1,1). The choice of this event window is standard in the literature (Bradley and Yuan, 2013; Ergungor et al 2010) and allows us to account for for both potential leakage of information on the day prior to official filing date as well as for some delayed reaction on the day following the filing. [4]

The choice of using the market adjusted return model (instead of the more conventional market model which also adjusts return for beta risk) is especially appropriate in the context of an analysis

[4] In order to control for informational leaks prior to the official filing date we have also re-run the model using (-3,3), (-1,0) event windows. The estimations, which are not reported here in the interest of brevity generate similar results. For the sake of robustness we also replicate the estimations using (0,1) CAR windows achieving again qualitatively similar findings.

that aims at investigating the reaction of non-issuing banks, and not only the reaction of issuing banks, to SEO announcement. Specifically, the use of a more conventional market model would impose to estimate the market betas for each non-issuing bank via the identification of "a clean estimation window" for each SEO; that is, an estimation window that does not contain further SEO announcements, or in fact any other relevant events. This appears, however, problematic as bank SEOs, as shown in Figure 1, tend to cluster in specific time periods, with the average distance between an SEO announcement in our sample and the following one of only 18 calendar days. This implies that for peers we have multiple events in almost every period that could be used for the estimation of the expected returns using the standard market model. As argued by Fuller et al (2002) the presence of other events in the estimation window reduces the meaning of the betas derived from the market model and thus threatens the interpretation of abnormal returns generated using this approach.

More precisely, the estimated betas are biased if the estimation period includes alternative events, because the observable stock returns during the estimation period would actually reflect unaccounted abnormal returns related to the events taking place during the estimation period. Since, as shown by Brown and Warner (1980), the simple market-adjusted model used here does not perform worse relative to more sophisticated models for short event windows, in our case the disadvantage of the market model stemming from the absence of clean estimation windows outweighs its negligible potential benefits.

We apply the event study for all issuers' and peers' observations as well as for subsamples of observations that are chosen to reflect systemic conditions and degree of systemic risk at the bank level.

More specifically, we rerun the univariate analysis both issuers and peers for subsamples of SEOs in crisis and non-crisis times; for banks with high systemic risk contribution and for the rest of the banks; for banks with high exposure to systemic risk and for the rest of the banks. To confront the systemic and individual risk dimension we also re-run the univariate analysis for the subsamples of banks with high individual risk and the rest of the banks. We document the statistical significance of the difference between the estimated CARS across the respective sub-samples via t-tests.

The definition of the subsamples is performed as follows. We identify times of financial system distress using a binary variable (CRISIS) equal to 1 in the periods of bank crises as in Liu and Ngo (2014). Based on the ΔCoVaR measure developed by Adrian and Brunnermeier (2016), we construct a dummy that takes the value of 1 if the Δ CoVaR value of the bank in the quarter prior to the SEO[5] is in the highest quartile of the Δ CoVaR of all listed banks in the respective year (HIGH SYSTEMIC RISK CONTRIBUTION). That is, in this group we allocate all banks that at a given point of time contribute most to systemic risk generation. All other banks are allocated to the low systemic risk contribution sub-sample.

We use the marginal expected shortfall (MES) as proposed by Acharya et al (2016), to quantify the vulnerability of banks to the occurrence of a systemic shock and construct a dummy variable (HIGH SYSTEMIC RISK EXPOSURE) which takes the value of 1 if the MES value of bank *i* is in the highest quartile of the yearly MES values distribution of all listed banks in the quarter prior to the SEO and 0 otherwise. This dummy, therefore, identifies the banks which are most prone to suffer capital deterioration as a consequence of a systemic shock. All banks with a value of this dummy variable equal to 0 are assigned to the low systemic risk exposure sub-sample.

HIGH INDIVIDUAL BANK RISK banks are defined as those whose standard deviation of daily stock returns for the 60 days prior to the SEO is in the highest quartile of the respective yearly distribution. All other banks are treated as low individual risk banks.

3.2 Multivariate Analysis

The next step of our analysis consists of conducting cross-sectional regressions to identify potential CAR drivers for the issuing banks and for the peers. The multivariate regression set-up

[5] Bank specific measures are taken with one quarter lag to minimize endogeneity concerns.

allows us to examine the ceteris paribus effects of systemic risk and systemic conditions as well as their interactions.

We start by estimating via OLS the following model of the driver of CARs for issuing banks:

$$CAR\ (-1{,}1)_i = a_0 + a_1 SYSTEMIC\ RISK_i + a_2 CRISIS + a_3 X_i + \varepsilon_i \quad (2)$$

as well as an analogous model for the peer banks' abnormal returns:

$$CAR\ (-1{,}1)_p = b_0 + b_1 SYSTEMIC\ RISK_i + b_2 SYSTEMIC\ RISK_p + b_3 X_i + b_4 Z_{p_1} + b_5 CRISIS + \mu_p \quad (3)$$

where $CAR\ (-1{,}1)_i$ and $CAR\ (-1{,}1)_p$, are the cumulative abnormal returns for the (-1,1) window for the issuing bank and the peers of the issuer, respectively. $SYSTEMIC\ RISK_i$ ($SYSTEMIC\ RISK_p$) are the indicators of systemic risk contribution or exposure for the issuer (peers) defined via the HIGH SYSTEMIC RISK CONTRIBUTION and HIGH SYSTEMIC RISK EXPOSURE dummies introduced in the previous section, CRISIS is our indicator variable for systemic conditions, X_i (Z_P) is a vector of characteristics of the issuing (peer) bank; ε_i and μ_i denote the error terms in the respective models.

The vectors X_i and Z_P in the regression models contain variables shown by existing studies to significantly affect abnormal returns. Table 2 presents definition and the descriptive statistics for these variables

TABLE 2

Specifically, we control for individual bank risk (measured by the HIGH INDIVIDUAL RISK dummy described above. We expect that issues by high individually risky banks that are considered more opaque generate stronger negative market reaction for both the issuing banks and the peer banks. Furthermore, high individual risk peer banks might be less able to enjoy competitive effects but can potentially benefit more from the system stabilizing effect of an SEO.

We also include a dummy variable (SIZE) which takes the value of 1 if a bank's total assets are in the top quartile of the distribution in the quarter prior to the SEO. This variable aims to reflect the impact of being a particularly large bank on the stock market reaction to an SEO. The fact that we compare total assets for each period accounts for changes of average bank's size over time and thus presents a time specific ranking of bank size.[6] We expect that, after controlling for systemic risk measures, SEOs by very large banks generate lower abnormal returns by the issuing bank as large banks are viewed as more opaque institutions for which the release of adverse information via the SEO has stronger effects. Less is the importance of the size of peer banks. Larger banks, due to their larger market share, might experience stronger positive reaction if the competition channel is at work but they might also because of their opaqueness face stronger negative reaction in terms of contagion.

Furthermore, we include in the models a dummy (POORLY CAPITALIZED) that takes a value of 1 if the capital ratio, measured as a ratio of stockholders' equity to total assets in the quarter prior to the SEO, is smaller than the lowest quartile of the capital ratio distribution across all sample banks in this respective quarter. This definition allows us to control for time variation in the distribution of bank capitalization which might be driven by both changes in regulation as well as by market discipline. Previous studies show that the market anticipates the issuance by poorly capitalized banks and this mitigates the negative reaction around the announcement.

An additional variable, MOMENTUM, is defined as the cumulative abnormal return over the 60 days prior to the SEO, as in Cornett and Tehranian (1994). The inclusion of this variable is aimed to control for stock price inertia, as documented by Asquith and Mullins (1986), who report that CARs around announcement dates of equity issues are positively correlated with CARs preceding the issue period. This might indicate that issues only take place when the stock is overvalued and allows to control for discretion of the issuing bank with regard to the timing of the issue.

[6] In unreported tests we also employ a continuous measure of bank size defined as the natural logarithm of total assets. Results are qualitatively the same, nevertheless the statistical significance of this continuous size measure is somehow lower, suggesting that the market reaction to particularly large banks' SEOs is indeed systemically different.

We next include the size of the SEO in terms of proceeds relative to total common equity (PROCEEDS). Larger SEOs signal not only deeper challenges faced by the issuing banks and thus more negative information but also a serious effort to use new equity in order to generate capital buffers.

Finally, we account for the fact that the peers' reaction might depend on the degree of similarity of the peer with the issuing bank. Specifically, we introduce a dummy variable (SAME STATE) which is equal to 1 if the peer's headquarter is in the same state as the one of the issuing bank. Two other variables control for similarities in business models between the issuer and the peer banks. The first is a dummy (SAME FUNDING MODEL) equal to one if both banks are in the same quartile of the yearly distribution of the ratio between retail deposits and total liabilities in the quarter prior to the SEO. In this case the dummy variable takes the value of 1, otherwise it is equal to 0. Similarly, we construct a dummy (SAME INCOME MIX) equal to one define a bank to be a close competitor of the issuing bank in terms of fee vs interest income mix if the both banks are in the pre-SEO quarter in the same quartile of the yearly distribution of the ratio between non-interest income to total income. A fourth variable controls for similarities in terms of banks size (SAME SIZE) and it is defined by a dummy equal to one when both the peer and the issuing bank are in the pre-SEO quarter in the same quartile of the yearly distribution of total assets.

4. Cumulative abnormal returns around SEO

4.1 Univariate results: Market reaction for Issuing banks

We start by documenting the event studies results for the full sample of issuing banks. We then proceed by providing univariate tests for subgroups of issuers for which our conjectures with regard to aggregate systemic distress and bank systemic risk suggest that the SEO effects might vary. The results of these univariate estimations are presented in Table 3.

TABLE 3

Our baseline results for the full sample period, reported in column 2) of Table 3, are generally in line with the existing literature and confirm the average negative effect of the SEO announcement on the stock price of the issuing banks: An SEO announcement generates negative abnormal returns of 1.45%. The reaction is particularly negative for banks with a strong exposure to systemic risk which can be attributed to the higher vulnerability of such banks and thus the more intense attention that shareholders in such institutions pay to adverse events. By contrast, the difference between the abnormal returns of issuing banks with high systemic contribution and such with low systemic risk contribution is statistically insignificant, suggesting that the "penalty" from the SEO announcement on average does not depend on the systemic spillovers generated by the issuing bank. The same is true for bank individual risk.

The results for the full sample period, however, hide significant differences over time that depend on the degree of systemic stability within the banking industry. Specifically, as shown in column 4) to 6), the reaction is in most cases significantly more negative in periods of banking distress. In particular, the results which differentiate between issuing banks with high systemic risk exposure and the rest of the issuers show that the former banks report a significantly more negative reaction during period of systemic distress. Nevertheless, abnormal returns are at the lowest average level (at -5.01% almost three times as negative as in the average case) when banks that are individually riskier issue in distress periods; namely, when opaqueness is highest both at the individual bank and at the systemic level. All these findings are consistent with the notion that an SEO reveals adverse information about the issuing bank and this adverse information is valued most when the degree of opaqueness of the issuing bank (that is for banks with high individual risk) and of the system as a whole (in time of systemic distress) is most intense.

The stock market reaction to issuing banks with high systemic risk contribution is more differentiated. For such banks the difference between crisis and non-crisis times' abnormal returns in not statistically significant. This finding suggests that the released adverse information during crisis times is not received significantly more critically than during normal times when an issuer has a high systemic risk contribution. Essentially, for banks with high systemic risk contribution the negative effect of announcing an SEO during a crisis is counteracted by the positive effect that the issuance generates on the system; an argument which according to Armour and Gordon (2014) should mitigate the negative reaction to SEO by banks with the potential to generate more negative systemic spillovers.

4.2 Univariate results: Market reaction for Peer banks

Turning to the results concerning the peers' banks reaction to the SEO announcement, that we report in Table 4, we find evidence of positive average CARs of about 17 basis points. When we separate periods of systemic distress from normal time periods we find that the positive reaction of peers' stock returns to an SEO announcement is significantly lower during crisis times (0.09% vs 0.23%). This finding is consistent with the intuition that at the industry level, though lower, the benefits of SEOs remain also in the presence of conditions of systemic distress even where competitive benefits are expected to be marginal.

TABLE 4

Additional tests show that the abnormal returns tend to significantly vary with the characteristics of the issuing bank both in normal and in crisis times and provide indications on the importance of the stabilization effect of the SEO. The positive effect of the SEO announcement on peers' stock is larger when the issuer shows a higher systemic risk contribution. This result, therefore, suggests some benefits stemming from the SEOs of banks that are relevant in terms of systemic externalities. In short, while the issues by banks with high systemic risk contribution reveal negative information about the state of the industry, they seem also to be perceived as a stabilizer of the whole system with the consequence to benefit non-issuing banks.

The result with regard to high systemic contribution of the issuing banks is in sharp contrast with the findings we observe when the issuer has a high systemic risk exposure. In this latter case, the positive reaction is significantly lower relative to that of the rest of the sample (0.06% vs.

0.25%). The difference between the high systemic risk contribution and high systemic risk exposure results is again indicative of the trade-off between the negative signal stemming from the release of adverse information and the system stabilizing effect of the issue, the latter being more pronounced for banks with high systemic risk contribution.

Further differences in the market reaction are also related to the characteristics of the peer banks as shown in panel B of Table 4. Peer banks that react more positively to the issuance tend to have lower systemic risk both in terms of contribution and in terms of exposure. Furthermore, for both systemic risk measures, low systemically risky banks show positive abnormal returns in both normal times and crisis periods, although the presence of negative systemic conditions mitigate the potential competitive benefits. By contrast, banks with high systemic risk contribution or exposure show average positive abnormal return around the announcement only during normal time. During crisis periods, peer banks with high systemic risk contribution show negative abnormal returns. This is not surprising given that these banks are expected to be subject to a closer regulatory attention and this might increase the pressure to issue equity in a crisis and limit the benefits of new competitive opportunities. For peer banks with high systemic risk exposure there is no evidence of any significant reaction around the announcement.

The information offered by the two systemic risk measures is different from that provided by individual bank risk. In this case, we find positive abnormal returns only for highly risky banks. This result is again consistent with the notion that the positive peer effects are driven by system stabilizing rather than by competition effects, since the competition channel is not consistent with the fact that high risk banks benefit most from a peer's SEO during crisis times.

In sum, the results of the event study for the peer group shows a prevalence of industry benefits from SEOs in contrast to the findings reported in early study (see Slovin et al., 1992). Furthermore, they also provide novel insights on the reasons behind this effect. They especially underline the positive externalities generated by equity issues of banks with high systemic risk contribution, a result consistent with Armour and Gordon (2014). That is, while the extant literature describes the effect of equity issues on non-issuing banks so far as being either driven by the negative information about the system that is revealed through the SEO or by the positive information for the peers that is driven by the improved competitive prospects opened by the distress of a competitor, we document an additional spillover that is based on the positive externalities generated by recapitalizing banks with higher systemic risk contribution especially during banking crises.

4.3 Multivariate results

In this section we employ the regression models described by equations (2) and (3) to explore the joint interplay of systemic conditions and systemic risk in the determination of the trade-off between positive and negative information contained in the SEO announcement. The results of the regression analysis are presented in TABLE 5, where the first two columns refer to the full sample of observations for issuers and peers, respectively, while columns 3-6 differentiate for issuers and peers between crisis and non-crisis times. These results confirm the main findings of the univariate event study analysis but also allow us to quantify the effects of different combinations of the covariates and derive ceteris paribus conditions.

TABLE 5

Consistently with the event study results, the results presented in the first two columns of Table 5 indicate that an SEO reveals mostly negative information about the issuer and on average positive information about the peers. However, the observable general reaction emerges as the outcome of the combination of positive and negative effects of various covariates.

In terms of issuing banks, column 1) of Table 5 documents a negative although statistically insignificant coefficient of the constant term, but more importantly we find statistically significant negative coefficients for the CRISIS variable and a positive effect for the dummy variable identifying banks with high systemic risk contribution. This result (which could not be significantly diagnosed in the univariate framework) is consistent with the argument of Armour and Gordon (2014) that diversified shareholders in systemically important banks internalize the positive externalities that equity issues by such banks exert on the system. This conjecture is further confirmed by the fact that the positive effect of systemic contribution is exclusively driven by crisis time issues.

While systemic risk exposure does not appear a significant driver of CARs when the analysis is conducted for the full sample, INDIVIDUAL BANK RISK enters the model with a negative and highly significant coefficient. The negative effects of SEOs for the issuing banks seem, therefore, mostly related to the opaqueness of the issuing bank: whenever this is high shareholders react negatively to the release of information about needed recapitalization. release of negative information about the state of the issuer.

Looking at the differences between the results derived from the normal and from the crisis times, we find that the most penalized issues during crisis times are small (and potentially insufficient for sustainable recapitalization) issues by large banks as well as issues by individually risky banks or by banks which contribute less to systemic risk. In essence, an issue during crisis times reveals negative information about the issuer but this negative information is counteracted by the potential of the issue to generate substantial capital buffer for the issuing bank and thus to stabilize the system.

In sum the results for the sample of issuing banks suggest that negative abnormal returns to the stock of an issuing bank are reinforced in instances of high opaqueness, while they are mitigated in cases when shareholders internalize the stabilizing effects of the issue; namely, whenever the issuing bank is relevant for systemic stability.

Turning to the regression results with regard to the peer banks we find that positive effects are generally present – the constant term in the peer-level regressions is significantly positive at about 27 basis points. A closer look at the coefficients of the various regressors underlines that these positive effects are mostly influenced by systemic conditions and bank systemic risk of both the issuing bank and the non-issuing banks and are unlikely to be exclusively driven by competition effects.

More specifically, as the univariate tests, the multivariate setting confirms that issues during times of systemic distress generate lower abnormal returns (by about 8.5 basis points) for the peer banks. Furthermore, as in the case of the issuer regressions, we find evidence of larger abnormal returns when the SEOs involve banks which contribute most to systemic risk substantially more but only if the issuance occurs during crisis times. The fact that this positive effect is again exclusively driven by the SEOs which take place during a crisis seems to validate the importance of the system stabilizing channel. As mention earlier, if the competitive channel were the driving force of the observed positive market reaction, we would have observed that SEOs by banks with high systemic risk contribution should generate higher peers' abnormal returns especially in normal rather than in crisis times.

In terms of systemic risk exposure of the issuing banks, we find evidence of lower abnormal returns for non-issuing banks both during normal and distress conditions. Nevertheless, the coefficient assigned to the dummy identifying issuers with a high systemic risk exposure is smaller in the crisis regression. This might again indicate that the negative signal typically associated with the issuance of these banks is somehow mitigated by the systemic benefits of having better capitalized banks during crises.

Moving to the analysis of the systemic characteristics of the non-issuing bank, we do not find that the degree of systemic risk contribution explains cross sectional variation of CARs in any specification. By contrast, as in the univariate tests, we do find evidence of lower abnormal returns for banks that are more exposed to the crisis and consequently are more likely to be required to issue equity in the near future.

In terms of control variables, we find that issues by larger, better capitalized and individually riskier banks reduce peers' abnormal returns when they occur in time of crisis. We interpret these findings as consistent with the notion that the negative information contained in an SEO announcement is contingent on the opaqueness of the event. In this sense, issues by risky banks and by large banks should reveal more negative signals while issues by undercapitalized banks should be associated with less opaqueness since they are mostly attributed to regulatory pressure (as in Ergungor et al 2010). Also, we find that larger SEOs in terms of proceeds are associated with a decline in abnormal returns but only in normal times while both the MOMENTUM of the issuer and of the non-issuers lead to larger abnormal returns in any specification.

Furthermore, in terms of peer control variables, our analysis suggests larger abnormal returns for larger and riskier banks especially during systemic crises. These two latter findings seem again to indicate an important role for a system stabilizing channel. If the competition effect were the sole driver of the positive reaction to a peer's SEO, we should not observe that banks with lower potential competitive gains, namely the larger or riskier banks, to benefit most in a crisis.

Last but not least, the coefficients of the SAME STATE, SAME FUNDING MODEL, SAME INCOME MIX and SAME SIZE which control for observable dimensions of rivalry across peer banks are mostly insignificant suggesting that these dimensions do not on average affect the peer banks' stock market reaction to an SEO announcement. More importantly, the systemic risk characteristics of the banks are significant even though we control for these dimensions of observable similarity: a fact which is again consistent with the notion that competitive effects do not explain in full the positive impact of SEOs on peers' abnormal returns.

In sum, the fact - which to our knowledge has not been documented so far- that the reaction to an SEO is contingent on systemic conditions and bank systemic risk is of crucial importance for understanding the systemic effects of SEOs and for assessing the design of policies with regard to efficient recapitalization. The policy debate on whether or not banks should be pressured by regulators to quickly recapitalize assumes that this type of pressure and the resulting issues may generate negative externalities and further destabilize the system in times of distress (see, for instance, Calomiris 2014). Contrary to the assumption of this debate, our results are consistent with the presence of a role for a system-stabilizing effect which implies that under certain condition – especially in times of financial distress - issues by systemically important banks do not exert negative externalities on non-issuing banks independently of any potential competitive effects.

4.4 How does the market reaction to peers' SEO depend on observable similarities across banks

In our tests we have used the full population of non-issuing banks. Our choice is motivated by several reasons. First, and most importantly, a stabilization effect coming from the issuance due to systemic reasons should be relevant for the full industry, whereas only the competition effect should be primarily confined to non-issuing rival banks with some degree of business similarity with the issuer. Consequently, an analysis simply focusing on the reaction of the competitors of the issuer might omit important interactions between the different channels that drive the abnormal returns. Second, the standard definition of peers in corporate finance studies is based on all firms in the same industry (e.g. Bradley and Yuan, 2013). As a result, by using the same peers' definition as in these studies we can directly compare our results with those offered for non-financial firms. Third, the pre-imposing of peer group definitions depending on observable bank similarities might ignore the fact that the market may not be able to differentiate banks in terms of business similarities especially in periods of high opaqueness such as periods of systemic distress.

Nevertheless, a key assumption of our choice is that all non-issuers have similar consequences from the SEO. Whether observably similar banks react differently to the issuance provides, however, important insight on the relative importance of the different channels that might drive the market reaction and in particular offers indications on the interplay between the stabilization and the competition channel. Therefore, in this section we explore how the reaction of the non-issuers depends on whether the issuing bank is a close competitor in terms of the four dimensions of observable similarities that we employ in Section 4.3: geography, funding model, income mix and bank size. To this end we rerun the regressions described in columns (5) and (6) of Table 5 for the case when the issuer is in the same group as the peer in terms of the characteristics listed above, that is in the case when either of the similarity dummies SAME STATE, SAME FUNDING MODEL, SAME INCOME MIX and SAME SIZE is equal to 1.

TABLE 6

The results, presented in Table 6, illustrate that in general the key findings of our analysis remain similar when we control for observable rivalry dimensions. However, a closer look uncovers the relevance of a finer peer definition.

To start with, we find that the effect of SYSTEMIC RISK CONTRIBITION of the issuing bank is fine-tuned by the use of finer peers' definitions. For the groups of non-issuing banks with the same size and a similar income structure as the issuer we find similar results to those of the baseline regression. Nevertheless, in the case of close peers with respect to the funding model or with respect to geography we find that the market reaction to an SEO by a similar bank during crisis times (and during normal times) does not vary with the degree of systemic risk contribution of the issuer – basically implying that the competition effects dominate for this peer groups.

The most robust effect observed in the sub-sample analysis appears to be the negative coefficient of SYSTEMIC RISK EXPOSURE of the issuer especially during normal times. This result suggests that also when we focus on banks that might be seen as closer competitors of the issuer, SEOs by banks with high systemic risk exposure are perceived as indicating wide industry problems rather than as providing stabilization benefits. [7] While this effect is consistently present

[7] The sub-sample analysis suggests also some differences in terms of impact of control variables compared to the full sample analysis. For instance, the effect of issuers' size disappears in the case of geographically close competitors. This suggests that while for distant banks the size matters for an SEO signal to be perceived by peers' investors, for geographically close competitors size is less relevant. Furthermore, in the sub-sample based on geographic similarity we find evidence that investors in peers mostly penalize the SEOs by poorly-capitalized banks during crises. . This latter finding might depend the fact that not only close competitors benefit from the stabilization of the system via the

during normal times, during banking crises it is not observed when peers are defined in terms of geographic proximity and size similarity.

The finer definition of peers provides similar results as the full sample analysis for the role of a peer's systemic risk contribution. Essentially, as in the full sample analysis, the peer's contribution to systemic risk does not appear a significant determinant of the cross-sectional variation of CARs for non-issuing banks. By contrast, differently from the full sample analysis, we do not find evidence of a negative impact played by the systemic risk exposure of the non-issuer. This might indicate that non-issuing banks that are closer competitors of the issuer might achieve more systemic benefits from the issuance when they are highly exposed to systemic shocks.

These results generally underline the limited role of observable rivalry as a driving force behind the positive effects of SEOs on rival abnormal returns and are thus again indicative that these positive effects go beyond pure competition outcomes. In this sense, these results again support our conjecture that SEO exert positive externalities contingent on the system stabilizing effect of bank recapitalization.

5. Conclusion

This paper evaluates the market reaction to bank equity issues via SEOs for issuing and non-issuing banks under different systemic conditions and for banks with different degree of systemic risk contribution and exposure. We provide evidence that the market reaction tends to somehow incorporate the systemic benefits that can be associated with the issuance.

For the issuing banks, while consistently with earlier literature we find significant negative abnormal returns for the issuer around the SEO event, we also document that the negative affect of an SEO is strongest during banking crises. This suggests that market participants are particularly

issuance or by the competitive channels but also they might be exposed to similar problems that lead to future capital issuances.

concerned about the negative information revealed by the issue in time of high opaqueness of the financial system. Nevertheless, more importantly, during banking crises the penalty stemming from the issuance is significantly lower when the issuer has a larger systemic risk contribution and consequently the possibility to generate negative externalities for other banks.

The systemic dimension also matters for the reaction of non-issuing banks. While the only existing study on the reaction of non-issuing banks around an SEO has emphasized the contagion effects of the issuance, we provide evidence of positive effects that are not entirely explained by the competitive channel identified by studies on non-financial firms. We show – by exploring the difference between peers' stock market reaction in normal vs crisis times - that positive effects of SEOs for non-issuing banks can mostly be attributed to system stabilizing externalities. More specifically, our tests which explore the variation of systemic risk contributions and exposures across issuing as well as peer banks consistently show that SEOs by banks which substantially contribute to systemic risk lead to larger abnormal returns in non-issuing banks during banking crises. In other words, the investors in peers' stock "reward" the SEOs by banks with high systemic risk contribution – in line with the view that especially the recapitalization of such banks has positive externalities for systemic stability.

Furthermore, non-issuing banks show lower abnormal returns for issuance by banks with higher systemic risk exposure, suggesting that this issuance is seen as indicating wide industry problems, but significantly less so during banking crises. Put it differently, the potential systemic benefits coming from the recapitalization of banks that are more exposed to the systemic shock mitigate to some extent the negative effect of the issuance for the rest of the industry.

The findings documented here suggest that the systemic effects of a banks SEO are contingent not only on systemic conditions but also on the systemic relevance of issuers and peers not only in terms of systemic risk contribution but also in terms of systemic risk exposure. In essence, they imply – in contrast to the dominant policy debate so far – that the issues by banks with high systemic risk can actually generate positive systemic effects even in the very short-term. One potential policy implication of these results is that regulators should not be too concerned about the negative externalities of forcing systemically important banks to issue and can exert more pressure on such banks to recapitalize, even during banking crises.

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Table 1: Distribution of Banks and SEOs

Distribution of Bank and SEOs by year

Year	Number of Banks	Number of SEOs	SEOs/Banks
1983	309	5	1,61
1984	309	7	2,06
1985	398	26	6,53
1986	493	37	7,51
1987	567	8	1,41
1988	577	1	0,17
1989	632	12	1,90
1990	654	4	0,61
1991	675	22	3,26
1992	729	27	3,70
1993	822	33	4,01
1994	884	6	0,68
1995	902	13	1,44
1996	906	9	0,99
1997	850	10	1,18
1998	894	17	1,90
1999	838	11	1,31
2000	770	4	0,52
2001	745	9	1,21
2002	731	12	1,64
2003	726	17	2,34
2004	702	18	2,56
2005	676	19	2,81
2006	670	18	2,69
2007	649	7	1,08
2008	608	42	6,91
2009	577	94	16,29
2010	551	58	10,53
2011	529	23	4,35
2012	504	22	4,37
2013	483	21	4,35
Total	1858	612	3.00

Table 2: Variable Definition and Summary Statistics

		N	Mean	Median	St. Dev.	1 Pctile	99 Pctile
Panel A: Issuer							
CRISIS	Dummy equal to one if a SEO takes place between Jan 1986 – Dec 1992 or Jul 2007 – Dec 2010.	612	0.503	1.000	0.500	0.000	1.000
SIZE	Dummy equal to one if a bank is in the highest quartile of total assets based on a yearly distribution in the year prior to the SEO.	526	0.353	0.000	0.478	0.000	1.000
POORLY CAPITALIZED	Dummy equal to one if a bank is in the lowest quartile of common equity to total assets ratio based on a yearly distribution in the year prior to the SEO.	525	0.424	0.000	0.494	0.000	1.000
INDIVIDUAL RISK	Dummy equal to one if a bank is in the highest quartile of standard deviations of firms' stock returns over one year prior to the SEO.	591	0.302	0.000	0.459	0.000	1.000
SYSTEMIC RISK CONTRIBUTION	Dummy equal to one if a bank is in the highest quartile of banks' Δ CoVaR value distribution. The distribution is taken on a yearly basis and the value of a Bank's Δ CoVaR lags one quarter.	524	0.314	0.000	0.785	0.000	1.000
SYSTEMIC RISK EXPOSURE	Dummy equal to one if a bank is in the highest quartile of the marginal expected shortfall (MES) distribution on a yearly basis. MES is calculated by taking the negative average return of a firm's stock over the 5% worst return days for the MSCI Value Weighted Index over the year prior to the SEO.	591	0.355	0.000	0.479	0.000	1.000
MOMENTUM	The cumulative abnormal returns over the previous 60 trading days. The abnormal returns are calculated by subtracting the return of the MSCI Value Weighted Index from the return of the bank's stock.	612	0.053	0.042	0.280	-0.590	0.843
PROCEEDS	Size of issue relative to stockholders' equity in the quarter prior to the SEO.	500	0.320	0.184	1.091	0.006	3.057
Panel B: Peers							
CRISIS	Dummy equal to one if a SEO takes place between Jan 1986 – Dec 1992 or Jul 2007 – Dec 2010.	361,663	0.473	0.000	0.499	0.000	1.000
SIZE	Dummy equal to one if a bank is in the highest quartile of total assets based on a yearly distribution in the year prior to the SEO.	285,085	.249	0.000	0.432	0.000	1.000
POORLY CAPITALIZED	Dummy equal to one if a bank is in the lowest quartile of common equity to total assets ratio based on a yearly distribution in the year prior to the SEO.	283,813	.249	0.000	.432	0.000	1.000
INDIVIDUAL RISK	Dummy equal to one if a bank is in the highest quartile of standard deviations of firms' stock returns over one year prior to the SEO.	337,307	.249	0.000	.433	0.000	1.000

SYSTEMIC RISK CONTRIBUTION	Dummy equal to one if a bank is in the highest quartile of banks' Δ CoVaR value distribution. The distribution is taken on a yearly basis and the value of a Bank's Δ CoVaR lags one quarter.	266,425	.249	0.000	.432	0.000	1.000
SYSTEMIC RISK EXPOSURE	Dummy equal to one if a bank is in the highest quartile of the marginal expected shortfall (MES) distribution on a yearly basis. MES is calculated by taking the negative average return of a firm's stock over the 5% worst return days for the MSCI Value Weighted Index over the year prior to the SEO.	337,404	.249	0.000	.432	0.000	1.000
MOMENTUM	The cumulative abnormal returns over the previous 60 trading days. The abnormal returns are calculated by subtracting the return of the MSCI Value Weighted Index from the return of the bank's stock.	353,867	0.035	0.018	0.228	-0.553	0.762
SAME STATE	Dummy equal to one if the headquarters of the issuer and peer banks are in the same state.	361,663	0.039	0.000	0.195	0.000	1.000
SAME FUNDING MODEL	Dummy equal to one if the issuer and peer banks are in the same quartile of the retail deposits to total liabilities distribution. The distribution is taken on a yearly basis.	361,663	0.181	0.000	0.385	0.000	1.000
SAME INCOME MIX	Dummy equal to one if the issuer and peer banks are in the same quartile of the interest income to net income distribution. The distribution is taken on a yearly basis.	361,663	0.172	0.000	0.377	0.000	1.000
SAME SIZE	Dummy equal to one if the issuer and peer banks are in the same quartile of the total assets distribution. The distribution is taken on a yearly basis.	361,663	0.193	0.000	0.395	0.000	1.000

Table 3: Cumulative abnormal returns of issuing banks around SEOs

This Table presents the results of event study univariate tests regarding the cumulative abnormal returns (CAR (-1,1) of issuers around the filing date of an SEO. CARs are computed using equation (1). The third column presents the average CAR (-1,1). Columns (4) and (5) present the results separately for times of systemic distress and for normal times. Column (6) presents the result of a difference-in-means test with respect to the difference between the estimated CARs during financial systemic distress times compared to normal times in the respective groups. Column (7) shows the number of observation for each group. HIGH SYSTEMIC RISK CONTRIBUTION banks are all banks in the highest quartile of banks' Δ CoVaR value distribution in the year prior to the SEO, LOW SYSTEMIC RISK CONTRIBUTION banks are all other banks. HIGH SYSTEMIC RISK EXPOSURE banks are all banks in the highest quartile of banks' MES distribution in the year prior to the SEO, LOW SYSTEMIC RISK EXPOSURE banks are all other banks. HIGH INDIVIDUAL RISK BANKS are all banks in the highest quartile of the distribution of standard deviation of stock returns in the 60 days prior to the SEO, LOW INDIVIDUAL RISK banks are all other banks.

1	2	3	4	5	6	7
	ISSUER GROUPS	**CAR(-1,1)**	**Crisis**	**Non-crisis**	**Crisis vs Non-Crisis**	**Number of observations**
1	FULL SAMPLE	-1.4488***	-2.2271***	-0.6603***	-1.5667**	612
2	HIGH SYSTEMIC RISK CONTRIBUTION	-1.8225***	-2.2734***	-0.9447	-1.3286	165
3	LOW SYSTEMIC RISK CONTRIBUTION	-1.5188**	-2.6349***	-0.5801	-2.0547*	359
2-3		-0.3036	0.3614	-0.3646		
4	HIGH SYSTEMIC RISK EXPOSURE	-2.6777***	-3.8005***	-1.0265	-2.7740*	210
5	LOW SYSTEMIC RISK EXPOSURE	-1.030**	-1.2973**	-0.8124	-0.4849	381
4-5		-1.6477**	-2.5032**	-0.2141		
6	HIGH INDIVIDUAL RISK	-2.2669**	-5.0107**	-0.3331	-4.6775**	179
7	LOW INDIVIDUAL RISK	-1.3325***	-1.4690***	-1.1730***	-0.2959	412
6-7		-0.9343	-3.5417**	0.8398		

Table 4: Cumulative abnormal returns of peer banks around SEOs

This Table presents the results of event study univariate tests regarding the cumulative abnormal returns (CAR (-1,1) of peers around the filing date of an SEO. CARs are computed using equation (1). The third column presents the average CAR (-1,1). Columns (4) and (5) present the results separately for times of systemic distress and for normal times. The sixth column presents the result of a difference-in-means test with respect to the difference between the estimated CARs during financial systemic distress times compared to normal times in the respective groups. Column (7) shows the number of observation for each group. HIGH SYSTEMIC RISK CONTRIBUTION banks are all banks in the highest quartile of banks' Δ CoVaR value distribution in the year prior to the SEO, LOW SYSTEMIC RISK CONTRIBUTION banks are all other banks. HIGH SYSTEMIC RISK CONTRIBUTION banks are all banks in the highest quartile of banks' Δ CoVaR value distribution in the year prior to the SEO, LOW SYSTEMIC RISK CONTRIBUTION banks are all other banks. HIGH SYSTEMIC RISK EXPOSURE banks are all banks in the highest quartile of banks' MES distribution in the year prior to the SEO, LOW SYSTEMIC RISK EXPOSURE banks are all other banks. HIGH INDIVIDUAL RISK BANKS are all banks in the highest quartile of the distribution of standard deviation of stock returns in the 60 days prior to the SEO, LOW INDIVIDUAL RISK banks are all other banks.

1	**2**	**3**	**4**	**5**	**6**	**7**
	PEER GROUPS	**CAR(-1,1)**	**Crisis**	**Noncrisis**	**Crisis vs Noncrisis**	**Number of obervations**
1	FULL SAMPLE	0.1683***	0.0945***	0.2346***	-0.1401***	361,544
2	HIGH SYSTEMIC RISK CONTRIBUTION ISSUER	0.2684***	0.3043***	0.2066***	0.0976**	100,311
2	LOW SYSTEMIC RISK CONTRIBUTION ISSUER	0.1631***	0.0100	0.2746***	-0.2646***	210,792
2-3		0.1052***	0.2942***	-0.0679***		
4	HIGH SYSTEMIC RISK EXPOSURE ISSUER	0.0621***	0.0381	0.0925***	-0.0544	126,505
5	LOW SYSTEMIC RISK EXPOSURE ISSUER	0.2459***	0.1443***	0.3195***	-0.1752***	222,564
4-5		-0.1838***	-0.1062***	-0.2269***		
6	HIGH INDIVIDUAL RISK ISSUER	0.1601***	-0.0402	0.2776***	-0.3178***	107,296
7	LOW INDIVIDUAL RISK ISSUER	0.1878***	0.1427***	0.2358***	-0.0931***	241,773
6-7		-0.02777	-0.1829***	0.0417**		
8	HIGH SYSTEMIC RISK CONTRIBUTION PEER	0.0681***	-0.0637*	0.1911***	-0.2549***	66,573
9	LOW SYSTEMIC RISK CONTRIBUTION PEER	0.1844***	0.1246***	0.2395***	-0.1149***	199,837
8-9		-0.1162***	-0.1884***	-0.0484**		
10	HIGH SYSTEMIC RISK EXPOSURE PEER	0.0539**	-0.0621	0.1617***	-0.2239***	84,321
11	LOW SYSTEMIC RISK EXPOSURE PEER	0.2081***	0.1489***	0.2625***	-0.1135***	253,061
10-11		-0.1541***	-0.2110***	-0.1007 **		
12	HIGH INDIVIDUAL RISK PEER	0.4157***	0.5518***	0.2893***	0.2624***	84,307
13	LOW INDIVIDUAL RISK PEER	0.0878***	-0.0565***	0.2207***	-0.2773***	252,978
12-13		0.3279***	0.6083***	0.0686***		

Table 5: Cumulative abnormal returns and bank characteristics: the role of systemic conditions

This Table shows the regression results on the determinants of cumulative abnormal returns (CAR). The models are estimated via a cross-sectional OLS estimator with standard errors clustered at the issuers' level for the regression estimating the determinants of issuers' CAR and at the peers' level for the regressions estimating the determinants of peers CAR. The dependent variable is the CAR (-1,1) for the respective group of banks (issuers or Peers). In columns (3) and (4) the CAR (-1,1) of issuers are examined separately for crisis times and normal times. The same is true for columns (5) and (6) with respect to peers' CAR (1-,1). CRISIS is a dummy variable equal to one if SEO takes place between Jan 1986 – Dec 1992 or Jul 2007 – Dec 2010. SIZE is a dummy variable equal to one if the issuer/peer are in the highest quartile of total assets distribution; POORLY CAPITALIZED is a dummy variable equal to one if the issuer/peer is in the lowest quartile of the common equity to total assets distribution; INDIVIDUAL RISK is a dummy equal to one if the issuer/peer is in the highest quartile of standard deviations of firms' stock returns; SYSTEMIC RISK CONTR is a dummy equal to one if the issuer/peer is in the highest quartile of banks' Δ CoVaR value distribution; SYSTEMIC RISK EXPO is a dummy equal to one if the issuer/peer is in the highest qaurtlie of the distribution of marginal expected shortfall (MES); MOMENTUM represents the cumulative abnormal returns of the issuer'/peers' stock over the previous 60 trading days; PROCEEDS measure the size of the issue as the ratio of SEO's proceeds to total equity of the issuer; SAME STATE is a dummy equal to one if the peer's headquarter is located in the same state as the issuer's headquarter; SAME FUNDING MODEL is a dummy variable equal to one if the peer's and the issuer's ratio of retail deposits to total liabilities are in the same quartile of the distribution of retail deposits to total liabilities; SAME INCOME MIX is a dummy variable equal to one if the peer's and the issuer's ratio of interest income to net income are in the same quartile of the distribution of interest income to net income; and SAME SIZE is a dummy variable equal to one if the issuer and the peer are in the same quartile of the total assets distribution.

VARIABLES	(1) Issuer	(2) Peers	(3) Issuer Crisis	(4) Issuer Noncrisis	(5) Peers Crisis	(6) Peers Noncrisis
CRISIS	-1.8345*	-0.0853**				
	(0.9663)	(0.0376)				
$SIZE_i$	-1.1893	-0.2996***	-3.2128**	1.5331	-0.6709***	0.1765***
	(1.1370)	(0.0385)	(1.5847)	(1.3496)	(0.0695)	(0.0288)
POORLY $CAPITALIZED_i$	-0.5951	0.2614***	-1.6605	1.3649	0.1558***	0.3308***
	(0.9763)	(0.0264)	(1.6004)	(1.0019)	(0.0588)	(0.0226)
INDIVIDUAL $RISK_i$	-2.1450*	-0.2117***	-5.2230**	2.1154	-0.4100***	0.0266
	(1.2693)	(0.0287)	(2.0971)	(1.5518)	(0.0655)	(0.0244)
SYSTEMIC RISK $CONTR_i$	2.0145*	0.3213***	3.5852**	-0.3441	0.5553***	0.0304
	(1.0685)	(0.0430)	(1.3999)	(1.1620)	(0.0692)	(0.0327)
SYSTEMIC RISK $EXPO_i$	-1.1677	-0.3103***	-1.1560	-1.2002	-0.1665***	-0.4217***
	(1.0317)	(0.0341)	(1.4728)	(1.2746)	(0.0611)	(0.0271)
$MOMENTUM_i$	-2.5110	0.3729***	-1.5501	0.7937	0.4863***	0.3941***
	(3.1913)	(0.0664)	(3.7271)	(5.3693)	(0.1060)	(0.0545)
PROCEEDS	3.2846***	-0.1157***	4.2901***	-3.1118**	0.0190	-0.2078***
	(0.8723)	(0.0243)	(0.1980)	(1.3430)	(0.0409)	(0.0277)
SIZEp		-0.1875***			-0.3139***	-0.0798***
		(0.0360)			(0.0720)	(0.0255)
POORLY $CAPITALIZED_p$		0.1203**			0.1523	0.0399
		(0.0478)			(0.0964)	(0.0338)
HIGH INDIVIDUAL $RISK_p$		0.1762***			0.4173***	0.0056
		(0.0493)			(0.0959)	(0.0350)
HIGH SYSTEMIC RISK $CONTR_p$		-0.0107			0.0188	-0.0224
		(0.0293)			(0.0567)	(0.0248)
HIGH SYSTEMIC RISK $EXPO_p$		-0.0757*			-0.2149**	0.0198
		(0.0415)			(0.0837)	(0.0276)
$MOMENTUM_p$		1.5544***			1.5225***	1.2007***
		(0.2193)			(0.2709)	(0.2747)
SAME STATE		0.0759			0.2351	-0.0633
		(0.0904)			(0.1743)	(0.0584)
SAME FUNDING MODEL		0.0366			0.0877	-0.0070
		(0.0369)			(0.0690)	(0.0277)
SAME INCOME MIX		0.0417			0.0672	0.0237
		(0.0389)			(0.0781)	(0.0288)
SAME SIZE		-0.0400			-0.0992*	0.0467*
		(0.0293)			(0.0533)	(0.0246)
CONSTANT	-0.3554	0.2772***	-1.2923	-0.9622	0.2283***	0.1613***
	(0.8615)	(0.0378)	(0.8093)	(0.9089)	(0.0610)	(0.0288)
Observations	461	190,924	237	224	92,405	98,519
R-squared	0.1235	0.0065	0.2998	0.0404	0.0078	0.0085

Table 6: Cumulative abnormal returns, bank characteristics and systemic conditions: narrow peer group definitions

This Table shows the regression results on the determinants of cumulative abnormal returns (CAR) of peer banks when peers are defined as banks in the same geographical, income mix, funding model or size groups. The models are estimated via a cross-sectional OLS estimator with standard errors clustered at the issuers' level for the regression estimating the determinants of issuers' CAR and at the peers' level for the regressions estimating the determinants of peers CAR. The dependent variable is the CAR (-1,1) for the respective group of banks (issuers or Peers). In columns (3) and (4) the CAR (-1,1) of issuers are examined separately for crisis times and normal times. The same is true for columns (5) and (6) with respect to peers' CAR (1-,1). CRISIS is a dummy variable equal to one if SEO takes place between Jan 1986 – Dec 1992 or Jul 2007 – Dec 2010. SIZE is a dummy variable equal to one if the issuer/peer are in the highest quartile of total assets distribution; POORLY CAPITALIZED is a dummy variable equal to one if the issuer/peer is in the lowest quartile of the common equity to total assets distribution; INDIVIDUAL RISK is a dummy equal to one if the issuer/peer is in the highest quartile of standard deviations of firms' stock returns; SYSTEMIC RISK CONTR is a dummy equal to one if the issuer/peer is in the highest quartile of banks' Δ CoVaR value distribution; SYSTEMIC RISK EXPO is a dummy equal to one if the issuer/peer is in the highest qaurtlie of the distribution of marginal expected shortfall (MES); MOMENTUM represents the cumulative abnormal returns of the issuer'/peers' stock over the previous 60 trading days; PROCEEDS measure the size of the issue as the ratio of SEO's proceeds to total equity of the issuer; SAME STATE is a dummy equal to one if the peer's headquarter is located in the same state as the issuer's headquarter; SAME FUNDING MODEL is a dummy variable equal to one if the peer's and the issuer's ratio of retail deposits to total liabilities are in the same quartile of the distribution of retail deposits to total liabilities; SAME INCOME MIX is a dummy variable equal to one if the peer's and the issuer's ratio of interest income to net income are in the same quartile of the distribution of interest income to net income; and SAME SIZE is a dummy variable equal to one if the issuer and the peer are in the same quartile of the total assets distribution.

	SAME STATE		SAME FUNDING MODEL		SAME INCOME MIX		SAME SIZE GROUP	
VARIABLES	Crisis	Non-crisis	Crisis	Non-crisis	Crisis	Non-crisis	Crisis	Non-crisis
SIZE$_i$	-0.0841	0.1953	-0.1865	0.2043***	-0.7086***	0.0791	-1.7035***	-0.0566
	(0.3789)	(0.1438)	(0.1522)	(0.0616)	(0.1405)	(0.0606)	(0.1708)	(0.0683)
POORLY CAPITALIZED$_i$	-0.7329**	0.3660***	-0.0593	0.3506***	0.2308	0.2328***	0.2575**	0.3366***
	(0.3473)	(0.1129)	(0.1158)	(0.0449)	(0.1421)	(0.0465)	(0.1149)	(0.0425)
INDIVIDUAL RISK$_i$	-0.2118	0.1875	-0.3220**	-0.0612	-0.5777***	-0.1286**	-0.5674***	-0.1218**
	(0.4486)	(0.1302)	(0.1458)	(0.0522)	(0.1733)	(0.0527)	(0.1208)	(0.0532)
SYSTEMIC RISK CONTR$_i$	0.2806	-0.0830	0.1173	0.0001	0.8642***	0.0924	0.6373***	0.0160
	(0.3643)	(0.1464)	(0.1429)	(0.0720)	(0.1507)	(0.0630)	(0.1206)	(0.0522)
SYSTEMIC RISK EXPO$_i$	-0.1512	-0.4328***	-0.3241**	-0.3765***	-0.6793***	-0.4949***	-0.0542	-0.3659***
	(0.3168)	(0.1317)	(0.1278)	(0.0569)	(0.1526)	(0.0554)	(0.1046)	(0.0473)
MOMENTUM$_i$	1.2979**	0.5869	0.2853	0.3430***	-0.0394	0.5551***	0.5962***	0.1550
	(0.6273)	(0.3581)	(0.2131)	(0.1243)	(0.2658)	(0.1079)	(0.2083)	(0.1052)
PROCEEDS	0.6668*	-0.2942*	0.1006	-0.1479**	-0.1814	-0.3087***	-0.0449	-0.1625***
	(0.3846)	(0.1694)	(0.0836)	(0.0615)	(0.1250)	(0.0703)	(0.0877)	(0.0482)
SIZEp	0.1875	0.0327	-0.5881***	-0.0058	-0.7054***	-0.1690***	0.5299***	0.0400
	(0.3567)	(0.1377)	(0.1369)	(0.0509)	(0.1622)	(0.0513)	(0.1688)	(0.0698)
POORLY CAPITALIZED$_p$	0.4624	0.0375	0.5030**	-0.0174	0.3576	0.0280	0.0098	-0.0372
	(0.6163)	(0.1379)	(0.2017)	(0.0655)	(0.2347)	(0.0650)	(0.1608)	(0.0568)
HIGH INDIVIDUAL RISK$_p$	1.0279*	-0.0204	0.5278***	0.0765	0.6997***	-0.0220	0.6794***	0.0657
	(0.6019)	(0.1637)	(0.1895)	(0.0725)	(0.2102)	(0.0747)	(0.1868)	(0.0686)
HIGH SYSTEMIC RISK CONTR$_p$	0.0515	-0.1836	-0.0330	-0.0248	-0.0985	-0.0314	0.0546	-0.0394
	(0.2858)	(0.1277)	(0.1212)	(0.0525)	(0.1292)	(0.0468)	(0.1027)	(0.0403)
HIGH SYSTEMIC RISK EXPO$_p$	0.0728	-0.1048	-0.1212	-0.0547	0.1300	0.1452**	0.0231	0.0386
	(0.4582)	(0.1259)	(0.1683)	(0.0584)	(0.2006)	(0.0579)	(0.1223)	(0.0460)
MOMENTUM$_p$	2.4908	0.3610	1.8001***	1.4236***	2.1350***	1.4926***	1.3925***	1.5052***
	(2.6777)	(0.6539)	(0.5159)	(0.3875)	(0.4691)	(0.3969)	(0.4122)	(0.4371)
CONSTANT	-0.0814	0.1597	0.2936***	0.1470***	0.4446***	0.3687***	0.0647	0.2670***
	(0.2800)	(0.1257)	(0.0947)	(0.0524)	(0.1160)	(0.0541)	(0.0937)	(0.0462)
Observations	3,742	4,004	23,118	24,165	20,846	23,877	25,049	26,226
R-squared	0.0147	0.0080	0.0084	0.0086	0.0137	0.0116	0.0126	0.0094