NBER WORKING PAPER SERIES

THE STOCK MARKET AND BANK RISK-TAKING

Antonio Falato
David Scharfstein

Working Paper 22689
http://www.nber.org/papers/w22689

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
September 2016

We thank Matthew Baron, Todd Gormley, Robin Greenwood, Sam Hanson, Nellie Liang, Filippo Mezzanotti, Jeremy Stein, and seminar participants at the Federal Reserve Board, Federal Reserve Bank of Boston, National Bureau of Economic Research, University of Maryland, University of Pennsylvania, University of Virginia, and Yeshiva University for helpful comments and discussions. Jane Brittingham, Xavy San Gabriel, Ainsley Daigle, and Mihir Gandhi provided excellent research assistance. Special thanks go to Andreas Lehnert and Nida Davis for their help with accessing the confidential supervisory data. Scharfstein thanks the Division of Research at Harvard Business School for financial support. All remaining errors are ours. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research or the Federal Reserve Board.

The Stock Market and Bank Risk-Taking
Antonio Falato and David Scharfstein
NBER Working Paper No. 22689
September 2016
JEL No. G01,G2,G21

ABSTRACT

We present evidence that pressure to maximize short-term stock prices and earnings leads banks to increase risk. We start by showing that banks increase risk when they transition from private to public ownership through a public listing or an acquisition. The increase in risk is greater than for a control group of banks that intended but failed to transition from private to public ownership, a result that is robust to using a plausibly exogenous instrument for failed transitions. The increase in risk is also greater than for a control group of banks that were acquired but did not change their listing status. We establish that pressure to maximize short-term stock prices helps to explain these findings by showing that the increase in risk is larger for newly public banks that are more focused on short-term stock prices and performance.

Antonio Falato
Federal Reserve Board
Mail Stop #89
20th Street & Constitution Ave. NW
Washington DC 20551
antonio.falato@frb.gov

David Scharfstein
Harvard Business School
Baker Library 363
Soldiers Field
Boston, MA 02163
and NBER
dscharfstein@hbs.edu

1. Introduction

It is now well understood that risk taking by financial institutions is one of the main causes of financial crises and severe recessions (Jorda, Schularick and Taylor, 2013). Yet, we know relatively little about what gives rise to such risk-taking in the first place. Some have tied the problem to management compensation, which is often structured so that managers benefit from good performance but bear only a small share of the costs of bad performance (Bolton, Mehran and Shapiro, 2010; and Bebchuk, Cohen and Spamann, 2010). Others have argued that explicit or implicit government guarantees of bank debt enable banks to take risks without bearing their full social costs (Kane, 1985; Pennacchi, 1987; and Farhi and Tirole, 2012). Yet others have suggested that behavioral biases lead financial firms to neglect the risk of adverse tail outcomes (Gennaioli, Shleifer and Vishny, 2012).

In this paper, we put forth and empirically examine another explanation – namely that a focus on short-term stock prices rather than long-run value induces financial institutions to increase the risk they take. This view is motivated in part by the observation that the growth of the U.S. banking sector over the past 25 or so years was concentrated among publicly-traded banks, as can be seen in Figure 1.

Our explanation is based on the "short-termism" model of Stein (1989), which shows that when firms place weight on short-term stock prices they have incentives to take difficult-to-observe actions that boost current earnings at the expense of long-run profitability. Stock market investors rationally attribute higher current earnings in part to better long-run fundamentals and value, which in turn, creates incentives for firms to pump up short-term earnings. This type of reasoning has often been used to argue that the stock market induces firms to take *less* risk because long-term risky projects like R&D lower short-run profitability. But in banking, the

easiest way to increase short-run profitability is to take *more* risk. For example, banks can loosen lending standards, leading them to make more loans with higher yields but also higher default rates. And they can use more short-term funding, thereby lowering current funding costs but increasing rollover and run risk.

To examine the effect of the stock market on bank risk-taking we estimate the change in a bank's risk when it transitions from private ownership to public stock market ownership. These transitions occur either when a privately held bank goes public through an initial public offering (IPO) or when it is acquired by a publicly-traded bank holding company (BHC). We are able to track a bank following its acquisition because acquired banks often remain legally distinct companies that still must submit their own regulatory filings and undergo their own supervisory reviews.

We start by presenting evidence that after banks make this transition they experience a decline in their confidential safety and soundness ratings as assessed by bank supervisors. The supervisory ratings include the six so-called "component" ratings (Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, and Sensitivity to Market Risk), a "composite" CAMELS rating based on the component ratings, and a loan-level risk rating from the Federal Reserve's Survey of Terms of Business Lending (STBL). In addition, we document that after a transition to public ownership there is an increase in risk as measured by a decline in capital ratios, a shift to riskier activities, and a greater reliance on short-term funding, among other measures of risk.

While this evidence is consistent with stock market pressure leading to an increase in risk, it is difficult to interpret this empirical relationship as being causal; the factors that give rise

to the IPO or acquisition in the first instance could be correlated with a change in the environment that increases risk or the incentive to take risk. For example, an IPO might come in response to growth opportunities associated with population and business expansions that increase the demand for residential and commercial mortgages. But these growth opportunities could also be associated with a riskier economic environment.

To address this identification challenge, we use a difference-in-differences (DD) approach that compares the change in risk of banks that switch ownership status (the treatment group) to a set of banks that intended to go public or be acquired but did not because their deals were cancelled (the control group). The idea here – following Seru (2014) and Bernstein (2014) in their work on innovation – is to compare the change in risk of banks in the treatment group to a set of banks in the control group whose decisions were likely driven by the same factors. For example, if the intention to go public is correlated with an expansion of growth opportunities and increase in risk, then the comparison with banks that intended to go public but did not end up doing so should alleviate the concern that the treatment group is facing a substantially different environment than the control group. Using this estimation strategy, we find a significant deterioration in the CAMELS, loan risk ratings, and financial risk measures of treated banks relative to the control group of banks with cancelled IPOs or acquisitions. Moreover, there are no significant differences in pre-treatment trends in CAMELS ratings and treated and control banks appear to be well-balanced along key pre-treatment covariates that may affect risk. Finally, the subsequent performance of treated banks is consistent with an increase in risk-taking: their return on equity initially rises relative to control banks, but then falls, and treated banks also perform worse during the financial crisis of 2007-2009.

While this approach goes some distance in dealing with endogeneity concerns, it is possible that deal cancellations are correlated with factors related to bank risk. Therefore, we follow Bernstein (2014) by instrumenting for deal completion with an index of stock returns in the two months after the deal is announced. Deals are more likely to be cancelled when banking industry stock returns are low in this two-month window. Under the assumption that banking industry stock returns over this short window are uncorrelated with longer-term, bank-specific risk-taking incentives, the predicted value of this first-stage regression should be purged of the component of deal failure that could be correlated with risk-taking incentives. Indeed, we find that the results are robust to this instrumental variables approach.

To examine the causal interpretation further, we also use a different control group for the treated banks, comprised of successful mergers in which there was no change in public/private status. In particular, we find that when a private bank is acquired by another private bank or when a public bank is acquired by another public bank there is no deterioration in CAMELS or loan risk ratings, nor is there an increase in financial risk measures. Risk only increases when a private bank is acquired by a public bank.

While the results described above suggest that the transition from private to public ownership causes an increase in risk, there are a number of possible explanations of this behavior. One such explanation, based on the rational short-termism model of Stein (1989), was suggested above: banks increase risk to pump up short-term earnings and thereby increase market perceptions of their long-run value. A related explanation has a more behavioral twist: the stock market may over-extrapolate higher earnings into the future, underweighting the role that risk plays in raising short-term earnings as well as the mean reversion in earnings that could follow. Such an interpretation would be consistent with the evidence in La Porta (1996) and

other studies documenting that stock analysts tend to place too much weight on past earnings growth in forecasting future earnings growth. In this case, banks would also have an incentive to increase risk as a way of increasing short-term earnings and thus the short-term stock price.

An even simpler explanation is that banks increase risk not because they want to increase short-term stock prices but because the transition to public ownership shifts ownership from undiversified owner-managers to a broad base of diversified shareholders who can bear more risk. It is also possible that banks increase risk because public ownership makes it easier for them to raise additional equity capital, allowing them to more easily weather adverse shocks associated with greater risk-taking.

While we cannot rule out the possibility that greater shareholder diversification and reduced costs of equity financing may help to explain our baseline findings, we present evidence that the effects we have identified are stronger among banks that are likely to be more concerned with short-term stock prices. This finer cross-sectional evidence is broadly supportive of a short-termism interpretation, whether the rational limited-information version or the more behavioral perspective discussed above.

To establish the relevance of short-termism, we show first that our risk measures increase more if the bank has a smaller board, fewer insider board members, and better governance according to the measure developed by Gompers, Ishii and Metrick (2003). Thus, the more banks are focused on the stock price, the more risk they take. Second, we find a greater increase in risk for banks owned by institutional investors that turn over their shares more rapidly and by CEOs that trade more actively in the bank's stock. These findings are consistent with the implication that banks that are more focused on short-term stock prices should increase risk more. Third, we

document that the increase in risk is larger for banks that mention the phrase “short-term” more frequently in their quarterly earnings calls, behavior that has elsewhere been shown to be associated with a focus on short-term earnings management (Brochet, Loumioti, and Serafeim, 2015). Finally, we show that the increase in risk is greater at times when there is more downward pressure on earnings – during periods of low interest rates and low credit spreads.

The remainder of this paper is organized as follows. Section 2 describes the data and presents the basic finding that banks increase risk when they go public or are acquired by a publicly traded BHC. Section 3 then attempts to establish that this is a causal relationship through our DD approach. Section 4 introduces cross-sectional evidence in an attempt to better understand the mechanism underlying our findings. Section 5 concludes.

2. Data and Descriptive Evidence

To construct the sample, we start with the universe of U.S. commercial banks that are held by a bank holding company (BHC) and have non-missing information on total assets as reported to regulators in the Reports of Condition and Income (“Call Reports”) between 1990 and 2012. This yields a starting panel of 220,194 commercial bank-quarter observations for 8,314 (3,511) unique commercial banks (BHCs).

2.1. Information on Bank Risk-Taking

Our first main type of risk measure is based on confidential supervisory information from the National Information Center (NIC) of the Federal Reserve System. The NIC dataset covers all on-site examinations of safety and soundness conducted by banking regulators, whose main outcome is six "component" ratings – Capital Adequacy, Asset Quality, Management, Earnings,

Liquidity, and Sensitivity to Market Risk – and an overall "composite" CAMELS rating. Each of these ratings ranges between a value of 1 and 5, with the risk profile and risk-management practices of banks rated 1 or 2 considered "strong" and those rated 3, 4, or 5 considered "weak." An advantage of having individual component ratings is that we can measure bank risk-taking along several dimensions. In addition, the supervisory ratings also capture an ex-ante aspect of bank risk-taking in that they account for not only the current risk profile of the bank, but also the ability of management to identify, measure, monitor and control the six types of risks that are rated.

We complement these data with confidential information on loan-level risk from the Federal Reserve's Survey of Terms of Business Lending (STBL), which is available for the 1997 to 2012 period.[1] (See Berger, Kashyap, and Scalise (1995) for an early study that uses STBL.) The survey asks participating banks about the terms of all commercial and industrial loans issued during the first full business week of the middle month in every quarter. Banks report the risk rating of each loan by mapping their internal loan risk ratings to a scale defined by the Federal Reserve. Loan risk ratings vary from 1 to 5, with 5 representing the highest risk.

In addition to supervisory risk data, we use Call Reports to construct a set of risk measures based on the level of bank capital, the composition of asset portfolios, the maturity structure of bank liabilities, and the sources of bank income. The definitions of the variables used in the analysis are in the Appendix.

[1] The STBL is a quarterly survey on the terms of business lending of a stratified sample of about 400 banks conducted by the U.S. Federal Reserve, which typically covers a very large share of assets in the U.S. banking sector. For example, the combined assets of the banks responding to the survey for the fourth quarter of 2011 represented about 60 percent of all assets of U.S. commercial banks.

2.2. Information on Private-to-Public Transitions

To construct our sample of private-to-public transitions, we use the NIC data and several other standard sources of historical information on BHC stock listing status. From the NIC data, we retrieve the full history of top-tier bank holding companies of each commercial bank. We determine whether a BHC is publicly traded using historical stock market listing information from the New York Fed CRSP-FRB link database, as well as data on all IPO filings of financial firms (SIC codes between 6000 and 6999) from Thomson Financial's SDC New Issues database, Capital IQ Key Developments database, and SNL Financial Capital Offerings database. This process leads to a final merged BHC-commercial bank sample running from 1990-2012 of 178,980 commercial bank-quarter observations for 7,166 (3,251) unique commercial banks (BHCs) whose historical stock listing status we are able to confirm.

The sample of private-to-public transitions used in the analysis – which we refer to as the "Switchers" sub-sample – is comprised of all commercial banks that are in the final merged BHC-commercial bank sample and experience a private-to-public transition sometime during the 1990-2012 period. Private-to-public transitions occur in one of two ways: either a privately-held bank completes an initial public offering (IPO) or a privately held bank is acquired by a publicly-traded bank holding company (BHC). To identify the transitions due to IPOs, we find all the completed IPOs from the three sources detailed above. We identify transitions due to acquisitions using the Merger Table from the NIC data, which keeps a full historical record of dates and identities of target and acquirer banks. We are able to track the ratings of a commercial bank after it has been acquired because acquired banks often remain legally distinct companies that must still submit their own regulatory filings and thus retain their identifiers. The Switchers sub-sample consists of 1,294 (758) commercial banks (BHCs) that underwent a private-to-public transition sometime during the 1990-2012 period, yielding 26,776 commercial bank-quarter

observations. Of these transitions, 406 (206) are commercial banks (BHCs) that completed an IPO, resulting in 15,411 commercial bank-quarter observations. This sample excludes acquisitions of failed banks that were under FDIC receivership or had a CAMELS rating of 5 at the time of the acquisition.

Finally, we also construct a sub-sample of private-to-public transitions that were attempted but failed either because the IPO filing was withdrawn or the acquisition was not completed. This sub-sample serves as the control group in our baseline identification strategy. After submitting an initial registration statement to the SEC (usually Form S-1) to announce their intention to go public, filers have the option to withdraw the IPO filing by submitting the SEC's Form RW during the IPO marketing period (the "book-building" phase). Potential acquirers also typically announce their intention to bid for a target, which can be followed by an announcement to withdraw the bid. To identify withdrawn IPOs, we flag the filings that are classified as withdrawn from the lists of all IPO filings contained in the three sources detailed above. To identify withdrawn acquisitions, we use all acquisitions filings of financial firms that are classified as not completed from other data sources, which include Thomson-Financial's SDC M&A database, Capital IQ Key Developments database, and SNL Financial Mergers and Acquisitions database. Filing withdrawals are common both in IPO and M&A markets, as approximately 15 percent of all IPO and M&A announcements of financial firms are ultimately not completed. This figure is in line with the 20 percent IPO withdrawal rate reported by Bernstein (2014) in his study of R&D-intensive firms. The control group consists of 227 (176) commercial banks (BHCs) that either withdrew their IPO application or were the target of a withdrawn private-to-public acquisition attempt, yielding 4,793 commercial bank-quarter observations.

2.3. Descriptive Statistics and Suggestive Evidence

Table 1 presents summary statistics of our main sample. Banks in the Switchers sub-sample tend to be smaller and have somewhat riskier supervisory ratings relative to other banks in the full sample. In Table 2, we provide evidence of a statistical relationship between ownership status of the BHC (public or private) and the supervisory risk variables, as well as the risk measures based on Call Report data. Specifically, in Panels A and B we report results of pooled (Panel A) and firm fixed effects (Panels B) regressions, with each of the eight supervisory ratings as the dependent variable in the ten-year period (1997-2006) leading up to the financial crisis of 2007-2009. We also report results for two alternative scores that are constructed by aggregating across the ratings – the Overall Quality Score (Column 9), which is measured as the riskiest of the individual ratings, and the Bad Rating Dummy (Column 10), which takes the value one if the bank is rated weak (3 or higher) in any of the individual ratings. The explanatory variables are a dummy variable that equals one for commercial banks that are held by a publicly-traded BHC, bank size (total assets of the commercial bank), and year-quarter fixed effects. We also include a fixed effect for the regulatory agency that performs the supervisory assessments since this agency may change after a bank transitions to public ownership, as discussed in greater detail in Section 3.5 below.

Across the full set of ratings, the coefficient of the publicly-traded BHC variable is positive and strongly statistically significant, indicating that publicly-traded banks score consistently worse across all supervisory ratings. In Panel C, we report the results of the same fixed-effect regressions except that the dependent variables in these regressions are risk measures based on Call Report data. These regressions all indicate an increase in risk after a bank transitions to publicly-traded status. For example, the first column shows that the Tier 1 capital declines after the transition and the second column shows that risk-weighted assets increase.

Other variables measuring risk on the asset and liabilities side of the balance sheet all show an increase in risk. The last column in Panel C reports the results of a regression in which the dependent variable is "Risk Factor," which is a linear combination of the risk measures based on Call Report data, with weights calculated using principal component analysis. This regression shows an increase in Risk Factor after a bank transitions to publicly-traded status.

These findings differ from a number of cross-sectional studies (Kwan, 2004 and Nichols, Wahlen and Wieland, 2009), which do not find statistically significant differences in risk across ownership status, especially after controlling for size. These studies may not find an effect because they use proxies for risk that are based on measures of ex-post operating performance, such as non-performing loans or volatility of operating performance. This approach has limited power in normal times as we discuss in greater detail below and demonstrate in Table 10.[2] By focusing on ex ante measures of risk and on changes in ownership status, we are able to document a difference in risk in normal times.

3. Identifying the Effect of the Stock Market on Bank Risk-Taking

One concern with the descriptive evidence in Table 2 is that the private-to-public transition could be endogenous and correlated with bank risk. For example, an IPO might come in response to growth opportunities such as population and business expansions that increase the

[2] Other papers have shown that banks increase risk when they convert from a mutual form of organization to stock ownership (Esty, 1997; Schrand and Unal, 1998). These papers interpret the finding as evidence that shareholders have incentives to increase risk when they get all of the benefits on the upside but bear only a part of the losses on the downside. Since the conversion is often also associated with an initial public offering of stock, it is possible that the stock market pressure hypothesis we have advanced here might also be part of the explanation.

demand for residential and commercial mortgages. If these same growth opportunities also increase bank risk, then the estimates would not have a causal interpretation.

3.1. Empirical Framework

To address this identification challenge, we use a difference-in-differences (DD) approach that compares the change in risk of banks that switch ownership status (the treatment group) to the change in risk of a set of banks that intended to go public or be acquired but whose deals were cancelled (the control group). The idea here – following Seru (2014) and Bernstein (2014) in their work on innovation – is that we are comparing the change in risk of banks in the treatment group to a set of banks whose private-to-public transition decisions were plausibly driven by the same factors. For example, the intention to go public could be correlated with an increase in the demand for residential and commercial mortgages if banks seek capital to fund these mortgages. However, the increased demand for credit could, in principle, be associated with an increase in the risk of the bank's existing portfolio. Comparing within-bank changes in risk of treated banks to those of relatively similar banks in the control group should help to alleviate selection concerns such as these. Of course, it is important that the reason that the deal is withdrawn is not correlated with a change in the bank's risk environment, an issue we take up in Section 3.4 below.

More formally, to examine the effect of private-to-public transitions on bank risk-taking, we use the following baseline DD regression specification:

$$RISK_{it} = \alpha + \beta_1 \times After_{it} + \beta_2 \times After_{it} \times Treatment_i + \gamma \times Z_{it} + \mu_t + \mu_i + \varepsilon_{it} \qquad (1)$$

where *i* and *t* index commercial banks and year-quarters. ***RISK*** is measured by the variety of supervisory ratings and financial information. ***After*** is an indicator variable that takes a value of

one for all the bank-quarters after the announcement date and zero otherwise, and *Treatment* is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group. Z_{it} controls for bank-level covariates of risk and, in the baseline specification, is measured as bank size (total assets), while μ_t and μ_i are year-quarter dummies and commercial bank fixed effects, respectively. The inclusion of bank size, as well as bank and time fixed effects means that our estimates compare the (within-bank) response of risk measures for treated banks to that of similarly-sized control banks in the same year-quarter. We evaluate statistical significance using robust clustered standard errors adjusted for non-independence of observations within BHCs.[3] In order to better focus on the build-up of risk pre-crisis, in all our baseline tests we examine a ten-year window running up to the crisis (1997-2006). The focus on the pre-crisis period helps to ease the potential concern that changes in supervisory standards after the crisis may be driving our results. The null hypothesis is that the coefficient of interest, β_2, which captures the effect of changes in stock listing status on bank risk, is equal to zero.

Before reporting our baseline findings for the DD estimation, we present comparisons of the treatment and control groups prior to the intended private-to-public transitions. Table 3, Panel A shows that the only difference between treatment and control groups is size, with banks in the treatment group larger than those in the control group (a log difference of 31.5%). But other balance sheet ratios including the Tier 1 capital ratio, deposits to assets, and loans to assets are essentially the same across the two groups. Importantly, there is no difference in the average CAMELS ratings and the year-to-year change in CAMELS ratings in the pre-transition period. Panel B looks at differences in the treatment and control groups in a multivariate regression

[3] We verify that the results are robust to clustering at the commercial bank level.

setting. We report estimates from linear-probability regression analysis of the likelihood that an IPO or private-to-public M&A deal is successfully completed for three different specifications: one that includes the full set of baseline controls in the year prior to the announcement (Column 1); one that adds the composite CAMELS rating in the year prior to the announcement (Column 2); and one that also adds the annual change of the composite CAMELS ratings in each of the two years prior to the treatment (Column 3). Pre-announcement balance sheet variables, CAMELS ratings and changes in CAMELS rating are not statistically significant in these regressions.

3.2. Baseline DD Estimates

Table 4 reports results from estimating our baseline DD regression (1) for each of the supervisory risk ratings (Panel A) and for the risk measures based on financial information (Panel B). For each of the supervisory risk rating measures in Panel A, the estimates indicate that after a private-to-public transition there is a deterioration in a bank's supervisory ratings relative to a similarly-sized bank that attempts but does not complete a transition.

The results in Panel B indicate that the transition to public ownership leads to riskier bank behavior across numerous financial measures. Among other things, banks reduce their Tier 1 capital ratio, shorten the maturity of their liabilities, and increase reliance on more volatile sources of funding. Furthermore, Panel B indicates that banks grow their risk-weighted assets after they transition to public ownership. The fact that they do not also grow their total assets (see Appendix Table A.1), suggests that they move their portfolios into riskier asset classes after the transition.

There are a few ways to help gauge the economic significance of our estimates. Our first approach is to examine how a private-to-public transition moves a bank in the empirical

distribution of the CAMELS rating. Since our DD specification includes bank fixed effects, we use the within-bank distribution (i.e., the distribution after removing bank fixed effects) as the benchmark. The estimated 0.224 increase in CAMELS following a transition is a sizable effect that corresponds to a full quartile of the conditional distribution of the rating. A second approach is to compare the effect of a private-to-public transition to that of bank size. We calculate these marginal effects by multiplying the respective estimates by the within-firm standard deviation of bank size. The marginal impact of a private-to-public transition is substantially larger than the effect of a large, two-standard deviation change in the effect of bank size (0.013*1.88=0.024) on the composite CAMELS rating.

While the effect is somewhat stronger for the composite CAMELS and the STBL loan risk ratings, the effects are still sizable across component ratings, including the management, asset, capital, and earnings quality categories. Depending on the rating, the magnitude of the implied effect of a private-to-public transition ranges between about 1/3 and 1/2 of a one standard deviation movement in the within-bank distribution. These effects are similar in size to the effect of the Bad Rating Dummy, which takes the value one if any of the component ratings are weak (3 or higher). Thus, the effect of transitioning to public status is not just that it moves banks from being very safe (rating of 1) to somewhat less safe (rating of 2), but it meaningfully increases the likelihood that the bank has a weak component rating.

Furthermore, the estimates for the financial risk measures are roughly comparable in magnitude to those for the supervisory ratings. For example, the estimated 0.096 increase in the Risk Factor following a transition (Column 10 of Panel B) also corresponds to about a full quartile move in the conditional distribution of the factor. The marginal impact of a private-to-

public transition on the Risk Factor is also much larger than the effect of a large, two-standard deviation change in the effect of bank size (0.019*1.88=0.036).

Our baseline estimates for the supervisory ratings are little changed if we match to the control group of banks based on the time at which the transition announcement occurs and on (pre-treatment) size. (See Appendix Table A.2.) This matched-sample DD approach (Heckman, Ichimura, and Todd, 1997) addresses the potential concern that our linear controls for size in the DD analysis may not fully capture non-linear relationships between size and the outcomes of interest.[4]

Figure 2, Panel A shows results of a graphical analysis in which we plot a dummy for bad composite CAMELS (3 or higher) in event time leading up to and after the year when a bank announces a private-to-public transition. In line with our baseline estimates, there is a sharp increase in the likelihood that a treated bank receives a bad CAMELS rating beginning right after the announcement (t=+1), but there is no change for banks in the control group. The likelihood that a treated bank receives a bad CAMELS ratings continues to increase in the subsequent years (t = +2 to t=+4). In line with the evidence presented in Table 2, there are no meaningful trends in this variable in years prior to announcement (t=-1 to t=-5) and little difference in the levels for the treated and control banks during the pre-treatment period. Panel B of Figure 2 shows a similar pattern for the Risk Factor: no pre-treatment trends or differences in the likelihood of a high value of the Risk Factor for treated and control banks before a transition, and an increase in this likelihood of a transition only for the treated banks.

[4] See the table for more details on the matching procedure.

3.3. Robustness to Using an Alternative Control Group

Next, we estimate specification (1) using an alternative control group of mergers that are successful but do not lead to a change in public/private status because they involve either a private bank that is acquired by another private bank or a public bank that is acquired by another public bank. Since this control group is comprised only of M&A deals, we limit the treatment group to acquisitions of a private bank by a public bank, thereby excluding IPOs. Bloom, Sadun, and Van Reenen (2012) use a similar approach to estimate the productivity effect of transferring ownership to a U.S. multinational. In using this control group, we are making the identifying assumption that while an acquisition could select for banks facing an increase in the risk environment, this increase does not depend on the type of ownership change (i.e., private to public, private to private, public to public). The resulting sample consists of up to 14,479 commercial bank-quarter observations involving 464 unique BHCs and 788 unique commercial banks in the run-up to the crisis period between 1997 and 2006.

As in our baseline DD estimation, we check to see whether there are any significant differences in the treatment and control groups before the acquisition. Table 5, Panel A shows that the only statistically significant difference in balance sheet variables between the two groups is size, with the treatment group being somewhat smaller (a log difference of about 19%). Moreover, CAMELS and the change in the CAMELS pre-acquisition are the same across the two groups. The similarity of the two groups is also evident in Panel B, which reports estimates of a linear-probability regression analysis of the likelihood that a bank becomes the target of a private-to-public acquisition bid as compared to other types of acquisitions. We examine three different specifications: one that includes the full set of prior-year baseline controls (Column 1); one that adds the year-prior composite CAMELS rating (Column 2); and one that also adds the

changes in the composite CAMELS rating in each of the two years prior to the acquisition (Column 3). There are no statistically significant coefficients, indicating that there are no balance sheet differences across the two groups, nor are there differences in pre-acquisition CAMELS and trends in CAMELS.

DD estimates using this alternative control group are reported in Table 6. Panel A shows results for each of the supervisory ratings and Panel B shows results for the financial measures of risk. In line with our baseline results, the estimates indicate that there is a deterioration in CAMELS and loan risk ratings, as well as an increase in financial risk measures when private banks are acquired by public banks, but not for other acquisitions where public/private status is unchanged. For example, the estimates in Column 7, Panel A show that there is an increase in the composite CAMELS rating of 0.095, which is smaller than the baseline estimate of 0.224 and corresponds to about a one third standard deviation move in the (within-bank) distribution of the combined CAMELS rating. Overall, our DD estimates are stable across different control groups, suggesting that our findings are not simply an artifact of a particular choice of control group.

3.4. Robustness to Using a 2SLS-IV Estimator

We now address the potential concern that deal cancellations (used in our baseline DD estimation) could be correlated with factors related to bank risk, thus leading to a selection bias in the estimates. We follow the approach of Bernstein (2014), which instruments for deal completion with an index of stock returns in the two months after the deal is announced. Under the assumption that stock returns over this short window are uncorrelated with longer-term risk-taking incentives, the predicted value of this first-stage regression should be purged of the component of deal failure that could be correlated with changes in the risk environment.

Specifically, we estimate the following 2SLS-IV specification:

$$RISK_i^{Post} = \alpha + \beta_1 \widehat{Completed\ Deal}_i + \gamma_1 RISK_i^{Pre} + \gamma_2 Z_i + \mu_t + \varepsilon_t \quad (2)$$

where $RISK_i^{Post}$ is the average bank risk proxy in the quarters after the announcement date, $RISK_i^{Pre}$ is the corresponding average in the quarters prior to the announcement, and $\widehat{Completed\ Deal}$ is a predicted probability that a private-to-public transaction occurs. This predicted probability is estimated from the (first-stage) regression,

$$Completed\ Deal_i = \alpha_2 + \beta_2 S\&P Bank\ Returns_i + \gamma_3 Z_i + \mu_t + \varepsilon_i \quad (3)$$

where we are using the S&P Bank Index returns in the two months following each announcement as the instrument.

Table 7 shows that the instrument has predictive power in the first stage and does not appear to be selecting on observables. As shown in Table 7, deals announced when the bank stock index performs poorly are less likely to be completed. This is evident in Panel A, where we show that deals are less likely to be completed when index returns are in the bottom quartile rather than the top quartile. It is also evident in Panel B, where we report various versions of the first stage of our 2SLS-IV analysis. Panel A also shows that other bank characteristics appear to be unrelated to index stock returns, so there is no indication that our instrument is selecting on observables.

Table 8 reports the 2SLS-IV estimates for each of the supervisory ratings (Panel A), and each of the financial risk measures (Panel B). After instrumenting with stock returns, transitions to public listing status continue to be associated with a significant deterioration in banks' supervisory ratings and to a significant increase in financial risk measures.[5] The estimated stock market impact remains sizable across all supervisory ratings and all financial risk measures.

[5] For example, the estimates in Column 7, Panel A show that there is an increase in the composite CAMELS rating of 0.303, which is economically significant and somewhat larger than our baseline DD estimates in Table 4.

It is reassuring about the validity of the instrument that if we measure the instrument over different time windows (after the transition, a year before the announcement, or a year after the announcement) it does not predict the composite CAMELS ratings in the years after the announcement. Since bank index stock returns over these different time windows do not affect the likelihood that the transition occurs, the evidence from this placebo test corroborates the exclusion restriction that the instrument affects bank risk only through its impact on the outcome of the ownership transitions. (See Appendix Table A.3.)

3.5 Addressing Other Endogeneity Issues: Attrition and Supervision

Another issue we need to address is whether our results are in some way biased by the fact that we can only track a bank's risk after an acquisition (but not an IPO) if it remains a separate subsidiary of the acquiring BHC. About 2/3 of acquired banks are not merged into another bank subsidiary of the acquiring BHC at the time (within one quarter) of acquisition and by two (three) years after the acquisition, 50% (47%) of the acquired banks are not merged into a subsidiary of the acquiring BHC. A potential selection concern with our findings is that an acquiring BHC only chooses to merge an acquired bank into one of its subsidiaries if the risk of the acquired bank did not increase after the acquisition, leaving us with observations only on the banks that increased risk.

We think that this selection concern is unlikely to explain our findings for three reasons. First, there are no observable differences in the banks that are absorbed into a subsidiary bank and those that are not, including the risk level of the bank prior to the acquisition. (See Appendix Table A.4.) Second, as we showed in Section 3.3 above, the results are robust to using as a control group mergers where public-private status did not change. In order for attrition to explain our results, it would have to be the case that public BHC acquirers of private banks have a

greater propensity to merge risky targets into their subsidiaries than do private BHC acquirers or public BHC acquirers of other public BHCs. Finally, the results are robust to excluding all mergers and focusing only on IPOs. (See Appendix Table A.5.) In this case, we can track the bank without concern that there are post-treatment endogenous mergers.

Another concern is that switching to public status could change the bank's supervisor from one regulator to another. If the supervisors that tend to regulate public BHCs are more rigorous in their assessments, then we would be more likely to see an increase in risk even if the bank's behavior does not change. We first note, however, that this would not explain the increase in risk measured from Call Reports. In fact, one would expect that if the new supervisors were more rigorous in their assessments – or if continuing supervisors became more rigorous – then these financial risk measures would decline. But we see these risk measures actually increase. More directly, there is no evidence that a transition to public status triggers a change of the regulator that supervises the bank (Appendix Table A.6, Panel A). Even then, if there are new supervisors, we note that we have controlled for the effects of new supervisors by including fixed effects for the regulatory agency that provides the supervisory assessments in all the specifications that involve the CAMELS ratings.

3.6. Evidence on Bank Performance

If, as we show, treatment banks take greater risk once they transition to public ownership, their performance should initially improve, but they should experience an increased likelihood of poor subsequent performance. Table 9 tracks the change in the quarterly return on equity (ROE) and quarterly return on assets (ROA) in the quarters after the transition relative to the quarter prior to the transition. These changes for the transitioning banks net out the changes in quarterly ROE and ROA of control banks that announced a transition that was later not completed. Note

that the annual ROE – the typical ROE number that is calculated for banks – would be roughly four times the numbers reported in the table.

Table 9 shows that by six quarters after the transition, quarterly ROE is 90 basis points higher than it was prior to the transition for the treated banks relative to the control banks, but by three years after the transition quarterly ROE is 60 basis points below the pre-transition level, and by four years it is 110 basis points below the pre-transition level. Given a mean quarterly ROE of 2.9% and a cross-sectional standard deviation of 2.8%, these are sizable effects; the initial boost in performance is about one-third of a standard deviation and the decline in performance four years out is close to 40% of a standard deviation. A similar pattern exists for quarterly ROA.

Another implication of our findings is that if treatment banks take greater risk in the ten years prior to the financial crisis they should perform more poorly during the crisis across a variety of measures including ROE and ROA, and they should have more non-performing loans and greater loan loss provisions during the crisis. To examine this prediction, we conduct a DD analysis with these and other measures of bank operating performance as the dependent variable and with cancelled deals as the control group. We add to our baseline specification an interaction of the crisis dummy with the treatment effect (i.e., *Treatment x After x Crisis*), which allows us to test whether there was greater underperformance of the treated banks relative to control banks during the crisis.[6] The results are reported in Panel A of Table 10. To facilitate comparison,

[6] Note that we are excluding *Crisis* and the interactions *Treatment x Crisis* and *After x Crisis*. *Crisis* is excluded because it is collinear with the time dummies. *After x Crisis* is excluded because it is collinear with *Crisis* given that After is always one when *Crisis* is one (as we are excluding the small number of transitions that occur during the crisis to alleviate concerns about mechanical correlation between transitions and performance in the crisis). This implies that *Treatment x Crisis* is also collinear with *Treatment x After x Crisis*.

Panel B reports results without the interaction term. The estimates indicate that newly listed and acquired treatment banks significantly underperformed during the crisis, a result that holds along all the measures of performance considered. There is no evidence that banks that transition to public share ownership underperform in normal times.

4. Cross-Sectional and Time-Series Evidence

We have interpreted the results as evidence that banks try to pump up short-term earnings to influence market perceptions of their long-run value as would be implied by the short-termism model of Stein (1989) or a related behavioral story in which investors over-extrapolate earnings growth. However, there are other potential explanations of our findings. One simple explanation is that after banks transition to public ownership their shares are held by more diversified investors who are in a better position to bear risk. Another possibility is that publicly-traded banks can raise capital more easily and more cheaply than privately-owned banks after an adverse shock. In this view, the lower costs of external finance for publicly-traded banks makes them more willing to take risk.

We cannot rule out these explanations, but we can explore whether there is evidence that is consistent with our short-termism interpretation. Thus, we explore whether the risk-taking effects that we have identified are stronger among banks that are likely to be more focused on the short-term stock price.

To examine the finer implications of the short-termism story, we start by adding to the baseline DD specification (1) an interaction term of the treatment effect with standard measures of corporate governance, which include board size, the percentage of insider board members, and the number of anti-takeover provisions based on the index developed by Gompers, Ishii and

Metrick (2003), which we refer to as GIM. These variables arguably all measure the extent to which the firm is insulated from takeovers, thereby reducing the extent to which they care about the short-run stock price. We expect that banks that score *worse* on these governance measures (larger board size, more insiders on the board, and more anti-takeover provisions) would take *less* risk after they transition to public ownership. Note that we do not observe these variables for the banks that do not transition to public ownership so we set their values to zero. By taking this approach we are able to examine whether the effect of the transition to public ownership is stronger for banks that are less insulated from the stock market.

Table 11, Panels A and B report estimates from this triple-DD specification for the composite CAMELS rating (Panel A) and our Risk Factor measure. As predicted, the results indicate that the composite CAMELS rating deteriorates less and there is a decline in the Risk Factor relative to control banks if the bank has a larger board, more insider board members, and worse governance according to the GIM measure. Thus, insulation from stock-market pressure leads to less risk-taking.

Panels C and D of Table 11 present another set of variables, those that measure the extent to which shareholders and managers have short investment horizons. The results indicate that the risk-taking effects are more pronounced for banks that are held by institutional shareholders and CEOs that turn over their shares more frequently.[7] Moreover, the risk-taking effects are larger when bank executives more frequently use the phrase "short-term" in earnings calls, which Brochet, Loumioti and Serafeim (2015) show is related to accounting choices such as discretionary accruals, which tend to increase short-term earnings. Thus, the collection of

[7] Gaspar, Massa and Matos (2005) show that firms with high institutional share turnover are more likely to receive a takeover bid. Thus, the effect measured in Panel C could be related to the results in Panel B linking risk-taking to governance variables that affect the likelihood of a takeover.

evidence we present here suggests that the risk-taking effects are larger when short-term stock prices are of greater concern to bank managers.

Panels E and F of Table 11 look at time-series variation in the treatment effect. In particular, we examine whether risk-taking incentives of publicly-held banks are increased relative to privately-held banks at times when there is more downward pressure on bank earnings, i.e. when interest rates are low (as measured by the Fed funds rate) and when credit spreads are tight (as measured by the spread of yields on long-term investment-grade corporate bonds over those of comparable-maturity Treasuries and the spread of A2/P2 overnight commercial paper rates over AA overnight commercial paper rates, respectively). These panels show that supervisory ratings deteriorate more and financial risk measures increase more during periods when the Fed funds rate and credit spreads are low. The findings are consistent with the work of Hanson and Stein (2015) showing that commercial banks increase the duration of the securities holdings when short-term rates are low presumably in an effort to increase yield.

5. Conclusion

In this paper, we argue and present evidence that a focus on short-term stock prices induces publicly-traded banks to increase risk relative to privately-held banks. Our findings raise a number of additional questions.

First, what effect does the increase in risk-taking incentives of publicly-traded banks have on the behavior of privately-held banks? If these incentives essentially increase the supply of credit by publicly-traded banks, they make privately-held banks less profitable and may induce them to take more risk as well. Alternatively, these private banks – which may be more focused

on long-run value – could reduce their supply of credit in response, acting as something of a stabilizing force.

Second, do these sorts of risk-taking incentives exist in other non-bank financial intermediaries? Kacperczyk and Schnabl (2013) and Chernenko and Sunderam (2014) present evidence that suggests that they do. These papers show that assets under management in institutional money market funds are much more sensitive to yield than are retail money market funds, which in turn creates strong financial incentives for institutional money market funds to increase risk, much as stock-market pressure creates incentives for banks to increase risk. It would therefore not be surprising if institutional bond funds engaged in similar behavior, or if open-ended bond funds took more risk than closed-end funds (which do not see greater fund flows when yield increases). Similar incentives might also exist in insurance. While reaching for yield has been shown to exist in insurance (Becker and Ivashina, forthcoming), our results raise the question of whether it is more pronounced among publicly-traded insurance companies as compared to mutual organizations.

Finally, what are the implications of bank risk-taking behavior for regulation? Our findings provide some support for the view that compensation schemes should require management to hold stock for longer periods to mitigate their incentives to pump up short-term earnings and the short-term stock price. Of course, the wisdom of such a policy depends on whether one believes that the risk-taking behavior documented here is socially excessive. Our findings also point to a tension in regulatory policy. While bank regulators may want to limit the extent to which banks respond to stock market pressure, securities regulators try to promote good corporate governance, which tends to increase the power of shareholders to impact firm

behavior. As we have shown, good governance – and the stock market pressure associated with it – may actually lead to an undesirable increase in risk.

References

Bebchuk, Lucian, Alma Cohen and Holger Spamann, 2010, "The Wages of Failure: Executive Compensation at Bear Stearns and Lehman 2000-2008," Yale Journal on Regulation 27, 257-282.

Becker, B and Ivashina V. (forthcoming), “Reaching for Yield in the Bond Market,” Journal of Finance.

Berger, Allen N., Anil K. Kashyap, and Joseph M. Scalise, 1995, "The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been," Brookings Papers on Economic Activity, No. 2, pp. 55-201.

Bernstein, Shai, 2014, "Does Going Public Affect Innovation?" Journal of Finance, Forthcoming.

Bloom, Nicholas, Raffaella Sadun, and John Van Reenen, 2012, "Americans do I.T. Better: US Multinationals and the Productivity Miracle," American Economic Review, 102(1): 167-201.

Bolton, Patrick and Mehran, Hamid and Shapiro, Joel D., 2010, "Executive Compensation and Risk Taking," FRB of New York Staff Report No. 456.

Brochet, Francois, Maria Loumioti, and George Serafeim, 2015, “Speaking of the Short-Term: Disclosure Horizon and Managerial Myopia,” Harvard Business School Working Paper.

Chernenko, S. and A. Sunderam, 2014, “Frictions in Shadow Banking: Evidence from the Lending Behavior of Money Market Funds,” Review of Financial Studies, 27(6), 1717-1750.

Esty, Benjamin 1997, “Organizational Form and Risk-Taking in the Savings and Loan Industry,” Journal of Financial Economics 44, 25-55.

Farhi Emmanuel and Jean Tirole, 2012, "Collective Moral Hazard, Maturity Mismatch, and Systemic Bailouts," American Economic Review, 102(1):60--93, 2012.

Gaspar, Jose-Miguel, Massimo Massa and Pedro Matos, 2005, “Shareholder Investment Horizon and the Market for Corporate Control,” Journal of Financial Economics, 76, 135-165.

Gennaioli, Nicola, Andrei Shleifer, and Robert Vishny, 2012, "Neglected risks, Financial Innovation, and Financial Fragility," Journal of Financial Economics 104, 452-468.

Gompers, P. A., J. L. Ishii, and A. Metrick, 2003, "Corporate Governance and Equity Prices", Quarterly Journal of Economics, 118, 107-155

Hanson, S. and J. Stein, 2015, “Monetary Policy and Long-Term Real Rates,” Journal of Financial Economics, 115(3), 429-448.

Heckman, J. J., H. Ichimura and P. E. Todd, 1997, "Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme," The Review of Economic Studies, 64, 605-654.

Jordà, Ò., M. Schularick, and A. M. Taylor, 2013, "When Credit Bites Back: Leverage, Business Cycles, and Crises," Journal of Money, Credit, and Banking, Vol 45(2), p. 3--28.

Kane, Edward J., 1985, The Gathering Crisis in Federal Deposit Insurance, Cambridge, Mass.: MIT Press.

Kacperczyk, M. and P. Schnabl, 2013, “Are Money Market Funds Safe?” Quarterly Journal of Economics, 128(3), 1073-1122.

Kwan, Simon H., 2004, "Risk and Return of Publicly Held versus Privately Owned Banks," FRBNY Economic Policy Review, September, pp. 97-107.

La Porta, Rafael, 1996, “Expectations and the Cross-Section of Expected Returns,” Journal of Finance, 51, 1715-1742.

Nichols, D.C., J.M. Wahlen, and M.M. Wieland, 2009, "Publicly-Traded vs. Privately-Held: Implications for Bank Profitability, Growth Risk, and Accounting Conservatism," Review of Accounting Studies, 14, 88-122.

Pennacchi, George G., 1987. "Alternative Forms of Deposit Insurance: Pricing and Bank Incentive Issues," Journal of Banking and Finance, vol. 11(2), pp. 291-312.

Schrand, Catherine and Haluk Unal 1998, “Hedging and Coordinated Risk Management,” Journal of Finance 53, 979-1013.

Seru, Amit, 2014, "Firm Boundaries Matter: Evidence from Conglomerates and R&D Activity," Journal of Financial Economics 111, 381--405.

Stein, Jeremy C., 1989, "Efficient Capital Markets, Inefficient Firms: A Model of Myopic Corporate Behavior", Quarterly Journal of Economics 104:655-669.

Appendix: Variable Definitions

The variables used in this paper are extracted from four main data sources: the National Information Center (NIC) of the Federal Reserve System, the Federal Reserve's Survey of Terms of Business Lending (STBL), Call Reports, and lists of announced (completed and withdrawn) IPOs and M&As from SDC, Capital IQ, and SNL Financial. For each data item, we indicate the relevant source in square brackets. The variables are defined as follows:

Bank Risk – Outcome Measures Based on Supervisory Data [NIC/STBL]:

- *Capital Adequacy* rating: "A financial institution is expected to maintain capital commensurate with its risks and the ability of management to identify, measure, monitor, and control these risks. The capital adequacy of an institution is rated based on, but not limited to, an assessment of the following evaluation factors: the level and quality of capital and the overall financial condition of the institution; the ability of management to address emerging needs for additional capital; balance-sheet composition, including the nature and amount of intangible assets, market risk, concentration risk, and risks associated with nontraditional activities; risk exposure represented by off-balance-sheet activities" (source: Commercial Bank Examination Manual).

- *Asset Quality* rating: "The asset-quality rating reflects the quantity of existing and potential credit risk associated with the loan and investment portfolios, other real estate owned, other assets, and off-balance-sheet transactions. The ability of management to identify, measure, monitor, and control credit risk is also reflected here. The asset quality of a financial institution is rated based on, but not limited to, an assessment of the following evaluation factors: the adequacy of underwriting standards, soundness of credit-administration practices, and appropriateness of risk-identification practices; the level, distribution, severity, and trend of problem, classified, nonaccrual, restructured, delinquent, and nonperforming assets for both on- and off-balance-sheet transactions; the adequacy of the allowance for loan and lease losses and other asset valuation reserves; the credit risk arising from or reduced by off-balance-sheet transactions, such as unfunded commitments, credit derivatives, commercial and standby letters of credit, and lines of credit; the diversification and quality of the loan and investment portfolios; the extent of securities underwriting activities and exposure to counterparties in trading activities; the existence of asset concentrations; the adequacy of loan and investment policies, procedures, and practices; the ability of management to properly administer its assets, including the timely identification and collection of problem assets; the adequacy of internal controls and management information systems; the volume and nature of credit-documentation exceptions" (source: Commercial Bank Examination Manual).

- *Management* rating: "The capability of the board of directors and management, in their respective roles, to identify, measure, monitor, and control the risks of an institution's activities, and to ensure a financial institution's safe, sound, and efficient operation in compliance with applicable laws and regulations is reflected in this rating. The capability and performance of management and the board of directors is rated based on, but not limited to, an assessment of the following evaluation factors: the level and quality of oversight and support of all institution activities by the board of directors and management; the ability of the board of directors and management, in their respective roles, to plan for and respond to risks that may arise from changing business conditions or the initiation of new activities or products; the adequacy of and conformance with appropriate internal policies and controls addressing the operations and risks of significant activities; compliance with laws and regulations; responsiveness to recommendations from auditors and supervisory authorities; management depth and succession; the extent that the board of directors and management are affected by or susceptible to dominant

influence or concentration of authority; reasonableness of compensation policies and avoidance of self-dealing" (source: Commercial Bank Examination Manual).

- *Earnings* rating: "The earnings rating reflects not only the quantity and trend of earnings, but also factors that may affect the sustainability or quality of earnings. High levels of market risk may unduly expose the institution's earnings to volatility in interest rates. The rating of an institution's earnings is based on, but not limited to, an assessment of the following evaluation factors: the level of earnings, including trends and stability; the ability to provide for adequate capital through retained earnings; the quality and sources of earnings; the level of expenses in relation to operations; the adequacy of the budgeting systems, forecasting processes, and management information systems in general; the adequacy of provisions to maintain the allowance for loan and lease losses and other valuation allowance accounts; the exposure of earnings to market risk such as interest-rate, foreign-exchange, and price risks" (source: Commercial Bank Examination Manual).

- *Liquidity* rating: "In evaluating the adequacy of a financial institution's liquidity position, consideration should be given to the current level and prospective sources of liquidity compared to funding needs. Liquidity is rated based on, but not limited to, an assessment of the following evaluation factors: the adequacy of liquidity sources compared with present and future needs and the ability of the institution to meet liquidity needs without adversely affecting its operations or condition; the availability of assets readily convertible to cash without undue loss; access to money markets and other sources of funding; the level of diversification of funding sources, both on- and off-balance-sheet; the degree of reliance on short-term, volatile sources of funds, including borrowings and brokered deposits, to fund longer-term assets; the trend and stability of deposits; the ability to securitize and sell certain pools of assets; the capability of management to properly identify, measure, monitor, and control the institution's liquidity position, including the effectiveness of funds-management strategies, liquidity policies, management information systems, and contingency funding plans" (source: Commercial Bank Examination Manual).

- *Sensitivity to Market Risk* rating: "The sensitivity to market risk component reflects the degree to which changes in interest rates, foreign-exchange rates, commodity prices, or equity prices can adversely affect a financial institution's earnings or economic capital. Market risk is rated based on, but not limited to, an assessment of the following evaluation factors: the sensitivity of the financial institution's earnings or the economic value of its capital to adverse changes in interest rates, foreign-exchange rates, commodity prices, or equity prices; the ability of management to identify, measure, monitor, and control exposure to market risk given the institution's size, complexity, and risk profile; the nature and complexity of interest-rate risk exposure arising from nontrading positions; where appropriate, the nature and complexity of market-risk exposure arising from trading and foreign operations" (source: Commercial Bank Examination Manual).

- *CAMELS* ("composite") rating: "The composite rating generally bears a close relationship to the component ratings assigned. However, the composite rating is not derived by computing an arithmetic average of the component ratings. When assigning a composite rating, some components may be given more weight than others depending on the situation at the institution. The ability of management to respond to changing circumstances and address the risks that may arise from changing business conditions or the initiation of new activities or products is an important factor in evaluating a financial institution's overall risk profile, as well as the level of supervisory attention warranted" (source: Commercial Bank Examination Manual).

- *Maximum Risk Score*: Is defined as the tightest of the eight supervisory risk ratings ("component" CAMELS, "composite" CAMELS, and STBL loan risk rating) for each bank in any given quarter.

- *Bad Rating Dummy:* An indicator that equals one if the bank is rated as weak (a rating of 3 and above) along any of the eight supervisory ratings ("component" CAMELS, "composite" CAMELS, and STBL loan risk rating) in any given quarter.

Bank Risk – Outcome Measures Based on Regulatory Filings [Call Reports]:

- *Tier 1 Capital Ratio:* Tier 1 capital (RCFD8274) minus the adjustment to tier 1 capital (RCFDC228) for financial subsidiaries, divided by risk-weighted assets (RCFDA223) minus the adjustment to risk-weighted assets for financial subsidiaries (RCFDB504).

- *Hot Money* (also referred to as Short-term Money): The sum of large time deposits with a remaining maturity of less than one year (RCONA242), federal funds purchased and securities sold under agreements to resell (RCONB993 + RCFDB995), interest-bearing deposits in foreign offices, trading liabilities net of revaluation losses (RCFD3548-RCFD3547), accounts payable (RCFD3066), dividends declared but not yet payable (RCFD2932), and advances with a remaining maturity of one year or less (RCFDB571), all divided by total assets (RCFD2170).

- *Maturity Mismatch*: Approximate weighted-average time to maturity or repricing date of interest bearing assets less the approximate weighted-average time to maturity or re-pricing date of liabilities. Maturities are reported in ranges that go from up to three months, over three months through 12 months, over a year through three years, and so on. The midpoint of each of these ranges is assumed to be the maturity – i.e., for example, the maturity of the 1 year to 3 years range is assumed to be 2 years. Interest-earning assets are comprised of securities (Schedule RC-B, Memoranda Item 2) and loans and leases (Schedule RC-C Part I, Memoranda Item 2). Liabilities are comprised of deposits (Schedule RC-E Part I, Memoranda Items 2, 3, 4) and other borrowed money (Schedule RC-M, Memoranda Item 5).

- *Non-Deposit Fee Income*: Noninterest income net of deposit fees (RIAD4079- RIAD4080) and fiduciary income (RIAD4070) divided by total assets (RCFD2170).

- *Volatile Liabilities Dependence Ratio*: The sum of interest-bearing foreign liabilities (RCFN6636), large time deposits (RCON2604), federal funds borrowed and repos (RCONB993 + RCFDB995), demand notes issued to the U.S. Treasury and other borrowed money (RCFD3190) minus federal funds lent and reverse repos (RCONB987 + RCFDB989) and assets held in the trading account (RCFD3545 – RCON3543 – RCFN3543), all divided by total assets (RCFD2170).

- *Risk Weighted Assets Growth*: The growth rate of risk-weighted assets (RCFD8274). The growth rate is defined as an annual, quarter-on-quarter rate.

- *Total Loan Growth*: The growth rate of Total loans and lease financing receivables (RCFD5369). The growth rate is defined as an annual, quarter-on-quarter rate.

- *Off Balance Sheet Commitments Growth*: The growth rate of the sum of total gross notional amount of interest rate derivative contracts held for trading (RCFDA126), total gross notional amount of foreign exchange derivatives contracts held for trading (RCFDA127), total gross notional amount of other derivatives contracts held for trading (RCFD8723+RCFD8724), total gross notional amount of interest rate derivative contracts held for purposes other than trading (RCFD8725), total gross notional amount of foreign exchange derivatives contracts held for purposes other than trading (RCFD8726), total gross notional amount of other derivatives contracts held for purposes other than trading (RCFD8727+ RCFD8728), and unused commitments (RC-L-1.). The growth rate is defined as an annual, quarter-on-quarter rate.

- *Trading Income to Total Income*: The ratio of Trading revenue (RIADA220) divided by total non-interest income plus total interest income (RIAD4079 + RIAD4074).
- *Leverage Ratio:* Tier 1 capital (RCFD8274) minus the adjustment to tier 1 capital (RCFDC228) for financial subsidiaries, divided by total assets for leverage capital purposes (RCFDL138) minus tangible assets (RCFDB505).
- *Total Risk Based Capital Ratio*: The sum of tier 1 capital (RCFD8274), tier 2 capital (RCFD8275), and the adjustment to risk-weighted assets for financial subsidiaries (RCFDC228), divided by risk-weighted assets (RCFDA223) minus the adjustment to risk-weighted assets for financial subsidiaries (RCFDB504).
- *Core Deposits to Assets*: Total deposits minus non-core deposits, divided by total assets (RCFD2170). Total deposits is the sum of non-interest deposits (RCON6631+RCFN6631) and interests deposits (RCON6636 + RCFN6636). Non-core deposits is the sum of brokered deposits (RCON2365) and large time deposits (RCON2604).
- *Private MBS*: The sum of residential mortgage pass-through securities not guaranteed by GNMA or issued by FNMA or FHLMC (RCFDG308 + RCFDG311) other residential mortgage-backed securities collateralized by MBS issued or guaranteed by US government agencies or sponsored agencies (RCFDG316 + RCFDG319) and all other residential MBS not issued or guaranteed by U.S. government agencies or sponsored agencies (RCFDG320 + RCFDG323), all divided by total assets (RCFD2170).
- *Income from Securities*: realized gains on available-for-sale securities (RIAD3196, Schedule RI 6b), which is the net gain or loss realized during the calendar year to date from the sale, exchange, redemption, or retirement of all available-for-sale securities.
- *CRE Loan Growth*: The growth rate of Loans secured by real estate (RCFD1410) minus loans secured by 1-4 family residential properties (RCON1797 + RCON5367 + RCON5368). The growth rate is defined as an annual, quarter-on-quarter rate.
- *C&I Loan Growth*: The growth rate of Commercial and industrial loans (RCFD1766). The growth rate is defined as an annual, quarter-on-quarter rate.
- *RRE Loan Growth*: The growth rate of Loans secured by 1-4 family residential properties (RCON1797 + RCON5367 + RCON5368). The growth rate is defined as an annual, quarter-on-quarter rate.
- *Non Interest Income to Total Income*: The ratio of Total noninterest income (RIAD4079) divided by total noninterest income plus total interest income (RIAD4079 + RIAD4074).
- *Fiduciary Income to Total Income*: The ratio of Income from fiduciary activities (RIAD4070) divided by total noninterest income plus total interest income (RIAD4079 + RIAD4074).
- *Investment Banking Income to Total Income*: The ratio of Income from investment banking, advisory, brokerage, and underwriting fees and commissions (RIADC886 + RIADC888 + RIADC887) divided by total noninterest income plus total interest income (RIAD4079 + RIAD4074).
- *Risk Factor*: linear combination of the nine balance sheet measures of risk used in the main analysis (*Tier 1 Capital Ratio, Risk Weighted Assets Growth, Total Loan Growth, Off Balance Sheet Commitments Growth, Hot Money, Maturity Mismatch, Return on Risky Assets, Volatile Liabilities Dependence Ratio, Trading Income to Total Income*), with weights calculated using principal component analysis in the entire sample. All specifications use the cumulative distribution function of the Risk Factor, CDF(Risk Factor).

Bank Operating Performance – Outcome Measures:

- *ROE*: The ratio of Income (loss) before income taxes, extraordinary items, and other adjustments (RIAD4301) minus taxes on ordinary income (RIAD4302), divided by total bank equity capital (RCFD3210).
- *ROA*: The ratio of Income (loss) before income taxes, extraordinary items, and other adjustments (RIAD4301) minus taxes on ordinary income (RIAD4302), divided by total assets (RCFD2170).
- *Loan Loss Provisions to Total Assets*: The ratio of Provision for loan and lease losses (RIAD4230) divided by total assets (RCFD2170).
- *Net Interest Margin*: The ratio of Annualized net interest income (RIAD4074) divided by (30-day average) interest-earning assets (RCFD3381+ RCFDB558 + RCFDB559 + RCFDB560 + RCFD3365 + RCFD3360 + RCFD3484 + RCFD3401).
- *Overhead Costs Ratio*: The ratio of Noninterest expense (RIAD4093) divided by revenue. Revenue is the sum of net interest income (RIAD4074) and noninterest income (RIAD4079)).
- *Delinquencies/Loan Loss Reserves*: The ratio of Delinquencies on all loans and leases (RC-N) divided by reserves for loan losses (RCFD3123).
- *Non Performing Loans to Assets*: The sum of all loans that are past due 90 days or more and still accruing (Schedule RC-N, Items 1 – 9 Column B) divided by total loans (RCFD2112).
- *Noncurrent Loan Ratio*: The sum of loans that are more than 30-day past due and still accruing (Schedule RC-N Column A) and those that are not accruing (Schedule RC-N Column C) divided by total loans (RCFD2112).

Bank Characteristics:

- *Bank Size*: The natural logarithm of total assets (RCFD2170).
- *Loans to Assets*: Total loans and lease financing receivables (RCFD5369) divided by total assets (RCFD2170).
- *Deposit to Assets*: The sum of Non-interest deposits (RCON6631+RCFN6631) and interests deposits (RCON6636+RCFN6636), all divided by total assets (RCFD2170).
- *Securities to Loans*: Securities excluding the trading account (RCFD8641) divided by total loans and lease financing receivables (RCFD5369).
- *Tier 1 Capital Ratio*: The sum of tier 1 capital (RCFD8274) and the adjustment to risk-weighted assets for financial subsidiaries (RCFDB504), divided by risk-weighted assets (RCFDA223) minus the adjustment to risk-weighted assets for financial subsidiaries (RCFDB504).
- *Board Size*: The total number of directors on the board in a given bank-quarter. All specifications use the cumulative distribution function of Board Size, CDF(Board Size). [SEC filings retrieved from Compact Disclosures and Capital IQ]
- *Insider Dominated Board*: The ratio of the number of inside directors to the total number of directors in a given bank-quarter. All specifications use the cumulative distribution function of Insider Dominated Board, CDF(Insider Dominated Board). [SEC filings retrieved from Compact Disclosures and Capital IQ]

- *GIM index:* The number of anti-takeover protection provisions based on Gompers, Ishii, and Metrick (2003). All specifications use the cumulative distribution function of the GIM Index, CDF(GIM).

- *Institutional Ownership Turnover*: The cumulative density (cdf) of the average (using portfolio shares $w_{k,i,t}$) of institutional investors' portfolio turnover based on Cahart (1997). Specifically, if we denote the set of companies held by investor i by Q; the turnover rate of investor i at quarter t is defined as $TR_{i,t} = \frac{\sum_{j \in Q} \left| N_{j,i,t} P_{j,t} - N_{j,i,t-1} P_{j,t-1} - N_{j,i,t-1} \Delta P_{j,t} \right|}{\frac{1}{2} \sum_{j \in Q} N_{j,i,t} P_{j,t} + N_{j,i,t-1} P_{j,t-1}}$,where $P_{j,t}$ and $N_{j,i,t}$ represent the price and the number of shares, respectively, of company j held by institutional investor i at quarter t. [Thomson-Reuters Institutional Holdings (13F) database]

- *CEO Insider Trading*: The number of CEO sales of shares minus the number of CEO purchases of shares divided by the total number of CEO trades within a given quarter. Only cleansed, non-derivative transactions are included. [Thomson Reuters Insider Filings (Forms 3, 4, 5, and 144) Database].

- *Short Term Disclosure:* A index that is based on textual analysis and is higher whenever the text of a bank's quarterly earnings conference call transcripts contains a relatively larger (smaller) proportion of short-term (long-term) related words. The list of words referring to time horizon is based on Brochet, Loumioti, and Serafeim (2015, Appendix A), and is as follows: Short-term horizon words = [day(-s or daily), short-run (or short run), short-term (or short term), week(-s or -ly), month(-s or -ly), quarter(-s or -ly)]; Long-term horizon words = [long-term (or long term), long-run (or long run), year(-s or annual(-ly)), look(ing) ahead, outlook].

<u>*Time-Series Variables:*</u>

- *Bond Spread*: The quarterly spread of yields on long-term (10-year) investment-grade (BBB and above) corporate bonds over those of comparable-maturity Treasury securities.

- *CP Spread*: The quarterly spread of A2/P2 overnight commercial paper rates over AA overnight commercial paper rates.

Table 1: Summary Statistics

This table presents summary statistics (means) for the main samples used in the analysis. Column (1) refers to the starting merged BHC-Commercial Bank Sample, which consists of 178,980 commercial bank-quarter observations for the universe of commercial banks held by a BHC between 1990 and 2012. Column (2) refers to the Switchers sub-sample, which is defined as those commercial banks in the starting sample that over the sample period experience a switch from being held by a privately-held BHC to a publicly-traded BHC. Switches occur for two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, and lead to 26,776 commercial bank-quarter observations involving 758 BHCs and 1,294 commercial banks between 1990 and 2012. Column (3) refers to the baseline identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. Definitions for all variables are in Appendix.

	BHC-Commercial Bank Sample	Switchers Sample	"Identification sample" with Cancelled Deals as Controls
	Mean	Mean	Mean
	(1)	(2)	(3)
Public Listing Status:			
Public BHC (dummy)	0.40	0.52	0.44
Supervisory Ratings:			
Capital Adequacy (% bad)	1.65 (0.06)	1.81 (0.07)	1.80 (0.07)
Asset Quality (% bad)	1.70 (0.13)	1.93 (0.15)	1.91 (0.15)
Management Quality (% bad)	1.78 (0.10)	1.99 (0.11)	1.98 (0.11)
Earnings (% bad)	1.85 (0.16)	1.96 (0.17)	1.95 (0.16)
Liquidity (% bad)	1.63 (0.06)	1.79 (0.07)	1.77 (0.07)
Risk-sensitivity (% bad)	1.66 (0.05)	1.88 (0.06)	1.87 (0.06)
Composite CAMELS (% bad)	1.73 (0.08)	1.94 (0.09)	1.92 (0.09)
STBL Loan Risk (% bad)	3.15 (0.15)	3.31 (0.17)	3.28 (0.17)
Maximum Risk Score	2.26 (0.26)	2.47 (0.28)	2.44 (0.28)
Bad Rating Dummy	0.26	0.28	0.28
Bank Characteristics:			
Total Assets, log ($1,000s)	12.14	11.78	11.61
Loans to Assets	0.61	0.61	0.60
Deposit to Assets	0.70	0.73	0.73
Securities to Loans	0.49	0.53	0.52
Tier 1 Capital	0.09	0.09	0.09
Bank-Quarter Observations	178,980	26,776	31,569
BHCs	3,251	758	934
Commercial Banks	7,166	1,294	1,521

Table 2: Descriptive Evidence

The starting sample is the merged BHC-Commercial Bank Sample, which consists of 234,535 commercial bank-quarter observations for the universe of commercial banks held by a BHC between 1990 and 2012. The Switchers sub-sample is defined as those commercial banks in the starting sample that over the sample period experience a switch from being held by a privately-held BHC to a publicly-traded BHC. Switches occur for two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC. The Switchers sample consists of 26,776 commercial bank-quarter observations involving 758 BHCs and 1,294 commercial banks between 1990 and 2012. The period considered is the run-up to the crisis, which leads to a sample of up to 14,479 commercial bank-quarter observations involving 464 unique BHCs and 788 unique commercial banks between 1997 and 2006. Panel A of this table reports descriptive evidence for the starting sample. Specifically, we report parameter estimates from OLS regressions of each management score on a dummy that equals one for commercial banks that are held by a publicly-traded BHC, while controlling for bank size. For the Switchers sample, we report parameter estimates from OLS regressions of each management score (Panel B) and of bank decisions (Panel C) on a dummy that equals one for commercial banks that are held by a publicly-traded BHC, while also controlling for commercial bank fixed effects. Year-quarter dummies are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: OLS Analysis of Supervisory Ratings										
	Capital Adequacy	Asset Quality	Management Quality	Earnings	Liquidity	Risk	Composite CAMELS	STBL Loan Risk	Maximum Risk Score	Bad Rating Dummy
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Public BHC	0.107***	0.082***	0.143***	0.085***	0.182***	0.164***	0.149***	0.156***	0.136***	0.061***
	(0.018)	(0.020)	(0.019)	(0.024)	(0.018)	(0.018)	(0.019)	(0.010)	(0.020)	(0.011)
Total Assets	-0.035***	-0.045***	-0.065***	-0.055***	-0.057***	-0.046***	-0.060***	0.035***	-0.043***	-0.025***
	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.007)	(0.005)	(0.003)
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	90,733	90,733	90,733	90,733	90,733	85,376	90,733	150,665	90,495	90,733
Adj-R^2	0.048	0.059	0.062	0.052	0.059	0.052	0.067	0.059	0.047	0.047
Panel B: Fixed Effects Analysis of Supervisory Ratings										
Public BHC	0.103***	0.090***	0.099***	0.116**	0.062**	0.097***	0.098***	0.313***	0.109***	0.055***
	(0.037)	(0.033)	(0.032)	(0.057)	(0.025)	(0.034)	(0.028)	(0.074)	(0.024)	(0.016)
Total Assets	-0.026	-0.005	-0.010	-0.076**	-0.047***	0.053**	-0.006	-0.207	-0.048*	-0.036**
	(0.018)	(0.022)	(0.021)	(0.030)	(0.018)	(0.023)	(0.019)	(0.368)	(0.026)	(0.015)
Number of Obs.	11,864	11,864	11,864	11,864	11,864	11,665	11,864	27,785	11,864	11,864
Panel C: Fixed Effects Analysis of Bank Decisions										
	Tier 1 Capital Ratio	Risk Wtd Assets Growth	Total Loan Growth	Off-Balance Sheet Cmits Growth	Hot Money/ Total Assets	Maturity Mismatch	Non-Deposit Fee Income	Volatile Liabilities Dependence Ratio	Trading Income/Total Income	Risk Factor
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Public BHC	-0.002***	0.011***	0.015***	0.022***	0.046**	1.202***	0.002**	0.009***	0.002***	0.025***
	(0.000)	(0.003)	(0.004)	(0.007)	(0.019)	(0.397)	(0.001)	(0.002)	(0.000)	(0.009)
Total Assets	-0.001***	0.015***	0.005***	-0.016**	0.585***	1.336***	0.001	-0.006	-0.001*	0.020***
	(0.000)	(0.003)	(0.002)	(0.007)	(0.178)	(0.225)	(0.001)	(0.009)	(0.000)	(0.007)
Number of Obs.	11,864	11,302	11,463	11,404	11,864	11,201	11,861	11,842	11,864	11,201

Table 3: Difference-in-Differences Analysis, Diagnostic Tests – "Identification sample" with Cancelled Deals as Control Group

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This table reports tests of the validity of the control group construction for the difference-in-differences analysis. Panel A reports summary statistics of pre-treatment CAMELS ratings, their trends, as well as balance sheet characteristics for banks in the treatment (Column 1) and control (Column 2) samples, respectively. These variables are measured as of the quarter prior to the announcement of a transition. Column 3 reports t-tests of the null hypothesis that treated and control banks are similar along each characteristic. Panel B reports OLS estimates from a linear probability model relating the likelihood of a deal succeeding to the pre-announcement characteristics of the commercial bank involved. Year-quarter dummies are included in all regressions. Standard errors (in parentheses) are robust, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Pre-Announcement Bank Characteristics for Withdrawn and Successful Deals			
	Treatment (Successful) Mean	Control (Withdrawn) Mean	Difference (t-stat)
	(1)	(2)	(3)
Total Assets$_{t-1}$, log ($1,000s)	11.923	11.608	0.315***
			(3.313)
Loans to Assets$_{t-1}$	0.602	0.607	-0.005
			(-0.547)
Deposits to Assets$_{t-1}$	0.740	0.733	0.007
			(0.636)
Securities to Loans$_{t-1}$	0.519	0.514	0.005
			(-0.343)
Tier 1 Capital$_{t-1}$	0.088	0.089	-0.001
			(-0.621)
CAMELS rating$_{t-1}$	1.903	1.895	0.008
			(0.290)
Δ CAMELS rating$_{t-1}$	0.004	0.007	-0.003
			(0.274)
Δ CAMELS rating$_{t-2}$	-0.009	-0.011	0.002
			(0.213)
Number of Obs.	1,294	227	1,521
Panel B: Probability of Deal Succeeding			
	pre-event firm characteristics	pre-event CAMELS	pre-event trends
	(1)	(2)	(3)
Total Assets$_{t-1}$	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)
Loans to Assets$_{t-1}$	-0.006	-0.005	-0.009
	(0.029)	(0.029)	(0.041)
Deposits to Assets$_{t-1}$	0.021	0.018	0.014
	(0.020)	(0.021)	(0.016)
Securities to Loans$_{t-1}$	0.002	0.001	0.002
	(0.003)	(0.003)	(0.005)
Tier 1 Capital$_{t-1}$	0.273	0.255	0.271
	(0.251)	(0.261)	(0.287)
CAMELS rating$_{t-1}$		-0.004	-0.004
		(0.003)	(0.005)
Δ CAMELS rating$_{t-1}$			0.003
			(0.005)
Δ CAMELS rating$_{t-2}$			0.001
			(0.003)
Year & Quarter Effects	Yes	Yes	Yes
Number of Obs.	1,294	1,287	1,275
Adj-R^2	0.041	0.039	0.039

Table 4: Difference-in-Differences Analysis, Baseline Tests – "Identification sample" with Cancelled Deals as Control Group

The starting sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. The period considered is the run-up to the crisis, which leads to a sample of up to 14,479 commercial bank-quarter observations involving 464 unique BHCs and 788 unique commercial banks between 1997 and 2006. This table reports the main results of the difference-in-differences analysis of each management score (Panel A) and bank decisions (Panel B). Specifically, the DD specification that is estimated is $RISK_{it} = \alpha + \beta_1 After_{it} + \beta_2 After_{it} \times Treatment_i + \gamma Z_{it} + \mu_t + \mu_i + \varepsilon_{it}$, where $After$ is an indicator variable that takes a value of one for all the quarters after the announcement date and zero otherwise, and $Treatment$ is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group. Year-quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Analysis of Supervisory Ratings

	Capital Adequacy	Asset Quality	Management Quality	Earnings	Liquidity	Risk	Composite CAMELS	STBL Loan Risk	Maximum Risk Score	Bad Rating Dummy
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
After*Treatment	0.298***	0.275***	0.241***	0.288**	0.170	0.271***	0.225***	0.395***	0.325**	0.229***
	(0.094)	(0.073)	(0.082)	(0.133)	(0.137)	(0.080)	(0.065)	(0.110)	(0.134)	(0.066)
After	-0.121	-0.124	-0.113	-0.125	-0.185	-0.101	-0.094	-0.167	-0.148	-0.163
	(0.116)	(0.152)	(0.161)	(0.226)	(0.205)	(0.131)	(0.171)	(0.178)	(0.195)	(0.212)
Total Assets	-0.010	0.000	0.002	-0.045	-0.024	0.066***	0.011	-0.165	-0.028	-0.015
	(0.018)	(0.018)	(0.022)	(0.031)	(0.028)	(0.024)	(0.019)	(0.183)	(0.018)	(0.015)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supervisor FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	14,479	14,479	14,479	14,479	14,479	13,991	14,479	32,884	14,479	14,479
Adj-R^2	0.539	0.424	0.498	0.451	0.512	0.451	0.509	0.441	0.444	0.372

Panel B: Analysis of Bank Decisions

	Tier 1 Capital Ratio	Risk Wtd Assets Growth	Total Loan Growth	Off-Balance Sheet Cmits Growth	Hot Money/ Total Assets	Maturity Mismatch	Non-Deposit Fee Income	Volatile Liabilities Dependence Ratio	Trading Income/Total Income	Risk Factor
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
After*Treatment	-0.004***	0.019***	0.027**	0.041**	0.010**	2.136***	0.003***	0.040***	0.002***	0.096***
	(0.001)	(0.005)	(0.013)	(0.020)	(0.005)	(0.696)	(0.001)	(0.014)	(0.000)	(0.022)
After	0.001	0.007	-0.018	-0.019	-0.004	-0.343	-0.001	-0.027**	-0.000	-0.035
	(0.001)	(0.005)	(0.013)	(0.031)	(0.005)	(0.923)	(0.001)	(0.013)	(0.000)	(0.031)
Total Assets	-0.001***	0.010	0.008***	-0.018	0.240	1.158***	0.001***	0.036***	0.013*	0.019
	(0.000)	(0.009)	(0.002)	(0.021)	(0.262)	(0.199)	(0.000)	(0.010)	(0.007)	(0.020)
Number of Obs.	14,479	13,964	14,076	14,021	14,479	13,819	14,475	14,476	14,479	13,819

Table 5: Difference-in-Differences Analysis, Diagnostic Tests – "Identification sample" with Other M&A Deals as Control Group

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period become targets of a completed M&A deal, which involves either an acquisition of a privately-held target by a publicly-traded acquirer that lead to an ownership switch ("treatment" group) or an acquisition between two publicly-traded or two privately-held BHCs that do not lead to an ownership switch ("control" group). The resulting sample consists of 21,757 commercial bank-quarter observations involving 1,089 unique BHCs and 1,631 unique commercial banks between 1990 and 2012. This table reports tests of the validity of the control group construction for the difference-in-differences analysis. Panel A reports summary statistics of pre-treatment CAMELS ratings, their trends, as well as balance sheet characteristics for banks in the treatment (Column 1) and control (Column 2) samples, respectively. These variables are measured as of the quarter prior to the M&A deal. Column 3 reports t-tests of the null hypothesis that treated and control banks are similar along each characteristic. Panel B reports OLS estimates from a linear probability model relating the likelihood of a deal involving a private to public switch to the pre-announcement characteristics of the target commercial bank. Year-quarter dummies are included in all regressions. Standard errors (in parentheses) are robust, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Pre-Event Bank Characteristics for Targets of Private to Public and Other M&A Deals			
	Treatment (Private to Public M&As)	Control (Other M&As)	Difference (t-stat)
	Mean	Mean	
	(1)	(2)	(3)
Total Assets$_{t-1}$, log ($1,000s)	11.931	12.122	-0.192***
			(-3.097)
Loans to Assets$_{t-1}$	0.589	0.590	-0.001
			(-0.134)
Deposits to Assets$_{t-1}$	0.748	0.744	0.004
			(0.451)
Securities to Loans$_{t-1}$	0.521	0.520	0.001
			(-0.100)
Tier 1 Capital$_{t-1}$	0.084	0.085	0.000
			(0.138)
CAMELS rating$_{t-1}$	1.889	1.856	0.032
			(0.802)
Δ CAMELS rating$_{t-1}$	-0.004	-0.002	-0.002
			(0.309)
Δ CAMELS rating$_{t-2}$	-0.012	-0.009	-0.003
			(-0.414)
Number of Obs.	676	955	1,631
Panel B: Probability of Private to Public M&A Deal			
	pre-event firm characteristics	pre-event CAMELS	pre-event trends
	(1)	(2)	(3)
Total Assets$_{t-1}$	-0.014	-0.014	-0.015
	(0.011)	(0.011)	(0.013)
Loans to Assets$_{t-1}$	-0.119	-0.111	-0.115
	(0.091)	(0.090)	(0.091)
Deposits to Assets$_{t-1}$	0.091	0.097	0.096
	(0.083)	(0.089)	(0.091)
Securities to Loans$_{t-1}$	-0.037	-0.045	-0.048
	(0.034)	(0.036)	(0.038)
Tier 1 Capital$_{t-1}$	-0.159	-0.194	-0.219
	(0.283)	(0.288)	(0.281)
CAMELS rating$_{t-1}$		-0.007	-0.007
		(0.014)	(0.016)
Δ CAMELS rating$_{t-1}$			0.007
			(0.010)
Δ CAMELS rating$_{t-2}$			0.006
			(0.009)
Year & Quarter Effects	Yes	Yes	Yes
Number of Obs.	1,631	1,626	1,609
Adj-R^2	0.145	0.145	0.144

Table 6: Difference-in-Differences Analysis, Baseline Tests – "Identification sample" with Other M&A Deals as Control Group

The starting sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period become targets of a completed M&A deal, which involves either an acquisition of a privately-held target by a publicly-traded acquirer that lead to an ownership switch ("treatment" group) or an acquisition between two publicly-traded or two privately-held BHCs that do not lead to an ownership switch ("control" group). The resulting sample consists of 21,757 commercial bank-quarter observations involving 1,089 unique BHCs and 1,631 unique commercial banks between 1990 and 2012. The period considered is the run-up to the crisis, which leads to a sample of up to 14,479 commercial bank-quarter observations involving 464 unique BHCs and 788 unique commercial banks between 1997 and 2006. This table reports the main results of the difference-in-differences analysis of each management score (Panel A) and bank decisions (Panel B). Specifically, the DD specification that is estimated is $RISK_{it} = \alpha + \beta_1 After_{it} + \beta_2 After_{it} \times Treatment_i + \gamma Z_{it} + \mu_t + \mu_i + \varepsilon_{it}$, where $After$ is an indicator variable that takes a value of one for all the quarters after the M&A deal (completion) date and zero otherwise, and *Treatment* is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group. Year-quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Analysis of Supervisory Ratings										
	Capital Adequacy	Asset Quality	Management Quality	Earnings	Liquidity	Risk	Composite CAMELS	STBL Loan Risk	Maximum Risk Score	Bad Rating Dummy
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
After*Treatment	0.079**	0.174**	0.147***	0.110***	0.009	0.153***	0.095***	0.105***	0.067***	0.052***
	(0.037)	(0.081)	(0.041)	(0.027)	(0.063)	(0.048)	(0.020)	(0.031)	(0.020)	(0.014)
After	0.045	-0.042	0.001	0.062	0.021	0.031	0.037	0.072	0.029	0.018
	(0.042)	(0.046)	(0.049)	(0.062)	(0.041)	(0.047)	(0.047)	(0.076)	(0.048)	(0.031)
Total Assets	0.018**	0.012	0.013	-0.018	0.003	0.014	0.013	0.010	0.001	-0.001
	(0.008)	(0.010)	(0.010)	(0.014)	(0.007)	(0.012)	(0.011)	(0.061)	(0.008)	(0.006)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supervisor FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	10,312	10,312	10,312	10,312	10,312	10,001	10,312	28,281	10,312	10,312
Adj-R^2	0.636	0.610	0.626	0.638	0.659	0.626	0.671	0.241	0.592	0.543
Panel B: Analysis of Bank Decisions										
	Tier 1 Capital Ratio	Risk Wtd Assets Growth	Total Loan Growth	Off-Balance Sheet Cmits Growth	Hot Money/ Total Assets	Maturity Mismatch	Non-Deposit Fee Income	Volatile Liabilities Dependence Ratio	Trading Income/Total Income	Risk Factor
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
After*Treatment	-0.007***	0.013**	0.015**	0.027***	0.008**	2.017***	0.003***	0.011*	0.002***	0.095***
	(0.001)	(0.006)	(0.004)	(0.008)	(0.003)	(0.451)	(0.000)	(0.006)	(0.001)	(0.020)
After	0.002	0.001	-0.007	-0.017	-0.005	-0.107	-0.001	0.001	0.000	0.012
	(0.001)	(0.008)	(0.011)	(0.013)	(0.006)	(0.437)	(0.001)	(0.012)	(0.000)	(0.044)
Total Assets	-0.001***	0.007***	-0.012***	0.003	0.149**	-0.250**	-0.000**	-0.007***	0.000**	0.107***
	(0.000)	(0.002)	(0.001)	(0.003)	(0.059)	(0.109)	(0.000)	(0.001)	(0.000)	(0.003)
Number of Obs.	10,312	9,871	9,982	9,991	10,312	9,756	10,308	10,309	10,312	9,756

Table 7: Instrumental Variable (2-SLS) Analysis, Diagnostic Tests – "Identification sample" with Cancelled Deals as Control Group

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete or withdraw a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This table reports tests of the validity of the S&P Bank Index as an instrument for deal completion in a two-stage least square (2SLS) analysis. Panel A reports summary statistics of pre-announcement CAMELS ratings, their trends, as well as balance sheet characteristics for banks that experience an S&P Bank Index drop (Column 1) and other banks in the sample (Column 2), respectively. These variables are measured to include all quarters in the pre-announcement period starting from one year prior to the announcement of a transition. Column 3 reports t-tests of the null hypothesis that banks that experience an S&P Bank Index drop are similar to other banks in the sample along each characteristic. A bank is classified as experiencing an S&P Bank Index drop if the two-month S&P Bank Index returns following its deal announcement are at the bottom of the distribution of all announcements in the same year. Panel B reports OLS estimates from a linear probability model relating the likelihood of a deal succeeding to alternative definitions of S&P Bank Index drop and to the pre-announcement characteristics of the commercial bank involved. Filer year dummies are included in all regressions. Standard errors (in parentheses) are robust, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Pre-event Characteristics of Firms Announcing before High vs. Low S&P Bank Index			
	Bottom 25% Mean (1)	Top 25% Mean (2)	Difference (t-stat) (3)
Probability of Deal Success	0.807	0.863	-0.056*** (4.034)
Total Assets, log ($1,000s)	11.714	11.647	0.066 (0.683)
Loans to Assets	0.587	0.572	0.015 (1.154)
Deposits to Assets	0.735	0.750	-0.015 (-1.420)
Securities to Loans	0.515	0.520	-0.004 (-0.339)
Tier 1 Capital	0.090	0.088	0.002 (0.705)
CAMELS rating	1.902	1.886	0.016 (0.301)
Δ CAMELS rating	-0.001	-0.003	0.001 (0.303)

Panel B: Probability of Deal Succeeding			
	(1)	(2)	(3)
S&P Bank Index	0.271*** (0.103)		
Percentile CDF of S&P Bank Index		0.077*** (0.019)	
Bottom 25% of S&P Bank Index			-0.050*** (0.016)
Filing Year Effects	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes
Number of Obs.	1,521	1,521	1,521
Adj-R^2	0.105	0.104	0.104
F-stat	49.06	47.48	36.12

Table 8: Instrumental Variable (2-SLS) Analysis, Baseline Tests – "Identification sample" with Cancelled Deals as Control Group

The starting sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete or withdraw a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 934 unique event BHCs and 1,521 unique event commercial banks between 1990 and 2012. The period considered is the run-up to the crisis, which leads to a sample of up to 14,479 commercial bank-quarter observations involving 464 unique BHCs and 788 unique commercial banks between 1997 and 2006. This table reports the main results of the instrumental variable (2SLS) analysis of each management score (Panel A) and bank decisions (Panel B). Specifically, the IV-2SLS specification that is estimated is $RISK_i^{Post} = \alpha + \beta_1 \widehat{Completed\ Deal}_i + \gamma_1 RISK_i^{Pre} + \gamma_2 Z_i + \mu_t + \varepsilon_i$, where $RISK_i^{Post}$ is the average risk-taking proxy in the quarters after the announcement date, $RISK_i^{Pre}$ is the corresponding average in the quarters prior to the announcement, and $\widehat{Completed\ Deal}_i$ is an indicator variable for those commercial banks that complete their switch from private to public as predicted from the following (first-stage) regression: $Completed\ Deal_i = \alpha_2 + \beta_2 S\&PBank_i + \gamma_3 Z_i + \mu_t + \varepsilon_i$, in which we use S&P Bank Index returns in the two months following each announcement as the instrument. Filer year dummies are included in all regressions. Standard errors (in parentheses) are robust, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Analysis of Supervisory Ratings (Second Stage)										
	Capital Adequacy	Asset Quality	Management Quality	Earnings	Liquidity	Risk	Composite CAMELS	STBL Loan Risk	Maximum Risk Score	Bad Rating Dummy
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Completed Deal	0.143**	0.269***	0.281***	0.249***	0.177***	0.233***	0.303***	0.305***	0.268***	0.166***
	(0.056)	(0.058)	(0.055)	(0.060)	(0.061)	(0.072)	(0.051)	(0.091)	(0.053)	(0.044)
Total Assets	0.054	-0.104	-0.130	-0.059	-0.186	-0.165	-0.128	0.017	0.016	-0.023
	(0.146)	(0.165)	(0.155)	(0.177)	(0.164)	(0.141)	(0.147)	(0.059)	(0.151)	(0.098)
Filing Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supervisor FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	788	788	788	788	788	703	788	101	788	788
Adj-R^2	0.152	0.124	0.137	0.109	0.118	0.144	0.124	0.255	0.144	0.109
Panel B: Analysis of Bank Decisions (Second Stage)										
	Tier 1 Capital Ratio	Risk Wtd Assets Growth	Total Loan Growth	Off-Balance Sheet Cmits Growth	Hot Money/ Total Assets	Maturity Mismatch	Non-Deposit Fee Income	Volatile Liabilities Dependence Ratio	Trading Income/Total Income	Risk Factor
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Completed Deal	-0.005***	0.017***	0.019***	0.028***	0.010**	1.975***	0.003***	0.042***	0.003***	0.101***
	(0.002)	(0.005)	(0.006)	(0.008)	(0.005)	(0.554)	(0.000)	(0.013)	(0.000)	(0.030)
Total Assets	-0.003***	0.008	0.012***	-0.014	0.198	0.878***	-0.001	0.008***	0.010	0.013
	(0.001)	(0.019)	(0.003)	(0.017)	(0.231)	(0.223)	(0.002)	(0.001)	(0.009)	(0.039)
Number of Obs.	788	788	788	788	788	749	788	788	788	788

Table 9: Additional Analysis of Bank Performance

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This table reports the main results of a calendar-time analysis of the evolution of a bank's operating performance after the quarter when it announces a private-to-public transition ($t = 0$). We report results for two metrics of bank operating performance, return on equity (ROE) in Panel A and return on assets (ROA) in Panel B, respectively. Specifically, the specification that is estimated is $Performance_{it+N} - Performance_{it-1} = \alpha + \beta_1 Treatment_i + \gamma Z_{it} + \mu_t + \varepsilon_{it}$, where *Treatment* is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group, and N is the number of quarters since the quarter when the private-to-public transition is announced. Year-quarter dummies are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Dynamic Analysis of Bank Performance, ROE								
	$Perf_{t+1}$-$Perf_{t-1}$	$Perf_{t+2}$-$Perf_{t-1}$	$Perf_{t+4}$-$Perf_{t-1}$	$Perf_{t+6}$-$Perf_{t-1}$	$Perf_{t+8}$-$Perf_{t-1}$	$Perf_{t+12}$-$Perf_{t-1}$	$Perf_{t+16}$-$Perf_{t-1}$	$Perf_{t+20}$-$Perf_{t-1}$
Treatment	0.001	0.006	0.009**	0.009***	0.001	-0.006**	-0.011**	-0.006
	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.005)	(0.004)
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YR-QRT FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,521	1,485	1,305	1,143	1,059	979	871	763
Adj-R^2	0.124	0.125	0.143	0.138	0.137	0.148	0.133	0.111
Panel B: Dynamic Analysis of Bank Performance, ROA								
	$Perf_{t+1}$-$Perf_{t-1}$	$Perf_{t+2}$-$Perf_{t-1}$	$Perf_{t+4}$-$Perf_{t-1}$	$Perf_{t+6}$-$Perf_{t-1}$	$Perf_{t+8}$-$Perf_{t-1}$	$Perf_{t+12}$-$Perf_{t-1}$	$Perf_{t+16}$-$Perf_{t-1}$	$Perf_{t+20}$-$Perf_{t-1}$
Treatment	-0.000	0.001	0.002**	0.002**	-0.001**	-0.002**	-0.002***	-0.001**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YR-QRT FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,521	1,485	1,305	1,143	1,059	979	871	763
Adj-R^2	0.112	0.126	0.135	0.129	0.136	0.141	0.126	0.113

Table 10: Analysis of Bank Performance During the Crisis

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This table reports the main results of the difference-in-differences analysis of alternative metrics of bank performance for a specification that allows for time-series heterogeneity in the treatment effect by adding an interactive term with a crisis dummy (Panel A) and for the baseline specification (Panel B). Specifically, the interactive DD specification that is estimated is $Performance_{it} = \alpha + \beta_1 After_{it} + \beta_2 After_{it} \times Treatment_i + \beta_3 After_{it} \times Treatment_i \times Crisis_t + \gamma Z_{it} + \mu_t + \mu_i + \varepsilon_{it}$, where *After* is an indicator variable that takes a value of one for all the quarters after the announcement date and zero otherwise, *Treatment* is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group, and *Crisis* is an indicator variable that takes a value of one for all quarters between 2007Q4 and 2009Q4. Year-quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

	ROE	ROA	Non Performing Loans/Assets	Loan Loss Provisions/Assets	Net Interest Margin	Overhead Costs Ratio	Delinquencies/ Loan Loss Reserves	Noncurrent Loan Ratio
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Panel A: Analysis of Bank Performance During the Crisis								
After*Treatment*Crisis	-0.029***	-0.003***	0.014***	0.008***	-0.004***	0.038***	0.508***	0.019***
	(0.004)	(0.000)	(0.002)	(0.001)	(0.001)	(0.009)	(0.072)	(0.003)
After*Treatment	-0.002	0.000	0.004	0.000	-0.001	0.008	0.095	0.000
	(0.002)	(0.001)	(0.003)	(0.001)	(0.001)	(0.007)	(0.092)	(0.003)
After	0.001	-0.000	-0.005	-0.000	0.001	-0.003	-0.311	-0.006
	(0.001)	(0.001)	(0.004)	(0.001)	(0.001)	(0.010)	(0.346)	(0.004)
Implied Treatment Effect During the Crisis	[-0.031]	[-0.003]	[0.018]	[0.009]	[-0.005]	[0.046]	[0.604]	[0.019]
{F-stat, $H_0 : \beta_2 + \beta_3 = 0$}	{70.83}	{12.55}	{25.05}	{28.65}	{14.99}	{8.43}	{28.01}	{24.53}
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	31,569	31,569	31,569	31,441	31,569	31,471	31,521	31,538
Adj-R^2	0.358	0.353	0.468	0.426	0.659	0.511	0.408	0.427
Panel B: Analysis of Bank Performance in the Overall Sample Period								
After*Treatment	0.000	-0.000	0.004	0.001	-0.002	0.028	0.378	0.006
	(0.006)	(0.001)	(0.004)	(0.001)	(0.002)	(0.040)	(0.230)	(0.006)
After	0.003	-0.000	-0.000	0.001	-0.002	-0.017	-0.172	-0.001
	(0.010)	(0.001)	(0.004)	(0.001)	(0.002)	(0.039)	(0.172)	(0.006)
Bank Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	31,569	31,569	31,569	31,441	31,569	31,471	31,521	31,538
Adj-R^2	0.353	0.346	0.454	0.418	0.645	0.504	0.402	0.421

Table 11: Analysis of Heterogeneity in the Effect of the Private-to-Public Transition

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This table reports the main results of the difference-in-differences analysis of a dummy for bad management score, which is defined as a rating of 3 or worse, and of the bank risk factor for a specification that allows for cross-sectional (Panels A to D) and time-series (Panels E and F) heterogeneity in the treatment effect by adding an interactive term. Specifically, the interactive DD specification that is estimated in Panels A to D is $RISK_{it} = \alpha + \beta_1 After_{it} + \beta_2 After_{it} \times Treatment_i + \beta_3 After_{it} \times Treatment_i \times X_i + \beta_4 After_{it} \times X_i + \gamma Z_{it} + \gamma_1 After_{it} \times Z_{it} + \mu_t + \mu_i + \varepsilon_{it}$, where $After$ is an indicator variable that takes a value of one for all the quarters after the announcement date and zero otherwise, $Treatment$ is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group, and X is the cumulative density function of the sorting variable used in turn in each column, which include the total number of directors (Column (1) of Panels A and B), the ratio of the number of directors that are insiders to the total number of directors (Column (2) of Panels A and B), the GIM index of takeover protection by Gompers, Ishii, and Metrick (2003) (Column (3) of Panels A and B), the average institutional investors' portfolio turnover based on Cahart (1997) (Column (1) of Panels C and D), the frequency of CEO net-sales of stock (Column (2) of Panels C and D), the frequency of words related to short-term horizon in the transcripts of earnings conference calls (Column (3) of Panels C and D). Note that in Panels A to D the term $After_{it} \times X_i$ cannot be estimated indendently from $After_{it} \times Treatment_i \times X_i$ because X_i does not vary within private banks, and thus drops out of the estimation due to collinearity. Year-quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Analysis of Cross-Sectional Heterogeneity. Y=CAMELS Rating, X=				Panel B: Y=Risk Factor, X=		
	Board Size	Insider Dominated Board	GIM Index	Board Size	Insider Dominated Board	GIM Index
	[1]	[2]	[3]	[1]	[2]	[3]
After*Treatment*X	-0.027***	-0.029***	-0.087***	-0.053***	-0.032***	-0.036***
	(0.010)	(0.008)	(0.025)	(0.016)	(0.011)	(0.010)
After*Treatment	0.085***	0.077***	0.064**	0.060*	0.052**	0.032***
	(0.028)	(0.025)	(0.033)	(0.033)	(0.022)	(0.008)
After	-0.097	-0.079	-0.032	-0.018	-0.086	-0.056
	(0.085)	(0.065)	(0.032)	(0.013)	(0.095)	(0.101)
Number of Obs.	18,225	18,225	9,786	17,346	17,346	8,875
Panel C: Additional Analysis of Cross-Sectional Heterogeneity. Y=CAMELS Rating, X=				Panel D: Y=Risk Factor X=		
	Institutional Investor Turnover	CEO Insider Trading	Short-Term Disclosure	Institutional Investor Turnover	CEO Insider Trading	Short-Term Disclosure
	[1]	[2]	[3]	[1]	[2]	[3]
After*Treatment*X	0.124***	0.028*	0.016**	0.068***	0.061**	0.052**
	(0.014)	(0.015)	(0.007)	(0.016)	(0.031)	(0.023)
After*Treatment	-0.042	0.076**	0.018**	-0.052	0.071*	0.038***
	(0.027)	(0.032)	(0.008)	(0.034)	(0.036)	(0.011)
After	-0.013	-0.052	-0.007	-0.017	-0.015	-0.019
	(0.027)	(0.049)	(0.009)	(0.018)	(0.013)	(0.023)
Number of Obs.	10,878	5,614	2,996	9,281	4,716	2,679

Table 11: Analysis of Heterogeneity in the Effect of the Private-to-Public Transition (Continued)

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This table reports the main results of the difference-in-differences analysis of a dummy for bad management score, which is defined as a rating of 3 or worse, and of the bank risk factor for a specification that allows for cross-sectional (Panels A to D) and time-series (Panels E and F) heterogeneity in the treatment effect by adding an interactive term. Specifically, the interactive DD specification that is estimated in Panels E and F is $RISK_{it} = \alpha + \beta_1 After_{it} + \beta_2 After_{it} \times Treatment_i + \beta_3 After_{it} \times Treatment_i \times X_i + \beta_4 After_{it} \times X_i + \gamma Z_{it} + \mu_t + \mu_i + \varepsilon_{it}$, where $After$ is an indicator variable that takes a value of one for all the quarters after the announcement date and zero otherwise, $Treatment$ is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group, and X is the cumulative density function of the sorting variable used in turn in each column, which include the Federal Funds Rate (Column (1) of Panels E and F), and bond and commercial paper spreads over comparable treasuries (Column (2) and (3) of Panels E and F, respectively). Year-quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel E: Analysis of Time-Series Heterogeneity. Y=CAMELS Rating, X=				Panel F: Y=Risk Factor X=		
	Federal Funds Rate	Bond Spread	Commercial Paper Spread	Federal Funds Rate	Bond Spread	Commercial Paper Spread
	[1]	[2]	[3]	[1]	[2]	[3]
After*Treatment*X	-0.027*	-0.077***	-0.056***	-0.047***	-0.035***	-0.032***
	(0.015)	(0.013)	(0.013)	(0.013)	(0.009)	(0.005)
After*Treatment	0.044***	0.053***	0.055***	0.051***	0.034***	0.073**
	(0.014)	(0.012)	(0.016)	(0.011)	(0.008)	(0.033)
After*X	-0.035	-0.029	-0.038	-0.019	0.015	0.034
	(0.029)	(0.027)	(0.042)	(0.030)	(0.016)	(0.029)
After	-0.031	-0.029	-0.010	-0.037	-0.011	-0.023
	(0.029)	(0.021)	(0.019)	(0.034)	(0.007)	(0.047)
Number of Obs.	31,569	31,569	31,569	30,448	30,448	30,448

Figure 1: The Growth of Public Banking

This figure describes the evolution of aggregate total assets in the U.S. commercial banking sector from 1990 to 2014. Aggregate total assets of commercial banks are measured as the sum of consolidated assets reported by each commercial bank in its Call Report filing for the universe of U.S. filers. Note that this definition does not include nonbank assets of bank holding companies (BHCs), which would equal to the difference between total assets as reported by BHCs in their Y-9C and those of commercial bank assets as defined in the figure. For each commercial bank, we estimate the ownership status of its (top-holder) BHC based on a NIC indicator for whether the BHC's securities are traded and are subject to registration, or it is required to report to the SEC. Panel A shows the level of aggregate total assets of U.S. commercial banks that are held by a publicly-traded BHC and of U.S. commercial banks that are held by a privately-held BHC from 1990 to 2014. Panel B shows the growth rate of these aggregate series. Specifically, we plot each of the two series scaled by its respective 1990Q1 level. Sources: National Information Center (NIC) and Call Reports.

Panel A: The Value of Aggregate Total Assets of Public and Private U.S. Commercial Banks

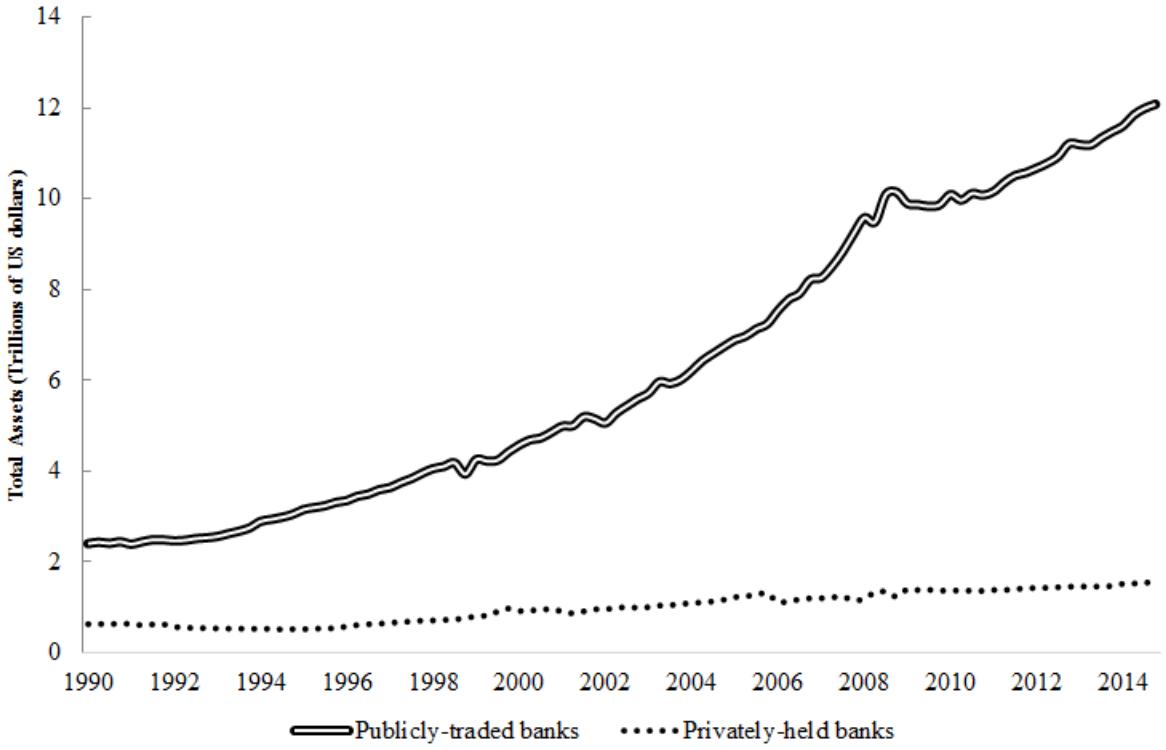


Figure 1 (Continued): The Growth of Public Banking

This figure describes the evolution of aggregate total assets in the U.S. commercial banking sector from 1990 to 2014. Aggregate total assets of commercial banks are measured as the sum of consolidated assets reported by each commercial bank in its Call Report filing for the universe of U.S. filers. Note that this definition does not include nonbank assets of bank holding companies (BHCs), which would equal to the difference between total assets as reported by BHCs in their Y-9C and those of commercial bank assets as defined in the figure. For each commercial bank, we estimate the ownership status of its (top-holder) BHC based on a NIC indicator for whether the BHC's securities are traded and are subject to registration, or it is required to report to the SEC. Panel A shows the level of aggregate total assets of U.S. commercial banks that are held by a publicly-traded BHC and of U.S. commercial banks that are held by a privately-held BHC from 1990 to 2014. Panel B shows the growth rate of these aggregate series. Specifically, we plot each of the two series scaled by its respective 1990Q1 level. Sources: National Information Center (NIC) and Call Reports.

Panel B: The Growth of Aggregate Total Assets of Public and Private U.S. Commercial Banks

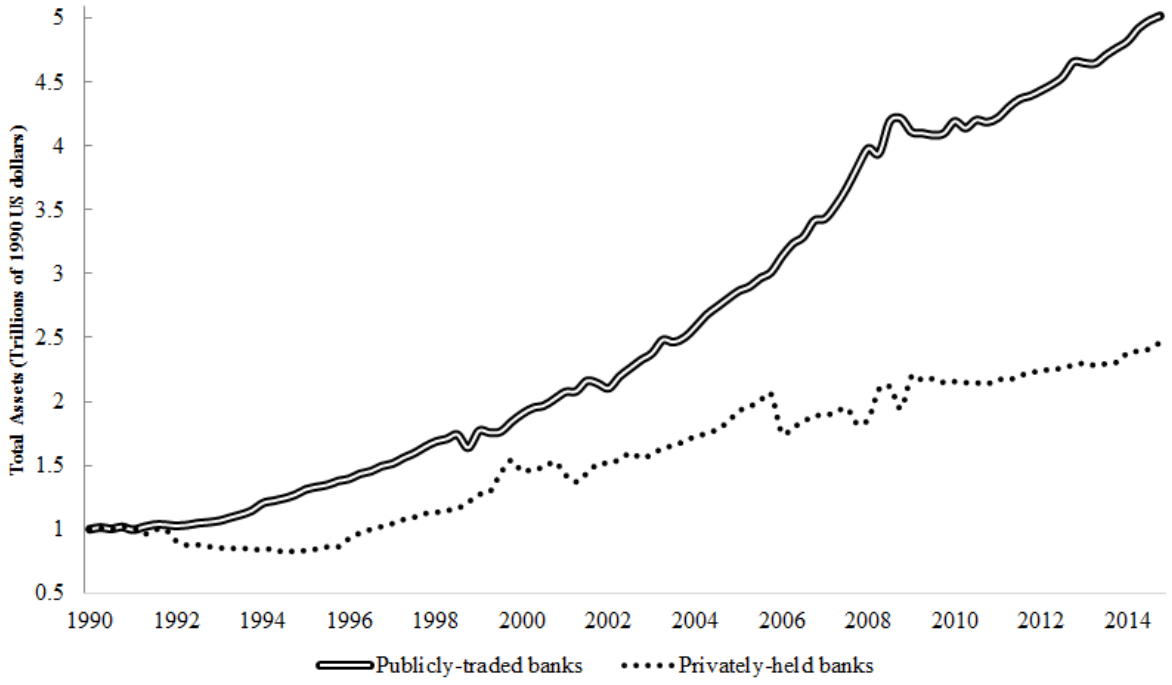
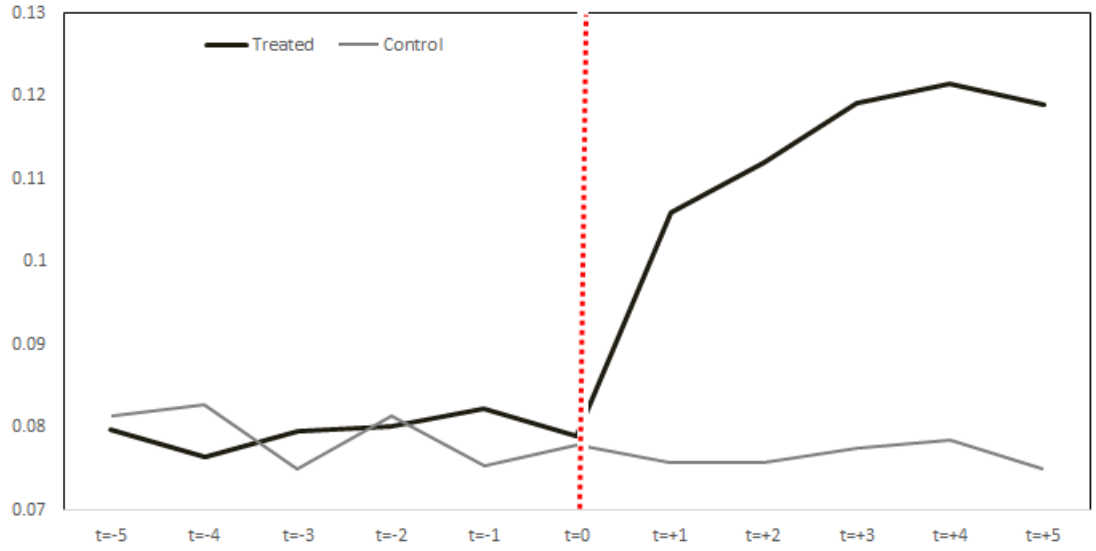


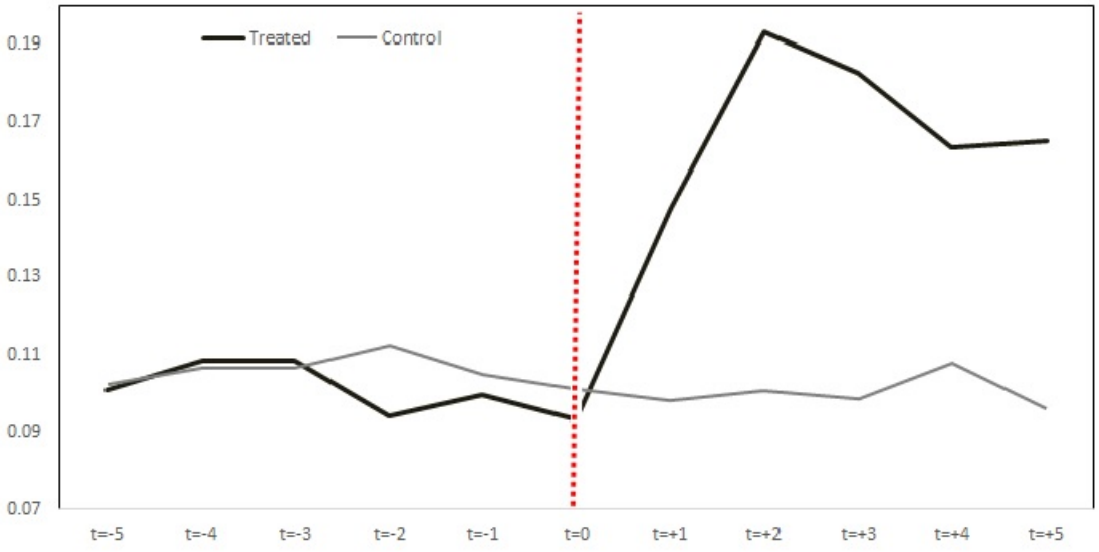
Figure 2: Bank Risk Taking Before and After a Private-to-Public Transition

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This figure shows the likelihood (average annual frequency) of a bad CAMELS rating (vertical axis, Panel A) and a high (top decile) Risk Factor (vertical axis, Panel B) in event time leading to and after the year when a bank announces a private-to-public transition (t=0) for treated (the black line) and control banks (the gray line). Observations to the left (right) of the t=0 line correspond to years before (after) transition announcement.

Panel A: Bad CAMELS Rating



Panel B: High Risk Factor



Appendix Table A.1: How Do Switchers Take On More Risk? Additional Analysis of Bank Decisions in the Run-Up to the Crisis

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The period is 1997 to 2006. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of up to 14,479 commercial bank-quarter observations involving 464 unique BHCs and 788 unique commercial banks between 1997 and 2006. This table reports the main results of the difference-in-differences analysis of bank decisions on Capital Adequacy and Asset Quality (Panel A), and Liquidity and Risk (Panel B). Specifically, the DD specification that is estimated is $Decision_{it} = \alpha + \beta_1 After_{it} + \beta_2 After_{it} \times Treatment_i + \gamma Z_{it} + \mu_t + \mu_i + \varepsilon_{it}$, where $After$ is an indicator variable that takes a value of one for all the quarters after the announcement date and zero otherwise, and $Treatment$ is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group. Year and quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Analysis of Capital Adequacy and Asset Quality Decisions						
	Leverage Ratio	Total Risk Based Capital Ratio	Total Assets Growth	CRE Loan Growth	C&I Loan Growth	RRE Loan Growth
	[1]	[4]	[5]	[2]	[3]	[4]
After*Treatment	-0.009***	-0.013***	0.010	0.029*	0.010	0.029***
	(0.003)	(0.005)	(0.008)	(0.016)	(0.033)	(0.010)
After	0.002	0.006	-0.010	-0.019	-0.023	-0.017
	(0.001)	(0.004)	(0.008)	(0.017)	(0.032)	(0.015)
Bank, Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	14,479	14,396	14,079	13,981	13,981	13,981
Panel B: Analysis of Liquidity and Additional Risk Decisions						
	Core Deposits/ Total Assets	Private MBS/ Total Assets	Non Interest Income/ Total Income	Fiduciary Income/ Total Income	Investment Banking Income/Total Income	Income from Securities/Private Securities
	[2]	[1]	[6]	[3]	[4]	[6]
After*Treatment	-0.025***	0.002***	0.022***	0.005***	0.007***	0.005***
	(0.006)	(0.001)	(0.008)	(0.001)	(0.001)	(0.001)
After	0.007	-0.001	-0.007	-0.001	-0.002	0.000
	(0.005)	(0.001)	(0.009)	(0.001)	(0.004)	(0.000)
Number of Obs.	14,479	7,350	14,479	14,479	14,479	14,479

Appendix Table A.2: Matched-Sample Difference-in-Differences Analysis, Baseline Tests – "Identification sample" with Cancelled Deals as Control Group

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This table reports the main results of the matched-sample difference-in-differences analysis of each management score (Panel A) and of a dummy for bad management score, which is defined as a rating of 3 or worse (Panel B). Specifically, the DD specification that is estimated is $CAMELS_{it} - \overline{CAMELS}_{-it} = \alpha + \beta_1 After_{it} + \beta_2 After_{it} \times Treatment_i + \gamma Z_{it} + \mu_t + \mu_i + \varepsilon_{it}$, where $After$ is an indicator variable that takes a value of one for all the quarters after the announcement date and zero otherwise, and $Treatment$ is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the matched control group. To implement the estimator, we use a methodology analogous to long-run event studies (e.g., Barber and Lyons (1997)) and for each bank-quarter construct a "benchmark" CAMELS, $\overline{CAMELS}_{-it}$, for a matched portfolio of banks. Matching is done with respect to year and commercial bank size. Year and quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

	Capital Adequacy	Asset Quality	Management Quality	Earnings	Liquidity	Risk	Composite CAMELS	STBL Loan Risk	Overall Bank Quality Score	Bad Rating Dummy
	1	2	3	4	5	6	7	8	9	10
Panel A: Matched-sample DID Analysis of Supervisory Ratings										
After*Treatment	0.208***	0.257***	0.175***	0.134**	0.109*	0.248***	0.185***	0.225***	0.168***	0.118***
	(0.057)	(0.066)	(0.057)	(0.068)	(0.060)	(0.073)	(0.059)	(0.054)	(0.058)	(0.040)
After	-0.159	-0.161	-0.087	-0.046	-0.030	-0.049	-0.096	-0.121	-0.096	-0.097
	(0.118)	(0.123)	(0.099)	(0.145)	(0.118)	(0.157)	(0.113)	(0.137)	(0.102)	(0.089)
Total Assets BHC	0.003	0.036*	0.027	0.040	-0.018	0.081**	0.029	0.346*	0.032	0.025**
	(0.020)	(0.021)	(0.021)	(0.030)	(0.017)	(0.032)	(0.023)	(0.187)	(0.020)	(0.011)
Total Assets	0.065*	0.182***	0.134***	0.073	0.024	0.121**	0.128***	-0.142	0.092**	0.019
	(0.034)	(0.041)	(0.037)	(0.055)	(0.035)	(0.054)	(0.038)	(0.264)	(0.044)	(0.026)
Loans to Assets	0.112	0.232	0.285*	-0.618***	0.956***	-0.088	0.186	0.578	0.017	-0.071
	(0.179)	(0.186)	(0.159)	(0.223)	(0.161)	(0.173)	(0.157)	(1.071)	(0.178)	(0.100)
Deposit to Assets	-0.343**	-0.369**	-0.371**	-0.703***	-1.062***	-0.236	-0.463***	0.128	-0.561***	-0.364***
	(0.148)	(0.187)	(0.153)	(0.192)	(0.143)	(0.164)	(0.149)	(0.748)	(0.166)	(0.106)
Securities to Loans	-0.046	-0.129**	0.052	-0.111*	0.002	0.052	-0.030	0.082	-0.021	-0.037
	(0.045)	(0.052)	(0.050)	(0.065)	(0.046)	(0.069)	(0.042)	(0.411)	(0.064)	(0.034)
Tier 1 Capital	-8.739***	-3.037***	-1.316*	-4.537***	-1.706***	-1.782**	-3.294***	-5.082***	-3.320***	-1.332***
	(0.842)	(0.788)	(0.685)	(1.069)	(0.556)	(0.853)	(0.756)	(1.938)	(0.784)	(0.453)
BHC Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year & Quarter Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	31,569	31,569	31,569	31,569	31,569	17,622	31,569	52,614	31,569	31,569
Adj-R^2	0.611	0.542	0.543	0.575	0.597	0.569	0.581	0.655	0.545	0.488
Panel B: Matched-sample DID Analysis of Management Issues										
After*Treatment	0.051***	0.061***	0.060***	0.052***	0.002	0.068***	0.074***	0.109***	0.097***	0.098***
	(0.014)	(0.016)	(0.016)	(0.018)	(0.027)	(0.021)	(0.020)	(0.036)	(0.037)	(0.040)
After	-0.037	-0.041	-0.040	-0.064*	0.035	-0.030	-0.030	-0.052	-0.051	-0.047
	(0.048)	(0.043)	(0.054)	(0.037)	(0.052)	(0.051)	(0.052)	(0.067)	(0.060)	(0.059)
Number of Obs.	31,569	31,569	31,569	31,569	31,569	17,622	31,569	52,614	31,569	31,569

Appendix Table A.3: Instrumental Variable (2-SLS) Analysis, Placebo Test – "Identification sample" with Cancelled Deals as Control Group

The sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete or withdraw a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. This table reports a placebo test of the validity of the exclusion restriction in the (2-SLS) instrumental variable analysis of Table 8 that uses the S&P Bank Index as an instrument for deal completion. The dependent variable is the average of the composite CAMELS rating after transitions. Panel A reports OLS estimates for alternative definitions of the S&P Bank Index drop in the two-month window following either the completion or the withdrawal of a transition attempt. Panels B and C report OLS estimates for alternative definitions of the S&P Bank Index drop in the two-month window from a year before and from a year after the transition announcement, respectively. Filer year dummies are included in all regressions. Standard errors (in parentheses) are robust, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Relation between CAMELS and the S&P Bank Index Following Transition Outcome			
	(1)	(2)	(3)
S&P Bank Index	-0.017		
	(0.125)		
Percentile CDF of S&P Bank Index		-0.002	
		(0.049)	
Bottom 25% of S&P Bank Index			-0.021
			(0.035)
Filing Year Effects	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes
Number of Obs.	1,521	1,521	1,521
Adj-R^2	0.101	0.099	0.102
Panel B: Relation between CAMELS and the S&P Bank Index in Year Before Transition Announcement			
	(1)	(2)	(3)
S&P Bank Index	-0.171		
	(0.115)		
Percentile CDF of S&P Bank Index		-0.075	
		(0.077)	
Bottom 25% of S&P Bank Index			0.041
			(0.047)
Filing Year Effects	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes
Number of Obs.	1,521	1,521	1,521
Adj-R^2	0.100	0.098	0.101
Panel C: Relation between CAMELS and the S&P Bank Index in Year After Transition Announcement			
	(1)	(2)	(3)
S&P Bank Index	0.052		
	(0.122)		
Percentile CDF of S&P Bank Index		0.022	
		(0.049)	
Bottom 25% of S&P Bank Index			0.001
			(0.035)
Filing Year Effects	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes
Number of Obs.	1,521	1,521	1,521
Adj-R^2	0.102	0.100	0.099

Appendix Table A.4: Difference-in-Differences Analysis, Diagnostic Tests – Balancing Tests of Pre-Event Characteristics of Banks in the M&A Sample

The starting sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period become targets of a completed M&A deal, which involves either an acquisition of a privately-held target by a publicly-traded acquirer that lead to an ownership switch ("treatment" group) or an acquisition between two publicly-traded or two privately-held BHCs that do not lead to an ownership switch ("control" group). The resulting sample consists of 2,431 unique commercial banks between 1990 and 2012. This table reports tests of the validity of the M&A sample construction for the difference-in-differences analysis. Panel A reports summary statistics of pre-treatment CAMELS ratings, their trends, as well as balance sheet characteristics for banks whose chartered is discontinued in the same quarter when their BHC is acquired (Column 1), for banks whose chartered is discontinued in the next quarter after the acquisition of their BHC (Column 2), and for banks whose charter is not discontinued either in the quarter when their BHC is acquired or in the next quarter (Column 3), respectively. These variables are measured as of the quarter prior to the M&A deal. Column 4 reports t-tests of the null hypothesis that banks whose chartered is discontinued either in the quarter when their BHC is acquired or in the next quarter and those banks whose charter is not discontinued until later or at all are similar along each characteristic. Panel B reports OLS estimates from a linear probability model relating the likelihood that the bank charter is discontinued either in the quarter when their BHC is acquired or in the next quarter to the pre-announcement characteristics of the target commercial bank. Year-quarter dummies are included in all regressions. Standard errors (in parentheses) are robust, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Pre-Announcement Bank Characteristics for M&A Deals with Different Degrees of Attrition

	Absorbed in BHC Merger Quarter, t	Absorbed in the Next Quarter, $t+1$	Not Absorbed in Quarters $t, t+1$	Difference Between the mean of (1) & (2) and (3)
	Mean	Mean	Mean	(t-stat)
	(1)	(2)	(3)	(4)
Total Assets$_{t-1}$, log ($1,000s)	12.126	12.066	11.960	0.149
				(1.205)
Loans to Assets$_{t-1}$	0.635	0.605	0.574	0.056
				(1.025)
Deposits to Assets$_{t-1}$	0.725	0.724	0.735	-0.010
				(-1.283)
Securities to Loans$_{t-1}$	0.515	0.523	0.529	-0.091
				(-1.210)
Tier 1 Capital$_{t-1}$	0.088	0.086	0.085	0.001
				(0.468)
CAMELS rating$_{t-1}$	1.803	1.805	1.833	-0.032
				(-0.605)
Δ CAMELS rating$_{t-1}$	-0.001	0.002	-0.007	0.005
				(0.657)
Δ CAMELS rating$_{t-2}$	-0.010	-0.015	-0.015	0.006
				(0.606)
Number of Obs.	623	171	1,637	2,431

Panel B: Probability of Attrition (=1 if Bank Absorbed in Quarters $t, t+1$)

	pre-event firm size	pre-event firm characteristics	pre-event CAMELS	pre-event trends
	(1)	(2)	(3)	(4)
Total Assets$_{t-1}$	0.003	0.006	0.005	0.006
	(0.007)	(0.009)	(0.009)	(0.009)
Loans to Assets$_{t-1}$		0.150	0.138	0.138
		(0.131)	(0.147)	(0.129)
Deposits to Assets$_{t-1}$		0.041	0.032	0.032
		(0.067)	(0.066)	(0.068)
Securities to Loans$_{t-1}$		0.009	0.001	-0.000
		(0.011)	(0.013)	(0.014)
Tier 1 Capital$_{t-1}$		0.115	0.047	0.052
		(0.218)	(0.209)	(0.214)
CAMELS rating$_{t-1}$			-0.009	-0.010
			(0.010)	(0.011)
Δ CAMELS rating$_{t-1}$				0.014
				(0.013)
Δ CAMELS rating$_{t-2}$				0.017
				(0.015)
Year & Quarter Effects		Yes	Yes	Yes
Number of Obs.	2,431	2,431	2,431	2,431
Adj-R^2	0.121	0.122	0.120	0.120

Appendix Table A.4: Difference-in-Differences Analysis, Diagnostic Tests – Balancing Tests of Pre-Event Characteristics of Banks in the M&A Sample (Continued)

The starting sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period become targets of a completed M&A deal, which involves either an acquisition of a privately-held target by a publicly-traded acquirer that lead to an ownership switch ("treatment" group) or an acquisition between two publicly-traded or two privately-held BHCs that do not lead to an ownership switch ("control" group). The resulting sample consists of 2,431 unique commercial banks between 1990 and 2012. This table reports tests of the validity of the M&A sample construction for the difference-in-differences analysis. Panel C reports summary statistics of pre-treatment CAMELS ratings, their trends, as well as balance sheet characteristics for additional finer partitions of the sub-sample of banks whose chartered is not discontinued in the quarter when their BHC is acquired or in the next quarter, which include those whose charter is not discontinued for up to 1 year after their BHC is acquired (Column 2), for up to 2 years after their BHC is acquired (Column 3), and for up to 3 years after their BHC is acquired (Column 4), respectively. These variables are measured as of the quarter prior to the M&A deal. Panel D reports additional OLS estimates from a linear probability model relating the likelihood that the bank charter is discontinued within N quarters after its BHC is acquired to the pre-announcement characteristics of the target commercial bank. Year-quarter dummies are included in all regressions. Standard errors (in parentheses) are robust, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel C: Pre-Announcement Bank Characteristics for M&A Deals with Different Degrees of Attrition, Additional Brakedowns of Banks that are not Absorbed in Quarters $t, t+1$				
	Not Absorbed in Quarters $t, t+1$	Not Absorbed in Quarters t to $t+4$	Not Absorbed in Quarters t to $t+8$	Not Absorbed in Quarters t to $t+12$
	Mean	Mean	Mean	Mean
	(1)	(2)	(3)	(4)
Total Assets$_{t-1}$, log ($1,000s)	11.960	11.954	11.951	11.950
Loans to Assets$_{t-1}$	0.574	0.585	0.578	0.600
Deposits to Assets$_{t-1}$	0.735	0.730	0.729	0.727
Securities to Loans$_{t-1}$	0.529	0.531	0.530	0.531
Tier 1 Capital$_{t-1}$	0.085	0.087	0.088	0.088
CAMELS rating$_{t-1}$	1.833	1.799	1.796	1.798
Δ CAMELS rating$_{t-1}$	-0.007	-0.004	-0.002	-0.004
Δ CAMELS rating$_{t-2}$	-0.015	-0.015	-0.014	-0.016
Number of Obs.	1,637	1,449	1,268	1,134
Panel D: Probability of Attrition (=1 if Bank Absorbed in a Given Range of Quarters, X)				
	$X = (t, t+1)$	$X = (t, t+4)$	$X = (t, t+8)$	$X = (t, t+12)$
	(1)	(2)	(3)	(4)
Total Assets$_{t-1}$	0.006	0.003	0.003	0.005
	(0.009)	(0.009)	(0.009)	(0.008)
Loans to Assets$_{t-1}$	0.138	0.121	0.055	0.037
	(0.129)	(0.147)	(0.078)	(0.099)
Deposits to Assets$_{t-1}$	0.032	0.027	0.051	0.042
	(0.068)	(0.037)	(0.052)	(0.059)
Securities to Loans$_{t-1}$	-0.000	-0.009	-0.017	-0.016
	(0.014)	(0.016)	(0.021)	(0.021)
Tier 1 Capital$_{t-1}$	0.052	0.087	0.133	0.042
	(0.214)	(0.073)	(0.220)	(0.081)
CAMELS rating$_{t-1}$	-0.010	-0.005	-0.009	-0.010
	(0.011)	(0.008)	(0.009)	(0.013)
Δ CAMELS rating$_{t-1}$	0.014	0.009	0.010	0.009
	(0.013)	(0.011)	(0.009)	(0.008)
Δ CAMELS rating$_{t-2}$	0.017	0.013	0.011	0.011
	(0.015)	(0.014)	(0.010)	(0.010)
Year & Quarter Effects	Yes	Yes	Yes	Yes
Number of Obs.	2,431	2,431	2,431	2,431
Adj-R^2	0.120	0.124	0.116	0.119

Table A.5: Bank Fixed Effects Analysis of Supervisory Ratings– ALL BHCs, "switchers sample" – IPOs only

The sample is the switchers sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period experience a switch from being held by a privately-held to a publicly-traded BHC. The table reports results for switches that occur due to an IPO, which leads to a sample of 15,411 commercial bank-quarter observations involving 206 unique BHCs and 406 unique commercial banks between 1990 and 2012. This table reports parameter estimates from OLS regressions of each management score on a dummy that equals one for commercial banks that are held by a publicly-traded BHC, while controlling for a standard set of bank characteristics. Year and quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

	Capital Adequacy	Asset Quality	Management Quality	Earnings	Liquidity	Risk	Composite CAMELS	STBL Loan Risk	Overall Bank Quality Score	Bad Rating Dummy
	1	2	3	4	5	6	7	8	9	10
Panel A: All BHCs										
Public BHC Dummy	0.122***	0.121**	0.178***	0.127**	0.109***	0.117***	0.178***	0.097***	0.136***	0.058**
	(0.037)	(0.049)	(0.042)	(0.052)	(0.035)	(0.037)	(0.037)	(0.039)	(0.045)	(0.024)
Total Assets BHC	-0.026	0.017	-0.041**	-0.168***	0.004	-0.008	-0.037*	-0.118***	-0.082***	-0.067***
	(0.018)	(0.024)	(0.019)	(0.032)	(0.016)	(0.022)	(0.019)	(0.033)	(0.025)	(0.016)
Total Assets	-0.048	0.069	0.012	-0.021	-0.053	0.036	-0.037	-0.003	0.010	0.018
	(0.034)	(0.044)	(0.040)	(0.053)	(0.036)	(0.054)	(0.039)	(0.005)	(0.047)	(0.027)
Loans to Assets	0.019	-0.262	-0.103	-0.970***	1.012***	-0.493**	-0.027	0.552	-0.337	-0.206
	(0.218)	(0.293)	(0.228)	(0.312)	(0.202)	(0.235)	(0.223)	(0.422)	(0.279)	(0.162)
Deposit to Assets	-0.455***	-0.285	-0.462***	-0.987***	-1.289***	-0.552***	-0.626***	0.564***	-0.755***	-0.473***
	(0.145)	(0.199)	(0.162)	(0.208)	(0.150)	(0.154)	(0.160)	(0.151)	(0.190)	(0.110)
Securities to Loans	-0.113	-0.247**	-0.091	-0.288***	-0.054	-0.124	-0.139*	0.036	-0.216**	-0.105**
	(0.072)	(0.097)	(0.072)	(0.108)	(0.061)	(0.086)	(0.076)	(0.164)	(0.109)	(0.050)
Tier 1 Capital	-10.001***	-2.945***	-1.578*	-3.306**	-2.937***	-2.831***	-3.904***	-8.782***	-2.108*	-0.860
	(0.968)	(1.057)	(0.866)	(1.314)	(0.688)	(1.001)	(0.876)	(1.049)	(1.117)	(0.627)
BHC Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year & Quarter Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	15,411	15,411	15,411	15,411	15,411	11,657	15,411	25,915	15,411	15,411
Adj-R^2	0.476	0.389	0.378	0.408	0.451	0.381	0.421	0.440	0.380	0.339

Appendix Table A.6: Additional Robustness of Baseline Tests to Supervisory Identity– "Identification sample" with Cancelled Deals as Control Group

The starting sample is the identification sub-sample, which is defined as those commercial banks in our merged BHC-Commercial Bank Sample that over the sample period announce and either complete ("treatment" group) or withdraw ("control" group) a switch from being held by a privately-held BHC to a publicly-traded BHC. The announced switches are due to two reasons, an IPO or an acquisition of a privately-held target by a publicly-traded BHC, which leads to a sample of 31,569 commercial bank-quarter observations involving 934 unique BHCs and 1,521 unique commercial banks between 1990 and 2012. The period considered is the run-up to the crisis, which leads to a sample of up to 14,479 commercial bank-quarter observations involving 464 unique BHCs and 788 unique commercial banks between 1997 and 2006. This table reports the main results of the difference-in-differences analysis of supervisory identity and frequency (Panel A) and each management score in a specification that adds controls for supervisory frequency (Panel B). Specifically, the DD specification that is estimated is $RISK_{it} = \alpha + \beta_1 After_{it} + \beta_2 After_{it} \times Treatment_i + \gamma Z_{it} + \mu_t + \mu_i + \varepsilon_{it}$, where $After$ is an indicator variable that takes a value of one for all the quarters after the announcement date and zero otherwise, and $Treatment$ is an indicator variable that takes a value of one for commercial banks in the treatment group and zero for those in the control group. Year-quarter dummies as well as commercial bank fixed effects are included in all regressions. Standard errors (in parentheses) are clustered at the BHC level, with ***, **, and * denoting significance at the 1%, 5%, and 10% level, respectively.

Panel A: Analysis of Supervisory Identity					
	Regulator #1 [1]	Regulator #2 [2]	Regulator #3 [3]	Regulator #4 [4]	Examination Frequency (months) [5]
After*Treatment	0.033	-0.043	0.033	-0.020	3.200
	(0.032)	(0.120)	(0.051)	(0.120)	(33.117)
After	-0.005	0.045	-0.028	-0.012	-9.899
	(0.013)	(0.119)	(0.050)	(0.118)	(31.362)
Total Assets	0.019***	-0.017	0.036***	-0.039***	-22.459***
	(0.007)	(0.012)	(0.011)	(0.013)	(6.326)
Bank FE	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes
Number of Obs.	14,479	14,479	14,479	14,479	14,479

Panel B: Analysis of Supervisory Ratings with Supervisory-Type Effects										
	Capital Adequacy [1]	Asset Quality [2]	Management Quality [3]	Earnings [4]	Liquidity [5]	Risk [6]	Composite CAMELS [7]	STBL Loan Risk [8]	Overall Bank Quality Score [9]	Bad Rating Dummy [10]
After*Treatment	0.298***	0.276***	0.234***	0.290**	0.157	0.270***	0.227***	0.394***	0.327**	0.233***
	(0.095)	(0.072)	(0.081)	(0.136)	(0.141)	(0.080)	(0.064)	(0.109)	(0.136)	(0.065)
After	-0.117	-0.127	-0.094	-0.109	-0.149	-0.219	-0.077	-0.168	-0.145	-0.161
	(0.122)	(0.314)	(0.161)	(0.227)	(0.217)	(0.163)	(0.173)	(0.178)	(0.190)	(0.209)
Total Assets	-0.012	-0.003	-0.001	-0.048	-0.027	0.063***	0.008	-0.165	-0.032*	-0.016
	(0.018)	(0.019)	(0.021)	(0.030)	(0.027)	(0.023)	(0.019)	(0.181)	(0.017)	(0.015)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supervisor FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	14,479	14,479	14,479	14,479	14,479	13,991	14,479	32,884	14,479	14,479