Do Borrowers Benefit from Bank Bailouts? The Effects of TARP on Loan Contract Terms*

Allen N. Berger
Darla Moore School of Business, University of South Carolina
Wharton Financial Institutions Center
European Banking Center
aberger@moore.sc.edu

Tanakorn Makaew
Securities and Exchange Commission (SEC)
makaewt@sec.gov

Raluca A. Roman
Federal Reserve Bank of Kansas City
raluca.roman@kc.frb.org

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Abstract

We study whether borrowers benefit from bank bailouts using the U.S. Troubled Asset Relief Program (TARP). Using loan-level data and difference-in-difference methodology, we find more favorable loan contract terms – spreads, amounts, maturities, collateral, and covenants – for borrowers from bailed-out banks, suggesting increased credit supply at the intensive margin. Findings are robust to dealing with potential endogeneity and other checks. Our results indicate that riskier borrowers benefit most, consistent with increased exploitation of moral hazard. Terms improve more for large and publicly-listed borrowers, suggesting bailouts may provide less assistance for financially-constrained firms. Benefits also flow to both relationship and non-relationship borrowers.

JEL Classification Codes: G01, G21, G28

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1. Introduction

Do bank bailouts result in net benefits or costs for the borrowers of bailed-out banks? From a policy perspective, whether or not bailouts are worthwhile depends on their many consequences, one of which is whether the borrowers from the recipient banks benefit. Many of the other consequences, such as changes in real economic conditions, competitive advantages conferred, and systemic risk, have been covered elsewhere in the literature, but there is very little evidence on how bailouts affect borrowers. This is an important research question because treatment of loan customers directly affects their financial conditions, which drive economic recovery and growth. The event study evidence that does exist on this question is contradictory and only covers borrowers with prior relationships with these banks.

We address this question by examining the effects of the U.S. Troubled Asset Relief Program (TARP) bailout during the recent financial crisis on loan contract terms to borrowers of bailed-out banks. Using a difference-in-difference methodology, we find that bailed-out banks offer more favorable price and non-price loan contract terms to borrowers. Conditional on borrower and bank characteristics, loan type, industry, and time, recipient banks granted loans with lower spreads, larger amounts, longer maturities, less frequency of collateral, and less restrictive covenants. This is consistent with an increase in credit supply at the intensive margin, suggesting that the recipient banks' borrowers benefited from the TARP program. Our findings are statistically and economically significant, and are robust to dealing with potential endogeneity issues and other checks.

Our approach departs from the existing literature in a number of important respects. First, whereas most prior bailout research is at the bank or market level, we use loan-level data and examine the effects of TARP from the perspective of the borrowers.

Second, unlike most of the bank- or market-level studies, we are able to control for borrower characteristics. This is important because certain types of loan customers may self-select to borrow from TARP banks or non-TARP banks, and because these characteristics are key determinants of loan contract terms.

Third, to our knowledge, we are the first to use multidimensional information about bank loans,

examining the effects of TARP on five key loan contract terms, and find that all five contract terms become more favorable for borrowers.

Fourth, analysis of loan contract terms across different types of borrowers allows us to address other open questions in the literature, including whether bank bailouts exacerbate moral hazard incentives, in a more definitive fashion than the existing work. We find that improvements in loan contract terms are greater for riskier borrowers than for safer borrowers, consistent with an increase in the exploitation of moral hazard incentives. We also find that improvements in loan contract terms are greater for less-financially-constrained borrowers than for more-financially-constrained borrowers. Specifically, large and publicly-listed borrowers experienced significantly greater improvements in contract terms than small and private borrowers, respectively, due to TARP. This suggests that the bailout may not provide assistance to borrowers that need capital the most. We also find that both relationship and non-relationship borrowers experienced improvements in loan credit terms due to TARP. This is consistent with the notion that TARP banks used bailout funds to reach out to new borrowers as well as grant more favorable terms to existing clients. This finding also suggests that studies that focus only on borrowers with prior relationship with TARP banks may overlook some benefits of the program.

Our paper contributes to several strands of literature. We add to the literature on the effects of bailouts on bank borrowers. Two event studies look at the valuation effects of TARP on relationship customers and document opposing results. Norden, Roosenboom, and Wang (2013) find that TARP led to a significantly positive impact on relationship firms' stock returns around the time of TARP capital injections. In contrast, Lin, Liu, and Srinivasan (2014) find that relationships borrowers suffered significant valuation losses around the time of TARP approval announcements.

Our work adds to this research in three main ways. First, the valuation changes in these studies may be due to expectations of better or worse direct treatment of the borrowers by TARP banks, but it is unknown from these studies alone whether these expectations were met in practice. In contrast, we examine actual changes in borrower treatment. In effect, the event studies may reveal a noisy signal about borrower treatment, while we measure it more directly.

Second, stock returns around TARP dates may partially be driven by other indirect factors that are not specifically related to the treatment of the loan customers (e.g., expectations of changes in local economic conditions), but are correlated with bailouts of their banks. As discussed below, the TARP selection criteria targeted "healthy, viable institutions," which may mean that TARP was more often given to banks in markets with improving local conditions, which in turn may be related to positive stock market returns for their relationship borrowers. Unlike event studies in which all control variables must be measured before or on TARP announcement dates, we are able to control for borrower characteristics at the time the loans are issued and examine the actual effects of TARP on the borrowers' loan contract terms. Controlling for borrower characteristics at the time of loan issuance is crucial for alleviating the identification problem. This is because changes in local economic conditions and borrower characteristics between TARP initiation and the time when the loan is issued may be correlated with TARP acceptance, but not caused by TARP itself.

Third, event studies are by construction limited to borrowers with existing relationships with the banks and cannot measure the effects of TARP on non-relationship borrowers. In contrast, we are able to measure the latter effects and in fact find that non-relationship borrowers benefited slightly more than relationship borrowers from the bailout program.

We also add to the studies that investigate the effects of bank bailouts on credit supply. A number of studies examine the effects of bailouts on the quantity of credit, i.e., the credit supply at the extensive margin, and the results of these studies are not uniform. Li (2013), Puddu and Walchli (2013), Berger and Roman (forthcoming), and Chu, Zhang, and Zhao (2016) find that TARP banks expanded their credit supply. Black and Hazelwood (2013) find mixed results; Lin, Liu, and Srinivasan (2014) find a decline in credit supply; and Bassett and Demiralp (2014) and Duchin and Sosyura (2014) do not find any evidence of a change in credit supply. We are able to extend the research to cover the intensive margin, or how the borrowers that receive credit are treated, based on five loan contract terms – loan spread, amount, maturity, collateral, and covenant intensity. This provides a fuller picture of the change in credit supply and whether borrowers benefited from the program.

Our paper also supplements the bank bailout and moral hazard literature. Bailouts might increase moral hazard incentives for banks to take more risk by raising expectations of future bailouts (e.g., Acharya and Yorulmazer, 2007; Kashyap, Rajan, and Stein, 2008). Alternatively, bailouts might reduce moral hazard incentives because of the additional bank capital or because of extra explicit or implicit government restrictions on these institutions (e.g., Duchin and Sosyura, 2014; Berger and Roman, 2015, forthcoming). Recent papers that empirically investigate this issue find large TARP banks tend to grant riskier loans after the bailouts (Black and Hazelwood, 2013[1]; Duchin and Sosyura, 2014). This evidence is generally viewed as support for the increased exploitation of moral hazard incentives.[2]

However, an increase in average risk of borrowers by TARP banks is not a sufficient condition for increased exploitation of moral hazard. An alternative explanation is that TARP increases the supply of credit overall and TARP banks dip deeper into the pool of riskier borrowers to lend more. Our analysis of loan contract terms conditional on borrower risk and other characteristics is a novel approach to test the moral hazard hypothesis. Our finding that the preponderance of improvements in loan contract terms due to TARP goes to riskier borrowers confirms an increase in the exploitation of moral hazard incentives.

In addition, we contribute to the literature on the effects of bailouts on banks' market power and valuations. Berger and Roman (2015) find that TARP gave recipients competitive advantages and increased both their market shares and market power.[3] Others find positive effects of TARP on banks' valuations (e.g., Veronesi and Zingales, 2010; Kim and Stock, 2012; Liu, Kolari, Tippens, and Fraser, 2013; Ng, Vasvari, and Wittenberg-Moerman, 2013). While these papers find that TARP benefited the recipient banks, our paper suggests that these banks do not extract all the rents. Their borrowers also received substantially better treatment as a consequence of TARP.[4]

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[1] Black and Hazelwood (2013) find a decrease in risk-taking for small recipient banks, but we focus here primarily on large banks because lenders in DealScan dataset are mainly large banks.

[2] One study that takes an alternative approach finds that TARP reduced contributions to systemic risk of recipient banks, and this occurred more for banks that were safer *ex ante*, suggesting reduced exploitation of moral hazard incentives (Berger, Roman, and Sedunov, 2016).

[3] Koetter and Noth (2015) also find competitive distortions as a result of TARP for unsupported banks.

[4] For completeness, we note that other TARP studies focus on determinants of TARP program entry and exit decisions (e.g., Bayazitova and Shivdasani, 2012; Duchin and Sosyura, 2012; Wilson and Wu, 2012; Cornett, Li, and Tehranian,

Finally, our paper adds to the broader literature on bank loan contracting. There are papers that focus on loan amounts,[5] spreads,[6] loan maturity,[7] collateral,[8] and loan covenants.[9] Most papers focus on one or a few loan contract terms, whereas we investigate all five.[10] As well, none of this literature investigates how loan contract terms are affected by bank bailouts, the focus of this study. We find that all five contract terms become more favorable after TARP.

2. Main Hypotheses

It is unclear *ex ante* whether bank bailouts benefit borrowers. There are a number of channels through which bailouts would improve the treatment of borrowers, and others through which the treatment would worsen. These channels are used in the literature to motivate changes in competitive conditions for TARP banks (Berger and Roman, 2015), changes in economic conditions in the local markets in which these banks operate (Berger and Roman, forthcoming), and changes in systemic risk (Berger, Roman, and Sedunov, 2016), but they also may affect the treatment of borrowers through loan contract terms.

2013; Li, 2013; Duchin and Sosyura, 2014). Other related literature looks at the effects of other government interventions on bank risk-taking, lending, and liquidity creation using data from both the U.S. and other countries (e.g., Brandao-Marques, Correa, and Sapriza, 2012; Dam and Koetter, 2012; Hryckiewicz, 2012; Berger, Bouwman, Kick, and Schaeck, 2016; Calderon and Schaeck, forthcoming), and finds either reductions or increases in risk-taking, and reductions in credit growth and liquidity creation.

[5] Papers focusing on loan amounts include Sufi (2007), Ivashina and Scharfstein (2010a,b), and Bharath, Dahiya, Saunders, and Srinivasan (2011).

[6] Papers focusing on loan spreads include Barry and Brown (1984), Petersen and Rajan (1994), Berger and Udell (1995), Blackwell, Noland, and Winters (1998), Berlin and Mester (1999), Pittman and Fortin (2004), Mazumdar and Sengupta (2005), Ivashina, (2009), and Berger, Makaew, and Turk-Ariss (2016).

[7] Papers focusing on loan maturity include Flannery (1986), Diamond (1991), Barclay and Smith (1995), Rajan and Winton (1995), Guedes and Opler (1996), Stohs and Mauer (1996), Scherr and Hulburt (2001), Berger, Espinosa-Vega, Frame, and Miller (2005), and Ortiz-Molina and Penas (2008).

[8] Papers focusing on loan collateral are Bester (1985), Chan and Kanatas (1985) Stultz and Johnson (1985), Besanko and Thakor (1987), Berger and Udell (1990,1995), Boot, Thakor, and Udell (1991), Rajan and Winton (1995), Jimenez, Salas, and Saurina (2006), and Berger, Frame, and Ioannidou (2011).

[9] Papers focusing on loan covenants and covenant violation include Smith and Warner (1979), Beneish and Press (1993), Chen and Wei (1993), Smith (1993), Sweeney (1994), Beneish and Press (1995), Chava and Roberts (2008), Nini, Smith, and Sufi (2009), Roberts and Sufi (2009a), Sufi (2009), Murfin (2012), Freudenberg, Imbierowicz, Saunders, and Steffen (2013), and Bradley and Roberts (2015).

[10] A few papers examine the impact of various factors on more than one loan contract term. These include Berger and Udell (1995), Strahan (1999), Benmelech, Garmaise, and Moskowitz (2005), Qian and Strahan (2007), Bharath, Sunder, and Sunder (2008), Graham, Li, and Qui (2008), Bae and Goyal (2009), Chava, Livdan, and Purnanandam (2009), Bharath, Dahiya, Saunders, and Srinivasan (2011), Hasan, Hoi, and Zhang (2014), and Chakraborty, Goldstein, and MacKinlay (2016).

The following channels predict benefits for borrowers from recipient banks in the form of more favorable loan contract terms:

- **Channels predicting more favorable treatment of borrowers in loan contract terms:** There are several reasons why borrowers from bailed-out banks may experience more favorable loan contract terms. Recipient banks may use the capital infusions to compete more aggressively, offering more favorable credit terms (predation channel). It is also possible that recipient banks may be perceived as riskier, requiring them to offer borrowers more favorable terms to compensate for the risk that future credit and other services may be withdrawn (stigma channel). Finally, bailout funds may be relatively cheap, resulting in recipient banks offering more favorable credit terms because of their lower marginal costs (cost advantage channel).

In contrast, other channels predict less favorable loan contract terms for borrowers:

- **Channels predicting less favorable treatment of borrowers in loan contract terms:** There are several reasons why recipient bank borrowers may experience less favorable loan contract terms. The extra capital from the bailout may increase charter value and/or allow for a "quiet life," decreasing incentives to compete more aggressively, resulting in less favorable credit terms (charter value / quiet life channel). It is also possible that recipient banks may be perceived as safer due to bailouts. For TARP in particular, the recipient banks may be safer due to TARP criteria which targeted "healthy, viable institutions." Borrowers may accept less favorable contract terms because recipient banks are less likely to fail or become financially distressed (safety channel). Finally, bailout funds may be relatively expensive, resulting in banks offering less favorable credit terms due to higher marginal costs (cost disadvantage channel).[11]

These channels imply two opposing hypotheses for the effects of bailouts on contract terms to recipient banks' borrowers:

[11] The safety channel is the opposite of the stigma channel and the cost disadvantage channel is the opposite of the cost advantage channel, so they never hold for the same bank at the same time. The predation and charter value/quiet life channels may also be regarded as opposites because they have opposing implications.

H1a: Bailouts result in more favorable loan terms for the borrowers of recipient banks.

H1b: Bailouts result in less favorable loan terms for the borrowers of recipient banks.

The hypotheses are not mutually exclusive – each may apply to different sets of banks and borrowers. Our empirical analysis tests which of these hypotheses empirically dominates the other overall. We test empirically the net impact of bailouts on the five loan contract terms to understand which of these hypotheses finds stronger empirical support. Our ancillary hypotheses about cross-sectional differences across various types of borrowers – safer versus riskier borrowers, more or less financial constrained, and relationship versus non-relationship borrowers – are discussed below in Section 6.

3. Data and Methodology

3.1 Data and Sample

We use Loan Pricing Corporation's (LPC's) DealScan dataset on corporate loans, which has detailed information on deal characteristics for corporate and middle market commercial loans.[12] We match these data with the Call Report for commercial banks, TARP transactions data and TARP recipients list from the Treasury's website, and borrower data from Compustat.

The basic unit of analysis is a loan, also referred to as a facility or tranche in DealScan. Loans are grouped into deals, so a deal may have one or more loans. While each loan has only one borrower, loans can have multiple lenders due to syndication, in which case a group of banks and/or other financial institutions make a loan jointly to a borrower. The DealScan database reports the roles of lenders in each facility. We consider only the lead lenders in our analysis, since these are typically the banks making the loan decisions and setting the contract terms (Bharath, Dahiya, Saunders, and Srinivasan, 2009).[13] We follow Ivashina (2009) to identify the lead bank of a facility. If a lender is denoted as the "administrative

[12] Although lenders in this dataset include non-bank financial intermediaries, such as hedge funds, we focus on regulated commercial banks operating in the U.S. market as this will enable us to control for the financial condition of lenders using Call Report data throughout our analysis. Commercial banks dominate the syndicated loan market in the U.S.

[13] In all our results, we focus on the lead lender. In unreported results, we find that benefits in loan terms are pertinent for lenders with both low and high lender shares, with slightly better improvements when the lender has a higher share.

agent," it is defined as the lead bank. If no lender is denoted as the "administrative agent," we define a lender who is denoted as the "agent," "arranger," "book-runner," "lead arranger," "lead bank," or "lead manager" as the lead bank. In the case of multiple lead banks, we keep the one with the largest assets.[14]

For each DealScan lender, we manually match lender names to the Call Report data using lender name, location, and dates of operation for the period 2005:Q1 to 2012:Q4 using the National Information Center (NIC) website. Call Report data contains balance sheet information for all U.S. commercial banks. Given that the majority of our TARP recipients are bank holding companies (BHCs), we aggregate Call Report data of all the banks in each BHC at the holding company level. This aggregation is done for all bank-level variables. If the commercial bank is independent, we keep the data for the commercial bank. For convenience, we use the term "bank" or "lender" to mean either type of entity. We exclude firm-quarter observations in the Call Report data that do not refer to commercial banks (RSSD9331 different from 1), or have missing or incomplete financial data for total assets and common equity. To avoid distortions for the Equity to GTA ratio, for all observations with equity less than 1% of gross total assets (GTA), we replace equity with 1% of GTA (as in Berger and Bouwman, 2013).[15] In addition, we normalize all financial variables using the seasonally adjusted GDP deflator to be in real 2012:Q4 dollars. Bank characteristics are obtained from the Call Report as of the calendar quarter immediately prior to the deal activation date.

The TARP bailout transactions data for the period October 2008 to December 2009 (when TARP money was distributed) and TARP recipients list are obtained from the Treasury's website.[16] We match by name and location the institutions in the list with their corresponding RSSD9001 (Call Report ID) where available. The TARP report has 756 transactions included for 709 unique institutions (572 BHCs, 87 commercial banks, and 51 Savings and Loans (S&Ls) and other thrifts), since some institutions have multiple transactions – some received more than one TARP capital purchase and some made one or more

[14] Our main results are robust to keeping all lead banks in the sample.

[15] Gross total assets (GTA) equals total assets plus the allowance for loan and lease losses and the allocated transfer risk reserve (a reserve for certain foreign loans). Total assets on Call Reports deduct these two reserves, which are held to cover potential credit losses. We add these reserves back to measure the full value of the assets financed.

[16] http://www.treasury.gov/initiatives/financial-stability/Pages/default.aspx

repayments.[17] We exclude thrifts because datasets are not comparable with banks and these institutions compete in different ways than commercial banks and provide few corporate and middle market commercial loans. We merge the Call Report data with the TARP recipients list.

We match DealScan to Compustat to obtain borrower financial information. Compustat contains accounting information on publicly traded and OTC U.S. companies. For each facility in DealScan during our sample window (2005Q1- 2012Q4), we match the borrowers to Compustat via the GVKEY identifier using the link file of Chava and Roberts (2008) updated up to August 2012 to obtain borrower information. We also extract the primary SIC code for the borrowers from Compustat and exclude all loans to financial services firms (SIC codes between 6000 and 6999) and loans to non-U.S. firms as in Bharath, Dahiya, Saunders, and Srinivasan (2009). Borrower characteristics are obtained from the Compustat database as of the fiscal quarter ending immediately prior to a deal activation date.

We use data from several other sources for additional control variables and instruments: FDIC Summary of Deposits, House of Representatives website, Missouri Census Data Center, and the Center for Responsible Politics. Our final regression sample contains 5,973 loan-firm-bank observations with complete information on firm and bank characteristics.

3.2 Econometric Methodology

We use a difference-in-difference (DID) approach. A DID estimator is commonly used in the program evaluation literature (e.g., Meyer, 1995) to compare a treatment group to a control group before and after treatment. Recently, it has been used in the banking literature (e.g., Beck, Levine, and Levkov, 2010; Gilje, 2012; Schaeck, Cihak, Maehler, and Stolz, 2012; Berger, Kick, and Schaeck, 2014; Duchin and Sosyura, 2014; Berger and Roman, 2015, forthcoming; Berger, Roman, and Sedunov, 2016). In our case, the treated group consists of loans from banks that received TARP funds, and the control group

[17] A few special cases are resolved as follows: For Union First Market Bancshares Corporation (First Market Bank, FSB) located in Bowling Green, VA, we include the RSSD9001 of the branch of the commercial bank First Market Bank because this is the institution located in Bowling Green, VA. In two other cases where M&As occurred (the bank was acquired by another BHC according to the National Information Center (NIC)), and TARP money were received by the unconsolidated institution, we included the RSSD9001 of this unconsolidated institution.

consists of loans from other banks. An advantage of this approach is that by analyzing the time difference of the group differences, the DID estimator accounts for omitted factors that affect treated and untreated groups alike.

The DID regression model has the following form for loan *i* to borrower *j* from bank *b* at time *t*:

$$(1)\ Y_{i,j,b,t} = \beta_1\ TARP\ RECIPIENT_b + \beta_2\ POST\ TARP_t\ x\ TARP\ RECIPIENT_b +$$
$$+ \beta_3\ BORROWER\ CHARACTERISTICS_{j,t-1} + \beta_4\ BORROWER\ RATING\ DUMMIES_{j,t-1} +$$
$$+ \beta_5\ BANK\ CHARACTERISTICS_{b,t-1} + \beta_6\ LOAN\ TYPE\ DUMMIES_i +$$
$$+ \beta_7\ INDUSTRY\ FIXED\ EFFECTS_j + \beta_8\ YEAR\ FIXED\ EFFECTS_t + \mathcal{E}_{i,j,b,t}$$

Y is one of the five loan contract terms: spread, amount, maturity, collateral, and covenant intensity index. *TARP RECIPIENT* is a dummy which takes a value of 1 if the bank was provided TARP capital support. *POST TARP* is a dummy equal to one in 2009-2012, the period after the TARP program started (following Duchin and Sosyura, 2014, but considering a longer period). *POST TARP* does not appear by itself on the right hand side of the equation because it would be perfectly collinear with the time fixed effects. *POST TARP x TARP RECIPIENT* is the DID term and captures the effect of the treatment (TARP) after it is implemented. Positive coefficients on the DID terms in the loan amount and maturity equations or negative coefficients on the DID terms in the spread, collateral, and covenant intensity index would show favorable changes in loan contract terms for firms that received loans from TARP banks, and vice-versa. We include also controls for the borrower, *BORROWER CHARACTERISTICS*, *BORROWER RATING DUMMIES*, and *INDUSTRY FIXED EFFECTS (2-digit SIC)*; *BANK CHARACTERISTICS* (bank control variables other than TARP); *LOAN TYPE DUMMIES;* and *YEAR FIXED EFFECTS*. $\mathcal{E}$ represents an error term. All variables are defined more precisely in Section 3.3 and Table 1.

3.3 Variables and Summary Statistics

Table 1 shows variable descriptions and summary statistics for the full sample. We present means, medians, standard deviations, and 25th and 75th percentiles for the variables used in our analyses.

Main dependent variables

For dependent variables, we consider five loan contract terms. *LOANSPREAD* is the loan spread or All-in-Spread-Drawn (in bps), the interest rate spread over LIBOR plus one time fees on the drawn portion of the loan.[18] *LOG (LOAN SIZE)* is the natural logarithm of the amount of the loan. *LOG (LOAN MATURITY)* is the natural logarithm of the maturity of the loan in months. *COLLATERAL* is a dummy equal to one if the loan is secured. *COV_INTENSITY_INDEX* is the covenant intensity index. We follow Bradley and Roberts (2015) and track the total number of covenants included in the loan agreement and create a restrictiveness of the covenants index ranging from 0 to 6. More specifically, this is calculated as the sum of six covenant indicators (dividend restriction, asset sales sweep, equity issuance sweep, debt issuance sweep, collateral, and more than two financial covenants). The index consists primarily of covenants that restrict borrower actions or provide lenders' rights that are conditioned on adverse future events.[19]

Table 1 shows that the average loan in our sample has *LOANSPREAD* of 187.991 basis points over LIBOR, *LOG (LOANSIZE)* of 19.210 (mean loan amount is $586 million), *LOG (LOANMATURITY)* of 3.816 (mean loan maturity is 50.370 months). *COLLATERAL* is pledged on 47.3% of the loans, and the average covenant intensity index (*COV_INTENSITY_INDEX*) is 2.079.

Main independent variables

As described above, our main TARP variables for the regression analysis are *TARP RECIPIENT*, a dummy equal to one if the bank was provided TARP capital support, *POST TARP* is a dummy equal to one in 2009-2012, and *POST TARP x TARP RECIPIENT*, the DID term which captures the effect of the treatment (TARP) on the treated (TARP recipients) compared to the untreated (non-TARP banks) after treatment. As noted above, *POST TARP* is not included without the interaction term because it would be

[18] For loans not based on LIBOR, DealScan converts the spread into LIBOR terms by adding or subtracting a differential which is adjusted periodically.

[19] Sweeps are prepayment covenants that mandate early retirement of the loan conditional on an event, such as a security issuance or asset sale. They can be equity, debt, and asset sweeps. Sweeps are stated as percentages, and correspond to the fraction of the loan that must be repaid in the event of a violation of the covenant. For example, a contract containing a 50% asset sweep implies that if the firm sells more than a certain dollar amount of its assets, it must repay 50% of the principal value of the loan. Asset sweeps are the most popular prepayment restriction.

perfectly collinear with the time fixed effects. The table also shows *LOG (1+Bailout Amount)*, which is used below as an alternative measure for TARP support.

Control variables

Turning to controls, we first account for borrower characteristics. We include *BORROWER SIZE*, the logarithm of book value of assets of the borrower as reported in Compustat; *MARKET-TO-BOOK*, the market value of equity scaled by book value of equity; *LEVERAGE*, the ratio of book value of total debt to book value of assets; *CASH FLOW VOLATILITY*, the standard deviation of the previous 12 quarterly cash flows, where cash flow is calculated as income before extraordinary items plus depreciation and amortization divided by total assets; *PROFITABILITY*, the ratio of Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) to Sales; *TANGIBILITY*, the ratio of Net Property, Plant, and Equipment (NPPE) to Total Assets; *CASH HOLDINGS RATIO*, the ratio of cash and marketable securities divided by total assets; and Borrower S&P Credit Rating dummies. For the latter variables, we use the long-term issuer credit ratings compiled by Standard & Poor's (S&P) and create dummies for each of the ratings and one category for the those unrated (*AAA*, *AA*, *A*, *BBB*, *BB*, *B*, *CCC or below*, *Unrated*). We also include borrower industry fixed effects based on 2-digit SIC codes (*INDUSTRY FIXED EFFECTS*)[20] to control for any industry patterns in the loan contracts to borrowers.

We next control for bank characteristics, including proxies for CAMELS (financial criteria used by regulators for evaluating banks) following Duchin and Sosyura (2014): *CAPITAL ADEQUACY* (ratio of equity capital to GTA); *ASSET QUALITY* (fraction of nonperforming loans to total loans); *MANAGEMENT QUALITY* (the ratio of overhead expenses to GTA), *EARNINGS* (return on assets (ROA), ratio of the annualized net income to GTA); *LIQUIDITY* (ratio of cash to total deposits); *SENSITIVITY TO MARKET RISK* (the ratio of the absolute difference (gap) between short-term assets and short-term liabilities to GTA). We also include other bank characteristics following Bayazitova and Shivdasani (2012), Berger and

[20] In Section 5.6, concerning additional robustness tests, we also show results using 2-digit NAICS codes and Fama-French 49 industries. In unreported results, we also tried 3-digit SIC, 3-digit NAICS codes, and Fama-French 12 industries and results are robust to all these alternative industry fixed effects.

Bouwman (2013), Duchin and Sosyura (2014), Berger, Bouwman, Kick and Schaeck (2016), Berger and Roman (2015, forthcoming), Berger, Roman, and Sedunov, 2016): *BANK SIZE*, logarithm of gross total assets (GTA); *HHI DEPOSITS*, local deposit concentration; *PERCENT METROPOLITAN*, percent of bank deposits in metropolitan areas (Metropolitan Statistical Areas (MSAs) or New England County Metropolitan Areas (NECMAs)); *FEE INCOME*, ratio of non-interest income to total income; *DIVERSIFICATION*, measure of diversification across sources of income, 1 – |(Net Interest Income – Other Operating Income)/(Total Operating Income)| following Laeven and Levine (2007). *DWTAF*, dummy if a bank received Discount Window (DW) and/or Term Auction Facility (TAF) funding during the crisis.[21]

We also include *LOAN TYPE DUMMIES* for each of the categories, term loans, revolvers, and other loans, to control for any patterns in loan types. *TERM LOANS* is defined as a dummy equal to one if the loan type in LPC DealScan is any of the following: Term Loan, Term Loan A, Term Loan B, Term Loan C, Term Loan D, Term Loan E, Term Loan F, Term Loan G, Term Loan H, Term Loan I, or Delay Draw Term Loan. Similarly, *REVOLVERS* are defined as a dummy equal to one if the loan type in DealScan is any of the following two categories: Revolver/Line < 1 Yr or Revolver/Line ≥ 1 Yr. We also create a dummy *OTHER LOANS* which comprises of any other loan types that do not fit in the first two categories. Finally, we include *YEAR FIXED EFFECTS* to control for temporal patterns in the loan contracts.

4. Main Results

Table 2 shows our main results for the estimations of equation (1). We find that the TARP bailout led to more favorable loan contract terms in all five dimensions analyzed (columns 1-5). Conditional on borrower characteristics, borrower rating dummies, bank characteristics, loan type, and time, we find that recipient banks tended to grant loans with lower spreads, larger amounts, longer maturities, less frequency of collateral, and less restrictive covenants, and all are statistically significant.

These results are also economically significant. The coefficient on the DID term of -41.974 in the

[21] Berger, Black, Bouwman, and Dlugosz (2016) find that banks that received discount window and TAF funds increased their lending. Data on these programs during the crisis were made public due to the Freedom of Information Act (FOIA) requests and a provision of the Dodd-Frank Act.

loan spread equation suggest that TARP results in a decrease in the loan spread by about 42 basis points.[22] The DID term of 0.257 in the loan amount equation suggests that TARP results in an increase in loan amount by approximately one-quarter. The DID term of 0.149 in the maturity equation suggests that TARP results in an increase in the loan maturity by almost one-fifth. The DID term of -0.083 in the collateral equation suggests that TARP results in a decrease in the likelihood of collateral by about 8 percentage points. The DID term of -0.535 in the covenant intensity equation suggests that TARP results in a decrease in the intensity of the covenant index on the loan by about one-fourth from its mean of 2.079. Thus, TARP results in statistically and economically significant improvements in all five loan contract terms, consistent with the empirical dominance of Hypothesis H1a over H1b.

Turning to the roles of borrower characteristics on loan contract terms, *BORROWER_SIZE* is positively related to loan amount and maturity and negatively related to loan spread, collateral, and covenant intensity. As expected, larger borrowers tend to receive more favorable loan contract terms: larger loans with lower spreads, longer maturity, lower frequency of collateral, and less restrictive covenants. Borrower *MARKET-TO-BOOK* generally does not significantly affect loan contract terms. Four of the five coefficients are statistically insignificant, and the coefficient on loan amount is statistically significant but very small (a one standard deviation in the market-to-book ratio produces an average decrease in the loan amount of 0.007). Borrower *LEVERAGE* makes all of the loan contract terms less favorable for the borrowers, consistent with expectations that more highly leveraged borrowers are riskier. Higher leverage significantly reduces loan amount and maturity, and increases loan spread, collateral, and covenant intensity. As expected, borrower *PROFITABILITY* favorably affects loan contract terms. It increases loan amount and maturity and negatively impacts loan spread, collateral, and covenant intensity. Borrower *TANGIBILITY* is not always significant, but has negative effects on collateral and covenant intensity terms, consistent with the idea that tangible assets can reduce opaqueness problems, may be used as collateral, and

[22] Researchers often include other loan contract terms in the loan spread regression model on the assumption that loan spreads are set last. Our loan spread results are robust to including these other loan terms in the regression. However, we prefer to exclude these other potentially endogenous loan contract terms from the main model. Similar controls would not be appropriate for the other contract terms as it is not reasonable to assume that they are set last.

may enable firms to be profitable and generate cash[23]. Borrower *CASH FLOW VOLATILITY* is mostly insignificant, but has a small positive impact on the loan amount. Higher borrower *CASH HOLDINGS RATIO* yields mostly unfavorable contract terms – reduced loan amount and maturity and increased loan spread and collateral. The effect on covenant intensity is insignificant. It may be the case that that riskier borrowers hold more cash due to the precautionary motive (they are less sure of future financing). Therefore, firms with higher cash ratios tend to receive less favorable loan contract terms. Finally, the seven dummies for borrower ratings (*BORROWER RATING DUMMIES*) are included in all the regressions, but are not reported in the tables for the purpose of brevity. Not surprisingly, the better-rated borrowers receive substantially better loan contract terms relative to the poorly-rated and unrated ones. For example, in the loan spread regressions, the estimated coefficients on borrower dummies are -65.859, -69.069, -54.387, -36.390, 7.377, 46.479, and 92.346 for an S&P rating of *AAA*, *AA*, *A*, *BBB*, *BB*, *B*, and *CCC or below*-rated borrowers (all relative to the unrated category), respectively, and they are all but one statistically significant at the 1% level.

In sum, borrowers from TARP recipients received more favorable loan contract terms in all five dimensions, consistent with the empirical dominance of Hypothesis H1a over H1b. The coefficients on borrower characteristics are consistent with the expectation that safer borrowers (e.g., larger, less levered, and more profitable borrowers) tend to receive more favorable loan contract terms.

5. Robustness Checks

In this section, we provide a number of robustness tests. Unless noted otherwise, we include all control variables from the main regressions in these tests, but they are not shown for brevity.

5.1 Instrumental Variable (IV) Analysis

We first address the potential endogeneity of our *TARP Recipient* variables, which could bias our findings. For example, TARP capital might be more often provided to the strongest banks, which may be

[23] Himmelberg and Morgan (1995) find that tangible assets reduce firm opaqueness and thereby increase a firm's access to external capital. Strahan (1999) finds that firms with less tangible assets can face more restrictive loan contracts.

more likely to provide favorable terms to borrowers, yielding a spurious relationship. To deal with this, we employ an instrumental variable (IV) analysis following Li (2013), Duchin and Sosyura (2014), Berger and Roman (2015, forthcoming), and Berger, Roman, and Sedunov (2016).

Prior research on TARP finds that a bank's political connections can affect the bank's probability of receiving TARP funds. Following this research, we use *SUBCOMMITEES ON FINANCIAL INSTITUTIONS OR CAPITAL MARKETS* as an instrument for the *TARP RECIPIENT* variable. This is a dummy which takes a value of 1 if a firm is headquartered in a district of a House member who served on the Financial Institutions Subcommittee or the Capital Markets Subcommittee of the House Financial Services Committee in 2008 or 2009.[24] These subcommittees played a direct role in the development of the Emergency Economic Stabilization Act (EESA) and were charged with preparing voting recommendations for Congress on authorizing and expanding TARP. Members of these subcommittees were shown to arrange meetings with the banks, write letters to regulators, and write provisions into EESA to help particular firms. While these arguments indicate that *SUBCOMMITEES ON FINANCIAL INSTITUTIONS OR CAPITAL MARKETS* should be positively related to TARP decisions, the distribution of committee assignments are determined by the House leadership, which is unlikely to be under the control of individual banks.

Because the potentially endogenous explanatory variable is binary and we need the instrument to predict treatment, we employ a dummy endogenous variable model and follow a three-step approach as suggested in section 18.4.1 of Wooldridge (2002). For the first stage, we use a probit model in which we regress the *TARP RECIPIENT* dummy on the political instrument and the control variables from the main regression model for predicting the probability of receiving TARP.[25] We then use the predicted probability obtained from the first stage as an instrument for the second stage. We instrument our *TARP RECIPIENT*

[24] We use the MABLE/Geocorr2k software on the Missouri Census Data Center website to match banks with congressional districts using the zip codes of their headquarters. The final regression sample for this test is slightly smaller than the main regression sample. This is due to some of the banks not being able to be mapped into a congressional district (either due to an invalid headquarters zipcode or because we could not match it to a congressional district), a problem reported also by Li (2013).

[25] In unreported tests, we also tried excluding SIC fixed effects from the probit estimation to mitigate potential incidental parameters and inconsistency concerns, as recommended in Greene (2002) and Fernandez-Val (2009), and results are robust to this alternative specification

variable by the *TARP RECIPIENT* dummy fitted value and *POST TARP x TARP RECIPIENT* by the product of the *POST TARP* dummy and the *TARP RECIPIENT* dummy fitted value.[26]

The results of the IV regressions are reported in Table 3. We report the first-stage regression results in Table 3 Panel A column (1), and the second-stage results for the IV specification in Table 3 Panel B. The first-stage regression in Panel A column (1) indicates that the instrumental variable is positively related to TARP injections, and the *F*-test indicates that the instrument is valid ($F = 149.572$ with a p-value less than 0.001). The final stage results in Panel B show that after controlling for endogeneity, all five of the loan contract terms retain the same sign, albeit at a lower significance level in some cases. Thus, the main results that TARP generally leads to more favorable terms of credit are robust.

5.2 Heckman's (1979) Two-Stage Selection Model

To address potential selection bias, we use Heckman's (1979) two-step procedure. This approach controls for selection bias introduced by bank, borrower, and government choices about TARP by incorporating TARP decisions into the econometric estimation. In the first step, we use the same probit model from the IV estimation to predict *TARP RECIPIENT*. In the second stage (outcome equation), the loan contract terms are the dependent variables, and the right-hand-side variables include the self-selection parameter (inverse Mills ratio) estimated from the first stage.

The second-stage results are reported in Table 3 Panel C. The results again suggest that TARP is associated with improvements in all the loan contract terms, consistent with our main findings.

5.3 Placebo Experiment

As mentioned in Roberts and Whited (2013), the key assumption behind the DID estimator, the parallel trends assumption, is untestable. However, several researchers, including Angrist and Krueger (1999) and Roberts and Whited (2013), propose performing a falsification sensitivity test to alleviate concerns that alternative forces may drive the effects documented. We follow their advice and conduct a

[26] As indicated in Wooldridge (2002, p. 236-237), this method is not the same as the forbidden regression, as we use the obtained variables as instruments in the next step and not as regressors.

placebo experiment. We follow Puddu and Walchli (2013) and Berger and Roman (2015, forthcoming) and fictionally assume that the TARP participation took place four years earlier, while still distinguishing between banks that received TARP and those that did not according to the "true" TARP program. To mimic our main analysis, we use an eight-year period immediately preceding the TARP program from 2001-2008, and assume that the fictional Post TARP period begins four years before the actual program. We rerun the regressions using the placebo sample (2001-2008) and define *PLACEBO POST TARP* as a dummy equal to one in 2005-2008, the period after the fictional TARP program initiation. If our main results reflect the true program, we should not find statistically significant results with the same sign for the DID terms.

The placebo results, reported in Table 4, confirm that indeed there are no statistically significant results with the same sign on four of the five loan contract terms for the fictional TARP. For amount, collateral, and covenant intensity, the effect of the fictional TARP program is insignificantly different from zero, while for spread the effect is reversed and only marginally statistically significant. The effect also is only marginally statistically significant for maturity. Thus, the placebo experiment generally suggests that our main results do not appear to be driven by alternative forces.

5.4 Alternative Measure of TARP

We next test robustness to the use of an alternative measure of TARP. In Table 5, we replace the *TARP RECIPIENT* dummy with an alternative measure of TARP infusion: *LOG (1+Bailout Amount)*. Our main results continue to hold: all five of the loan contract terms have statistically significant coefficients that suggest more favorable treatment to business borrowers associated with TARP.

5.5 Alternative Econometric Models

To help alleviate the concern that omitted unobserved bank-specific, year-specific, industry-specific, or local market-specific determinants might explain our results, Table 6 Panels A-C examine alternative econometric methods using various combinations of bank, year, borrower industry, and borrower state fixed effects. In Panels A and B, when bank fixed effects are included, we drop the uninteracted TARP dummy, which would be perfectly collinear with the bank fixed effects. We also use

White standard errors which are robust to within-cluster correlation at the borrower and bank level in Panels D-F. In addition, we exclude various other bank control variables and borrower characteristics in Panels G-I.[27] We use alternative industry fixed effects specifications (2-digit NAICS codes and Fama-French 48 industries) in Panels J-K. We use alternative functional forms for collateral in Panel L. The results show consistently more favorable treatment to borrowers by the TARP banks.

5.6 Additional Robustness Tests

Table 7 contains additional robustness checks in which we exclude borrowers with missing S&P credit ratings in Panel A, or borrowers with only one loan in Panel B. These results show consistently statistically significantly more favorable credit terms treatment to business borrowers by the TARP banks.

In Panel C, we rerun our results excluding foreign-owned banks to mitigate the concern that our effects may be influenced by these banks. Some research shows that many foreign banks increased their market share in the period leading up to the financial crisis (e.g., Claessens and Van Horen, 2014; Berlin, 2015), but they drew back from U.S. lending during the financial crisis, consistent with a home bias of lenders' loan origination (e.g., Giannetti and Laeven, 2012). Our results excluding foreign banks continue to show qualitatively similar effects to our main findings.

In Panel D, we examine the timing of the effects of TARP on loan contract terms to borrowers. We replace our DID term, *POST TARP x TARP RECIPIENT*, with a series of DID terms, interacting the *TARP RECIPIENT* with each of the *POST TARP* years (2009, 2010, 2011, and 2012) to trace out the timing of the effects of TARP. The results show that the loan contract term improvements are fairly strong throughout the post-TARP period, although they trail off somewhat for collateral in the last two years.

In Panel E, we examine effects of TARP on loan contract terms for involuntary and voluntary TARP participants. Some banks were required to participate in TARP at its inception. We classify the following eight banks as involuntary participants: Citigroup, JP Morgan, Wells Fargo, Morgan Stanley,

[27] This exercise addresses the concern that some bank characteristics might be endogenously driven by TARP.

Goldman Sachs, Bank of New York, Bank of America, and State Street Bank.[28] We specify variables for the TARP involuntary and voluntary banks and interact these variables with our *Post TARP* dummy. We find more favorable loan contract terms for borrowers from both involuntary and voluntary participants.

In Panel F, we examine effects of TARP on loan contract terms for TARP participants subject to the U.S. bank Stress Tests (aka the Supervisory Capital Assessment program (SCAP) and the Comprehensive Capital Analysis and Review (CCAR) programs) and participants not subject to these tests. These tests were applied to 19 banking organizations with assets exceeding $100 billion to ensure these large banking organizations had enough capital to withstand the recession and a hypothetical more adverse scenario that might occur over the rest of the financial crisis.[29] We specify variables for the TARP banks subject to these stress tests and those not subject to them and interact these variables with our *Post TARP* dummy. We find more favorable loan contract terms for borrowers from both types of participants.

6. Ancillary Hypotheses

We next develop hypotheses to understand which types of borrowers benefit more from bailouts – safer or riskier, more or less financially constrained, and relationship or non-relationship.

First, we examine whether the changes in the credit terms for safer borrowers as a result of bank bailouts are more or less favorable relative to the treatment for riskier borrowers. We offer two channels with opposing predictions.

- **Increased moral hazard channel**: Bailouts increase the perceived probability of future bailouts for recipient banks, increasing their moral hazard incentives to take on excessive risk, leading the recipients to improve contract terms relatively more for riskier borrowers than safer borrowers.
- **Decreased moral hazard channel**: Bailouts reduce the moral hazard incentives of the recipient banks to take on excessive risk because of the increases in the capital of the recipient banks or

[28] We exclude Merrill Lynch from the nine involuntary recipients because it is not a bank.

[29] These were 19 banks, including Bank of America, Citigroup, Goldman Sachs, JP Morgan Chase, Morgan Stanley, Wells Fargo, Bank of NY Mellon, BB&T, Fifth Third Bancorp, Keycorp, PNC Financial, Regions Financial, SunTrust Banks, US Bancorp, Ally Financial, American Express Company, Capital One Financial, Metlife, and State Street.

because of extra explicit or implicit government restrictions on these institutions, leading them to improve contract terms relatively more for safer borrowers than for riskier borrowers.[30]

We compare the net impact of bank bailouts on changes in loan contract terms between riskier and safer borrowers using the following set of opposing hypotheses:

H2a: Bailouts result in greater improvements in loan terms for the riskier borrowers relative to the safer borrowers of recipient banks.

H2b: Bailouts result in greater improvements for the safer borrowers relative to the riskier borrowers of recipient banks.

As above, these hypotheses are not mutually exclusive and we are only able to tests which of these hypotheses empirically dominates the other overall.

Next, we examine whether the changes in the credit terms as a result of bank bailouts for small, unlisted borrowers that are more financially constrained because of informationally opacity problems are more or less favorable relative to the treatment for large, listed borrowers that are more transparent. We offer two channels with opposing predictions that are based on the finding discussed above that TARP appears to have increased the market power of its recipients:

- **Increased relative credit supply to financially constrained borrowers channel**: Bailouts increase the market power of recipient banks more relative to small, unlisted financially constrained borrowers with few financial alternatives than to large, listed borrowers. The increased market power incentivizes the bailed-out banks to offer more improved terms of credit to the financially constrained borrowers and make up for any short-term losses with higher future profits from future loans (e.g., Petersen and Rajan, 1995). That is, banks may temporarily subsidize borrowers have fewer outside options that are more likely to borrow from these banks in subsequent periods.
- **Reduced relative credit supply to financially constrained borrowers channel**: The lesser

[30] The decreased moral hazard channel is the opposite of the increased moral hazard channel, so they never both hold for the same bank at the same time.

increase in relative market power to large, listed borrowers results in bailed-out banks improving contract terms more for large, listed borrowers to attract them away from alternative lenders.

We compare the net impact of bank bailouts on changes in loan contract terms for small and unlisted borrowers relative to large and listed borrowers, respectively, using the following opposing hypotheses:

H3a: Bailouts result in greater improvements in loan terms for the small and unlisted borrowers relative to the large and listed borrowers of recipient banks, respectively.

H3b: Bailouts result in greater improvements for the large and listed borrowers relative to the small and unlisted borrowers of recipient banks, respectively.

As above, these hypotheses are not mutually exclusive and we are only able to tests which of these hypotheses empirically dominates the other overall.

Finally, we examine whether the changes in the credit terms for relationship borrowers as a result of bank bailouts are more or less favorable relative to the treatment for non-relationship borrowers. We offer two channels with opposing predictions.

- **Relationship borrowers' preservation channel**: Bailout recipients may improve contract terms relatively more for relationship borrowers than non-relationship borrowers to help preserve or enhance the relationships, enabling the banks to earn more in the long run from continuing business.
- **Non-relationship borrowers' attraction channel**: Bailout recipient banks may improve loan contract terms relatively more for non-relationship borrowers, as these borrowers do not have a recent history with the bank, and may require better terms to attract them.

Based on these channels, we compare the net impact of bank bailouts on changes in loan contract terms for relationship and non-relationship borrowers in our next set of opposing hypotheses:

H4a: Bank bailouts result in greater improvements in loan terms for relationship borrowers relative to non-relationship borrowers of recipient banks.

H4b: Bank bailouts result in greater improvements in loan terms for non-relationship borrowers relative to relationship borrowers of recipient banks.

As above, we are only able to measure which hypothesis empirically dominates overall.

7. Ancillary Results

7.1 Borrower Risk

Borrower S&P Credit Rating

To test hypotheses H2a and H2b on whether improvements in loan contract terms are greater for riskier or safer borrowers, respectively, we first use borrower S&P credit rating as a proxy for borrower risk. We group borrowers according to whether they have investment grade ratings (BBB or higher) versus speculative or junk ratings (BB or lower rated), and estimate the model for each of the subsamples.[31]

Regression estimates are shown in Table 8 Panel A1. Panel A2 reports the tests of equality between the two types of borrower groups. The results suggest that high-risk borrowers experienced more favorable loan contract terms as a result of TARP as indicated by the DID term coefficients, consistent with the empirical dominance of the Hypothesis H2a over H2b. The DID coefficients of all five loan contract terms are only significant for the riskier borrowers. The differences between the two groups are statistically and economically significant for *LOG (LOAN MATURITY)*, *COLLATERAL*, and *COV_INTENSITY_INDEX*.

Borrower Leverage

Similarly, we test hypotheses H2a and H2b using borrower leverage. We group borrowers according to whether they have low leverage ratio (*LEVERAGE* ≤ median) or high leverage ratio (*LEVERAGE* > median) and estimate the main DID regressions for each subsample.

The regression results are shown in Table 8 Panel B1. Panel B2 reports the tests of equality between the two types of borrower groups. We find that both groups of borrowers generally experience more favorable contract terms as a result of TARP, but terms are in most cases more favorable to high-risk borrowers, again consistent with the empirical dominance of the Hypothesis H2a over H2b. This is especially important for the effects on *COLLATERAL* and *COV_INTENSITY_INDEX*, where DID terms are only statistically significant for the riskier borrowers, and the differences are statistically and economically significant. These results are generally consistent with increased exploitation of moral hazard.

[31] We exclude unrated borrowers because their risks are unknown.

Borrower Cash Flow Volatility

Finally, we test hypotheses H2a and H2b using borrower cash flow volatility as a proxy for risk. We group borrowers according to whether they have low cash flow volatility (*CASH FLOW VOLATILITY* ≤ median) or high cash flow volatility (*CASH FLOW VOLATILITY* > median) and estimate the main DID regressions using each subsample.

The regression results are shown in Table 8 Panel C1. Panel C2 reports the tests of equality between the two borrower groups. For the risky borrowers, the DID coefficients of all five loan contract terms are significant, but for the safer borrowers, only the DID coefficient for *LOG (LOAN SIZE)* is significant.

7.2 Borrower Financial Constraints

Borrower Size

To test hypotheses H3a and H3b on whether the improvements in loan contract terms are greater for more financially-constrained borrowers, we first use borrower size as a proxy for financial constraints, following Hadlock and Pierce (2010). Smaller borrowers also tend to be more informationally opaque and have access to fewer sources of finance, so they are more bank dependent than large borrowers. We group borrowers according to whether they are large (*BORROWER_SIZE* > median) or small (*BORROWER_SIZE* ≤ median), and estimate the DID regressions using each of the subsamples.[32]

Regression estimates are shown in Table 9 Panel A1. Panel A2 reports the tests of equality between the two types of borrower groups. The results suggest that larger borrowers experienced more favorable loan contract terms as a result of TARP as indicated by the DID term coefficients, consistent with the empirical dominance of the Hypothesis H3b over H3a. This is especially important for the effects on *LOANSPREAD, LOG (LOAN SIZE)*, and *COV_INTENSITY_INDEX*, where DID terms are only statistically significant for the larger borrowers. The difference in *LOANSPREAD* between the two groups is a statistically and economically significant 52.321 basis points.

[32] In unreported tests, we also perform tests using the borrower total sales instead of total assets to proxy borrower size and obtain consistent results.

Borrower Public Status

We also test hypotheses H3a and H3b using borrower listing status. Publicly listed borrowers are generally more transparent and have better access to other external sources of finance. We compare the net impact of TARP on changes in loan contract terms for public versus private borrowers based on the borrower's listing status in the DealScan dataset, and estimate the main DID regressions using each subsample.[33]

The regression results are shown in Table 9 Panel B1. Panel B2 reports the tests of equality between the two types of borrower groups. The results suggest that public borrowers experienced more favorable loan contract terms as a result of TARP as indicated by the DID term coefficients: the DID coefficients of all five loan contract terms are only significant for the public borrowers. Overall, our results indicate that less-financially-constrained borrowers benefit more from the bailout.

7.3 Relationship Lending

We next explore whether relationship borrowers benefited more or less relative to non-relationship borrowers, i.e., which of the two hypotheses H4a and H4b, respectively, empirically dominates.

We group borrowers according to whether they had a relationship with a TARP bank in the pre-TARP period (2005:Q1-2008:Q4). Relationship is defined as a dummy indicating the same borrower and lead bank were involved in at least one loan over the pre-TARP period.

Regression estimates are shown in Table 10 Panel A1. Panel A2 reports the tests of equality of the DID terms for two types of borrowers. The estimated DID coefficients for the two groups of borrowers suggest that the change in contract terms is beneficial for both relationship and non-relationship borrowers for the first three contract terms. However, the favorable effects on collateral and covenant intensity are only significant for the non-relationship borrowers. These findings suggest that TARP banks used bailout funds to reach out to new borrowers as well as grant more favorable terms to existing clients, with slightly

[33] In unreported results, we also perform tests using Compustat to split borrowers into public and private, where a private firm would have an exchange code of 0, 1, 19, or 20, and results are consistent.

better terms for the non-relationship borrowers. The findings also imply that TARP studies that focus on borrowers with prior relationship with TARP banks may overlook some benefits of the program.

7.4 Additional Tests

In Internet Appendix Y we conduct several additional subsample analyses to determine which borrowers received benefits from the TARP program. The data suggest that a broad spectrum of borrowers experienced more favorable loan credit terms from TARP recipients: borrowers using term loans and revolvers, and borrowers from both relatively concentrated and unconcentrated industries. Thus, the data suggest that many types of business borrowers benefited from the TARP program.

8. Conclusions

Do bank bailouts result in net benefits or costs for their borrowers? We formulate and test hypotheses about the effects of these bailouts on loan contract terms to business borrowers – whether loan contract terms become more or less favorable for the borrowers of recipient banks (Hypotheses H1a and H1b); whether terms improve more for riskier or safer borrowers (Hypotheses H2a and H2b); whether terms improve more for more or less financially-constrained borrowers (Hypotheses H3a and H3b); and whether terms improved more for relationship or non-relationship borrowers (Hypotheses H4a and H4b). We use data from the U.S. TARP bailout during the recent financial crisis.

We first find that TARP bailout resulted in more favorable loan contract terms for recipient banks' business customers, consistent with the empirical dominance of H1a over H1b, and an increase in credit supply at the intensive margin. Conditional on borrower characteristics and ratings, bank characteristics, loan type, and industry and time fixed effects, we find that recipient banks tended to grant loans with lower spreads, larger amounts, longer maturities, less frequency of collateral, and less restrictive covenants. These findings are robust to dealing with potential endogeneity and other robustness checks, and suggest that borrowers significantly benefited from TARP.

Second, the improvement in loan contract terms due to TARP was more pronounced among the riskier borrowers, consistent with an increase in the exploitation of moral hazard incentives and the

empirical dominance of H2a over H2b. Borrowers with lower credit ratings, higher leverage, and higher cash flow volatility experienced significantly greater improvements in loan spread than other borrowers.

Third, the improvement in loan contract terms due to TARP was more pronounced for large and publicly-listed borrowers than for small and private borrowers, respectively, consistent with more benefits for less financially-constrained borrowers and the empirical dominance of H3b over H3a.

Fourth, we find that both relationship and non-relationship borrowers benefited from TARP. This finding suggests that TARP banks used bailout funds to reach out to new loan customers as well as to grant more favorable terms to existing clients.

This paper contributes to important strands of research. First, it adds to the broad bank bailout literature by studying whether the recipient banks' borrowers benefited from the TARP bailout. We focus on the effects of TARP on loan contract terms of these customers, about which there is no evidence in the extant literature. It adds to the literature on the effects of bailouts on bank borrowers, by clearing up some of the ambiguities in the event studies on the effects of TARP on the relationship borrowers. In contrast to these other studies, we examine actual changes in the treatment of loan customers, and cover both relationship and non-relationship borrowers. The paper also extends the literature on the effects of bank bailouts on credit supply at the extensive margin, by covering the intensive margin, or how borrowers that received credit are treated along five different dimensions of loan contract terms. It adds to the bank bailout and moral hazard literature where existing work focuses on the credit supply to risky and safe borrowers at the extensive margin. Our intensive margin result that risker borrowers benefit more from TARP supports an increase in the exploitation of moral hazard incentives. Our finding that the preponderance of improvements in loan contract terms goes to less financially-constrained borrowers raises a question whether TARP really helps companies that need capital the most. Finally, this paper also contributes to the broader literature on bank loan contracting by investigating how loan contracts are affected by bank bailouts, and by examining multiple loan contract dimensions in a single study.

In terms of policy implications our study adds to the literature and policy debate on the benefits and costs of the bank bailouts in general, and the benefits and costs of TARP in particular. Many of the social

benefits and costs of bailouts have been identified and studied extensively in the literature and are summarized elsewhere in Calomiris and Khan (2015) and Berger and Roman (forthcoming). This study suggests that borrowers generally receive more favorable treatment due to the bailout program, but most of the benefits do not fall on safer and more financially-constrained borrowers, suggesting that the social costs and benefits of TARP are more nuanced than previously documented and deserve further investigation.

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Table 1: Definitions and Summary Statistics

This table reports definitions and summary statistics of the variables for the full sample. All variables using dollar amounts are expressed in real 2012:Q4 dollars using the implicit GDP price deflator.

Variable Definitions and Summary Statistics for the Full Sample (2005-2012)

Type	Variable	Definition	Mean	p50	Std	p25	p75	N
LOAN CONTRACT TERMS VARIABLES (SOURCE: LPC DEALSCAN)	*LOANSPREAD*	The loan spread is the all-in spread drawn in the DealScan database. All-in spread drawn is defined as the amount the borrower pays in basis points over LIBOR or LIBOR equivalent for each dollar drawn down. For loans not based on LIBOR, LPC converts the spread into LIBOR terms by adding or subtracting a differential which is adjusted periodically. This measure adds the borrowing spread of the loan over LIBOR with any annual fee paid to the bank group.	187.991	175.000	137.312	92.500	250.000	5,372
	LOG (LOAN SIZE)	Natural logarithm of the loan facility amount. Loan amount is measured in millions of dollars.	19.210	19.337	1.493	18.369	20.212	5,973
	LOG (LOAN MATURITY)	Natural logarithm of the loan maturity. Maturity is measured in months.	3.816	4.111	0.581	3.611	4.111	5,869
	COLLATERAL	A dummy variable that equals one if the loan facility is secured by collateral and zero otherwise.	0.473	0.000	0.499	0.000	1.000	5,973
	COV_INTENSITY_INDEX	Bradley and Roberts (2015) covenant intensity index equal to the sum of six covenant indicators (collateral, dividend restriction, more than 2 financial covenants, asset sales sweep, equity issuance sweep, and debt issuance sweep). The index consists primarily of covenants that restrict borrower actions or provide lenders rights that are conditioned on adverse future events.	2.079	2.000	1.985	0.000	3.000	5,973
TARP VARIABLES (SOURCE: U.S. DEPARTMENT OF THE TREASURY)	*TARP RECIPIENT*	A dummy variable which takes a value of 1 if the bank was provided TARP capital support.	0.949	1.000	0.219	1.000	1.000	5,973
	LOG (1+BAILOUT AMOUNT)	The natural logarithm of (1 + the bank dollar bailout support); A larger value indicates a higher degree of TARP support.	15.920	17.034	3.756	17.034	17.034	5,973
	POST TARP	An indicator equal to 1 in 2009-2012 and 0 in 2005-2008.	0.333	0.000	0.471	0.000	1.000	5,973
BORROWER CONTROL VARIABLES (SOURCE: COMPUSTAT)	*BORROWER_SIZE*	The natural logarithm of book value of total assets of the borrower in millions of dollars.	7.529	7.466	1.776	6.281	8.724	5,973
	MARKET-TO-BOOK	Market-to-book ratio determined as the market value of equity (PRCC_F * CSHO), scaled by the book value of equity.	1.957	2.108	40.971	1.359	3.315	5,973
	LEVERAGE	The ratio of book value of total debt to book value of assets. Total Debt / (Total Debt + Market Value of Equity), where Total Debt = Long Term Debt + Total Debt in Current Liabilities.	0.273	0.223	0.228	0.097	0.394	5,973
	CASH FLOW VOLATILITY	Standard deviation of previous 12 quarterly cash flows, where Cash Flow = (Income Before Extraordinary Items + Depreciation and Amortization) / Total Assets, and Depreciation and Amortization (DP) is set to 0 if missing.	0.026	0.010	0.148	0.005	0.022	5,973
	PROFITABILITY	The ratio of Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) to Sales.	0.035	0.033	0.030	0.021	0.047	5,973
	TANGIBILITY	The ratio of net property, plant, and equipment (NPPE) to total assets.	0.326	0.251	0.249	0.123	0.502	5,973
	CASH HOLDINGS RATIO	Cash and marketable securities divided by total assets.	0.093	0.049	0.117	0.017	0.122	5,973
	BORROWER RATING DUMMIES	Dummy variables for S&P borrower credit rating types. It includes dummies for S&P ratings of AAA, AA, A, BBB, BB, B, CCC or below and 0 for those without a credit rating.						

Variable Definitions and Summary Statistics for the Full Sample (2005-2012) (cont.)

Type	Variable	Definition	Mean	p50	Std	p25	p75	N
BANK CONTROL VARIABLES (SOURCE: CALL REPORTS, SUMMARY OF DEPOSITS)	*BANK SIZE*	The natural logarithm of gross total assets (GTA) of the bank.	20.447	20.887	1.140	20.000	21.064	5,973
	CAMELS PROXY: *CAPITAL ADEQUACY*	Capitalization ratio, defined as equity capital divided by GTA. Capital adequacy refers to the amount of a bank's capital relative to its assets. Broadly, this criterion evaluates the extent to which a bank can absorb potential losses.	0.098	0.095	0.021	0.089	0.106	5,973
	CAMELS PROXY: *ASSET QUALITY*	Asset quality evaluates the overall condition of a bank's portfolio and is typically evaluated by a fraction of nonperforming assets and assets in default. Noncurrent loans and leases are loans that are past due for at least ninety days or are no longer accruing interest. Higher proportion of nonperforming assets indicates lower asset quality.	0.026	0.013	0.023	0.009	0.049	5,973
	CAMELS PROXY: *MANAGEMENT QUALITY*	A proxy for the bank's management quality calculated as the ratio of overhead expenses to GTA.	0.007	0.007	0.002	0.006	0.008	5,973
	CAMELS PROXY: *EARNINGS (ROA)*	Return on assets (ROA), measured as the ratio of the annualized net income to GTA.	0.023	0.020	0.017	0.012	0.033	5,973
	CAMELS PROXY: *LIQUIDITY*	Cash divided by bank total deposits.	0.087	0.079	0.060	0.056	0.098	5,973
	CAMELS PROXY: *SENSITIVITY TO MARKET RISK*	The sensitivity to interest rate risk, defined as the ratio of the absolute difference (gap) between short-term assets and short-term liabilities to GTA.	-0.163	-0.137	0.120	-0.258	-0.081	5,973
	HHI DEPOSITS	A measure of bank concentration, measured by the Herfindahl-Hirschman Deposits Index determined using the bank deposit data from the FDIC Summary of Deposits. Higher values show greater market concentration.	0.160	0.136	0.063	0.120	0.184	5,973
	PERCENT METROPOLITAN	Percent of the bank deposits which are in metropolitan areas (MSAs or NECMAs).	0.989	0.994	0.015	0.987	0.998	5,973
	FEE INCOME	The ratio of bank's non-interest income to total bank income.	0.353	0.350	0.098	0.290	0.429	5,973
	DIVERSIFICATION	Laeven and Levine (2007) measure of diversification across different sources of income, calculated as 1- | (Net Interest Income - Other Operating Income)/Total Operating Income|.	0.503	0.497	0.251	0.330	0.646	5,973
	DWTAF	Dummy equal to 1 if a bank received discount window (DW) or Term Auction facility (TAF) funding during the crisis.	0.980	1.000	0.139	1.000	1.000	5,973
OTHER CONTROLS (SOURCES: LPC DEALSCAN, COMPUSTAT)	*LOAN TYPE DUMMIES*	Dummy variables for loan types. It includes term loans, revolving credit lines, and other loans.						
	INDUSTRY FIXED EFFECTS	Dummy variables for borrower 2-digit SIC codes.						
	YEAR FIXED EFFECTS	Dummy variables for years in the sample.						
INSTRUMENTAL VARIABLE (SOURCES: CENTER FOR RESPONSIVE POLITICS, HOUSE OF REPRESENTATIVES, MISSOURI CENSUS DATA CENTER)	*SUBCOMMITTEES ON FINANCIAL INSTITUTIONS OR CAPITAL MARKETS*	A dummy variable which takes a value of 1 if a firm is headquartered in a district of a House member, who served on the Capital Markets Subcommittee or the Financial Institutions Subcommittee of the House Financial Services Committee in 2008 or 2009.	0.369	0.000	0.483	0.000	1.000	5,919

Table 2: Effects of TARP on Loan Contract Terms: Main Results

This table reports estimates from difference-in-difference (DID) regression estimates for analyzing the effects of TARP on loan contract terms. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	45.885***	-0.006	-0.031	-0.035	-0.282**
	(5.735)	(-0.087)	(-0.702)	(-1.052)	(-2.062)
POST TARP x TARP RECIPIENT	-41.974***	0.257***	0.185***	-0.083**	-0.484***
	(-2.716)	(2.647)	(3.570)	(-2.089)	(-2.787)
BORROWER_SIZE	-18.356***	0.647***	0.035***	-0.085***	-0.257***
	(-15.558)	(60.480)	(5.995)	(-19.228)	(-13.688)
MARKET-TO-BOOK	0.021	-0.000**	0.000	0.000	0.001
	(1.639)	(-1.972)	(0.653)	(1.253)	(1.443)
LEVERAGE	151.786***	-0.428***	-0.180***	0.293***	0.174
	(14.426)	(-5.369)	(-3.728)	(8.239)	(1.110)
CASH FLOW VOLATILITY	13.695	0.179**	-0.001	0.018	0.030
	(1.139)	(2.327)	(-0.033)	(0.892)	(0.279)
PROFITABILITY	-317.613***	1.992***	0.805***	-1.506***	-2.398***
	(-3.792)	(4.122)	(3.647)	(-7.389)	(-3.000)
TANGIBILITY	7.173	-0.093	-0.104**	-0.080**	-0.443***
	(0.714)	(-1.179)	(-2.422)	(-1.992)	(-2.662)
CASH HOLDINGS RATIO	71.589***	-0.855***	-0.157**	0.211***	-0.076
	(3.859)	(-7.001)	(-2.346)	(3.871)	(-0.312)
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.531	0.666	0.383	0.321	0.249

Table 3: Effects of TARP on Loan Contract Terms – Instrumental Variable (IV) Analysis

This table shows difference-in-difference (DID) regression estimates for analyzing the effects of TARP on loan contract terms using an instrumental variable approach as in Wooldridge Section 18.4.1 (Panels A and B), and Heckman's (1979) Selection Model (Panels A and C). We use as instrument the *SUBCOMMITTEES ON FINANCIAL INSTITUTIONS OR CAPITAL MARKETS. SUBCOMMITTEE ON FINANCIAL INSTITUTIONS OR CAPITAL MARKETS* is a variable, which takes a value of 1 if a firm is headquartered in a district of a House member, who served on the Capital Markets Subcommittee or the Financial Institutions Subcommittee of the House Financial Services Committee in 2008 or 2009. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 3 Panel A: First Stage – IV (as in Wooldridge Section 18.4.1)

Dependent Variable:	***TARP Recipient***
Independent Variables:	**(1)**
SUBCOMMITEES ON FINANCIAL INSTITUTIONS OR CAPITAL MARKETS	0.903***
	(3.015)
BORROWER CHARACTERISTICS	**YES**
BORROWER RATING DUMMIES	**YES**
BANK CHARACTERISTICS	**YES**
LOAN TYPE DUMMIES	**YES**
INDUSTRY FIXED EFFECTS	**YES**
YEAR FIXED EFFECTS	**YES**
Observations	4,987
Pseudo R-squared	0.656

Table 3 Panel B: Final Stage – IV (as in Wooldridge Section 18.4.1)

	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	11.849	0.234*	-0.002	-0.190***	-0.669**
	(0.728)	(1.681)	(-0.018)	(-3.023)	(-2.453)
POST TARP x TARP RECIPIENT	-55.168***	0.192*	0.165***	-0.088*	-0.643***
	(-2.608)	(1.653)	(2.654)	(-1.826)	(-2.959)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	4,503	4,987	4,892	4,987	4,987
Adjusted R-squared	0.535	0.674	0.364	0.321	0.250
First Stage Kleibergen-Paap rk Wald F-test	149.572***	149.572***	149.572***	149.572***	149.572***

Table 3 Panel C: Heckman's (1979) Selection Model – Outcome Equation

	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	12.612	0.410***	0.094	-0.128*	-0.473
	(0.785)	(2.711)	(1.097)	(-1.759)	(-1.630)
POST TARP x TARP RECIPIENT	-43.315**	0.232**	0.166***	-0.105**	-0.457**
	(-2.514)	(2.250)	(2.960)	(-2.312)	(-2.390)
LAMBDA	15.713**	-0.249***	-0.066	0.038	0.132
	(1.972)	(-2.995)	(-1.393)	(0.936)	(0.784)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	3,983	4,351	4,269	4,351	4,351
Adjusted R-squared	0.515	0.667	0.323	0.297	0.221

Table 4: Effects of TARP on Loan Contract Terms – Placebo Experiment

This table shows difference-in-difference (DID) regression estimates for analyzing the effects of TARP on loan contract terms using a placebo experiment. In the placebo experiment, we fictionally assume that the TARP participation took place four years earlier and we still distinguish between banks that received TARP and those that did not according to their "true" TARP program. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *PLACEBO POST TARP* (a dummy equal to one in 2005-2008, the period after the fictional TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2001-2008. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

	Assuming TARP Took Place Four Years Earlier				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	19.516***	-0.063	-0.052	-0.052**	-0.765***
	(3.333)	(-1.249)	(-1.622)	(-2.270)	(-7.400)
PLACIBO POST TARP x TARP RECIPIENT	15.151*	-0.046	0.081*	0.032	0.186
	(1.865)	(-0.642)	(1.748)	(0.926)	(1.218)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	8,117	8,856	8,622	8,857	8,857
Adjusted R-squared	0.524	0.726	0.456	0.357	0.286

Table 5: Alternative Measure of TARP

This table reports difference-in-difference (DID) regression estimates for the effects of TARP on loan contract terms using an alternative measure for TARP Support: *LOG (1+Bailout Amount)*. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *LOG (1+Bailout Amount), POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

	LOG (1+ Bailout Amount)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	2.958***	0.000	-0.002	-0.003	-0.021**
	(5.715)	(0.041)	(-0.729)	(-1.284)	(-2.305)
POST TARP x TARP RECIPIENT	-2.422**	0.015**	0.011***	-0.005**	-0.034***
	(-2.543)	(2.520)	(3.339)	(-2.073)	(-3.192)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.530	0.666	0.383	0.321	0.249

Table 6: Alternative Econometric Models

This table reports difference-in-difference (DID) regression estimates for the effects of TARP on loan contract terms using alternative econometric models: bank and year fixed effects in Panel A, bank, year and SIC fixed effects in Panel B, borrower state, year and SIC fixed effects in Panel C, state, year and SIC fixed effects with errors clustered at the borrower level in Panel D, borrower state and year fixed effects with errors clustered at the borrower level in Panel E, borrower state and year fixed effects with errors clustered at the borrower-bank level in Panel F, models excluding all bank-related controls other than proxies for CAMELS in Panel G, models excluding all bank-related controls in Panel H, .models excluding all borrower-related controls in Panel I, models excluding all bank and borrower-related controls in Panel J and alternative econometric models for collateral: probit model with year fixed effects, logit model with year fixed effects, conditional loglog model with year fixed effects, probit model with year and SIC fixed effects, logit model with year and SIC fixed effects, and conditional loglog model with year fixed effects and errors clustered at the SIC level in Panel K. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 6 Panel A: Regression Parameters – Bank, Year, and SIC Fixed Effects

	Bank, Year and SIC Fixed Effects				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
POST TARP x TARP RECIPIENT	-45.284**	0.264**	0.204***	-0.095**	-0.657***
	(-2.496)	(2.370)	(3.512)	(-2.123)	(-3.441)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BANK FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.534	0.668	0.393	0.328	0.257

Table 6 Panel B: Regression Parameters – Bank and Year Fixed Effects

	Bank and Year Fixed Effects				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
POST TARP x TARP RECIPIENT	-34.458*	0.310***	0.197***	-0.099**	-0.676***
	(-1.954)	(2.675)	(3.468)	(-2.317)	(-3.696)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BANK FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**NO**	**NO**	**NO**	**NO**	**NO**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,855	6,508	6,393	6,508	6,508
Adjusted R-squared	0.520	0.616	0.410	0.313	0.246

Table 6 Panel C: Regression Parameters – Borrower State, Year, and SIC Fixed Effects

	Borrower State, Year and SIC Fixed Effects				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	46.491***	-0.032	-0.025	-0.025	-0.268*
	(5.692)	(-0.472)	(-0.563)	(-0.728)	(-1.913)
POST TARP x TARP RECIPIENT	-38.434**	0.262***	0.156***	-0.084**	-0.496***
	(-2.505)	(2.665)	(2.955)	(-2.043)	(-2.823)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
STATE FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,304	5,891	5,788	5,891	5,891
Adjusted R-squared	0.539	0.672	0.388	0.331	0.255

Table 6 Panel D: Regression Parameters – Borrower State, Year, and SIC Fixed Effects and Borrower Clusters

	Borrower State, Year, and SIC Fixed Effects and Borrower Clusters				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	46.491***	-0.032	-0.025	-0.025	-0.268
	(4.601)	(-0.380)	(-0.487)	(-0.566)	(-1.474)
POST TARP x TARP RECIPIENT	-38.434**	0.262***	0.156**	-0.084*	-0.496**
	(-2.141)	(2.677)	(2.240)	(-1.811)	(-2.304)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
STATE FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER CLUSTERS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,304	5,891	5,788	5,891	5,891
Adjusted R-squared	0.539	0.672	0.388	0.331	0.255
No. Clusters	1985	2056	2041	2056	2056

Table 6 Panel E: Regression Parameters – SIC and Year Fixed Effects and Borrower Clusters

	SIC and Year Fixed Effects and Borrower Clusters				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	45.885***	-0.006	-0.031	-0.035	-0.282
	(4.565)	(-0.070)	(-0.599)	(-0.818)	(-1.580)
POST TARP x TARP RECIPIENT	-41.974**	0.257***	0.185***	-0.083*	-0.484**
	(-2.299)	(2.680)	(2.668)	(-1.878)	(-2.234)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER CLUSTERS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.531	0.666	0.383	0.321	0.249
No. Clusters	2020	2099	2083	2099	2099

Table 6 Panel F: Regression Parameters – SIC and Year Fixed Effects and Borrower-Bank Clusters

	SIC and Year Fixed Effects and Borrower-Bank Clusters				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	45.885***	-0.006	-0.031	-0.035	-0.282
	(4.567)	(-0.069)	(-0.595)	(-0.842)	(-1.570)
POST TARP x TARP RECIPIENT	-41.974**	0.257***	0.185***	-0.083*	-0.484**
	(-2.306)	(2.636)	(2.673)	(-1.856)	(-2.233)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER x BANK CLUSTERS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.531	0.666	0.383	0.321	0.249
No. Clusters	2374	2522	2498	2522	2522

Table 6 Panel G: Regression Parameters – Exclude Bank Characteristics Other than Proxies for CAMELS

	Excluding Bank Characteristics Other than Proxies for CAMELS				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	27.139***	0.139**	0.047	-0.060**	-0.370***
	(3.600)	(2.232)	(1.121)	(-2.008)	(-3.064)
POST TARP x TARP RECIPIENT	-33.661**	0.211**	0.189***	-0.078**	-0.380**
	(-2.205)	(2.232)	(3.687)	(-2.023)	(-2.276)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS other than CAMELS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,396	5,999	5,895	5,999	5,999
Adjusted R-squared	0.524	0.666	0.381	0.319	0.247

Table 6 Panel H: Regression Parameters – Exclude All Bank Characteristics

	Excluding All Bank Characteristics				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	20.515***	0.141**	0.037	-0.058**	-0.203*
	(3.040)	(2.518)	(1.052)	(-2.075)	(-1.768)
POST TARP x TARP RECIPIENT	-31.711**	0.248***	0.188***	-0.073**	-0.187
	(-2.191)	(2.821)	(3.935)	(-2.056)	(-1.188)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**NO**	**NO**	**NO**	**NO**	**NO**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,398	6,001	5,897	6,001	6,001
Adjusted R-squared	0.520	0.664	0.379	0.317	0.240

Table 6 Panel I: Regression Parameters – Exclude All Borrower Characteristics

	Excluding All Borrower Characteristics				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	44.641***	-0.241***	-0.128***	0.007	-0.168
	(5.140)	(-2.765)	(-3.195)	(0.221)	(-1.283)
POST TARP x TARP RECIPIENT	-58.612***	0.238*	0.255***	-0.113***	-0.454***
	(-3.465)	(1.875)	(5.111)	(-2.661)	(-2.675)
BORROWER CHARACTERISTICS	**NO**	**NO**	**NO**	**NO**	**NO**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	6,652	7,380	7,234	7,380	7,380
Adjusted R-squared	0.359	0.261	0.348	0.130	0.151

Table 6 Panel J: Regression Parameters – Using 2-Digit NAICS Industries

	Two-Digit NAICS Industries				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	46.473***	-0.029	-0.043	-0.025	-0.274**
	(5.834)	(-0.432)	(-0.978)	(-0.741)	(-1.997)
POST TARP x TARP RECIPIENT	-41.588***	0.257***	0.197***	-0.094**	-0.509***
	(-2.689)	(2.652)	(3.707)	(-2.367)	(-2.897)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT NAICS FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.526	0.665	0.379	0.318	0.238

Table 6 Panel K: Regression Parameters – Using Fama-French 48 Industries

	Fama-French 48 Industries				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	45.118***	-0.019	-0.039	-0.035	-0.281**
	(5.667)	(-0.280)	(-0.900)	(-1.035)	(-2.039)
POST TARP x TARP RECIPIENT	-44.858***	0.208**	0.194***	-0.090**	-0.502***
	(-2.875)	(2.180)	(3.708)	(-2.237)	(-2.868)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
FF48 FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,343	5,940	5,837	5,940	5,940
Adjusted R-squared	0.531	0.669	0.383	0.320	0.246

Table 6 Panel L: Regression Parameters – Alternative Models for Collateral

	Alternative Models for Collateral					
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	***PROBIT***	***LOGIT***	***CLOGLOG***	***PROBIT***	***LOGIT***	***CLOGLOG***
TARP RECIPIENT	0.007	-0.007	0.051	-0.038	-0.099	0.018
	(0.063)	(-0.036)	(0.451)	(-0.329)	(-0.501)	(0.152)
POST TARP x TARP RECIPIENT	-0.417***	-0.683***	-0.576***	-0.419***	-0.637**	-0.544***
	(-2.829)	(-2.679)	(-3.788)	(-2.653)	(-2.304)	(-3.388)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**NO**	**NO**	**NO**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	6,463	6,463	6,463	5,831	5,831	5,831
Pseudo R-squared (or R-squared)	0.265	0.266		0.275	0.277	

Table 7: Additional Robustness Tests

This table reports difference-in-difference (DID) regression estimates for the effects of TARP on loan contract terms from additional robustness tests. Panel A reports estimates when excluding borrowers with missing S&P credit rating. Panel B reports estimates when excluding borrowers with only 1 loan. . Panel C reports estimates when excluding foreign banks. Panel D reports estimates for the timing of the impact of TARP on loan contract terms. The dependent variables are the five loan contract terms: loan size, spread, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction (Panel A, B, C, and D). In Panel D, the coefficients are the interactions of the TARP Recipient variable with year dummies for each year after the TARP program was implemented (2009, 2010, 2011, and 2012). In Panel E, we examine effects of TARP on loan contract terms for involuntary and voluntary TARP participants. In all regression, we also control for borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 7 Panel A: Regression Parameters – Exclude Borrowers with Missing S&P Credit Rating

	Exclude borrowers with missing ratings				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	36.298**	0.011	-0.024	-0.197***	-0.163
	(2.405)	(0.070)	(-0.264)	(-2.666)	(-0.549)
POST TARP x TARP RECIPIENT	-50.990***	0.429***	0.199**	-0.090*	-1.043***
	(-2.606)	(2.717)	(2.483)	(-1.664)	(-3.858)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	2,664	3,014	2,949	3,014	3,014
Adjusted R-squared	0.661	0.520	0.496	0.447	0.351

Table 7 Panel B: Regression Parameters – Exclude Borrowers with Only 1 Loan

	Exclude borrowers with only 1 loan				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	43.931***	-0.044	-0.009	-0.057	-0.323**
	(4.919)	(-0.556)	(-0.180)	(-1.533)	(-2.073)
POST TARP x TARP RECIPIENT	-44.434***	0.322***	0.194***	-0.082*	-0.515***
	(-2.653)	(2.989)	(3.440)	(-1.883)	(-2.717)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	4,817	5,372	5,278	5,372	5,372
Adjusted R-squared	0.538	0.647	0.386	0.329	0.267

Table 7 Panel C: Regression Parameters – Exclude Foreign Banks

	Exclude Foreign Banks				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	36.746***	-0.135	0.077	-0.007	-0.363
	(2.631)	(-1.259)	(1.103)	(-0.120)	(-1.527)
POST TARP x TARP RECIPIENT	-48.900**	0.467***	0.302***	-0.101**	-0.520**
	(-2.214)	(3.575)	(4.554)	(-2.028)	(-2.217)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	4,663	5,212	5,119	5,212	5,212
Adjusted R-squared	0.540	0.643	0.397	0.326	0.262

Table 7 Panel D: Regression Parameters – Timing of the Effects

	Timeline of TARP Effects				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	47.114***	-0.013	-0.033	-0.036	-0.276**
	(5.889)	(-0.192)	(-0.748)	(-1.073)	(-2.003)
POST TARP 2009 x TARP RECIPIENT	-35.537**	0.207**	0.161***	-0.083**	-0.383**
	(-2.112)	(2.002)	(2.925)	(-2.017)	(-2.056)
POST TARP 2010 x TARP RECIPIENT	-56.874***	0.352***	0.202***	-0.091*	-0.587***
	(-3.633)	(3.073)	(3.367)	(-1.799)	(-2.720)
POST TARP 2011 x TARP RECIPIENT	-52.606***	0.358***	0.247***	-0.087	-0.739***
	(-3.145)	(2.852)	(3.766)	(-1.454)	(-3.099)
POST TARP 2012 x TARP RECIPIENT	-58.945***	0.310*	0.260***	-0.002	-0.540*
	(-2.798)	(1.947)	(3.265)	(-0.028)	(-1.809)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.531	0.666	0.383	0.321	0.249

Table 7 Panel E: Regression Parameters – Involuntary and Voluntary Participants

	Involuntary and Voluntary Participants				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT INVOL	78.213***	-0.127	-0.136**	0.068	-0.411**
	(7.568)	(-1.464)	(-2.322)	(1.539)	(-2.232)
TARP RECIPIENT VOL	38.490***	0.020	-0.027	-0.056	-0.341**
	(4.676)	(0.280)	(-0.574)	(-1.567)	(-2.325)
POST TARP x TARP RECIPIENT INVOL	-34.444**	0.232**	0.142***	-0.061	-0.616***
	(-2.061)	(2.252)	(2.607)	(-1.439)	(-3.356)
POST TARP x TARP RECIPIENT VOL	-32.146**	0.218**	0.193***	-0.054	-0.315
	(-1.990)	(2.013)	(3.142)	(-1.098)	(-1.529)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.532	0.666	0.384	0.322	0.249

Table 7 Panel F: Regression Parameters – Stress Test and Non-Stress Test Participants

	Stress Tests (SCAP and CCAR) and Non-Stress Tests Participants				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
STRESS-TEST TARP RECIPIENT	35.412***	0.089	-0.035	-0.089**	-0.306*
	(4.016)	(1.169)	(-0.729)	(-2.317)	(-1.906)
NON-STRESS-TEST TARP RECIPIENT	78.954***	-0.296***	-0.047	0.115**	-0.271
	(6.424)	(-2.761)	(-0.681)	(2.416)	(-1.218)
POST TARP x STRESS-TEST TARP RECIPIENT	-37.936**	0.231**	0.174***	-0.076*	-0.505***
	(-2.438)	(2.324)	(3.319)	(-1.836)	(-2.837)
POST TARP x NON-STRESS-TEST TARP RECIPIENT	-84.244***	0.541***	0.286***	-0.184**	-0.303
	(-2.973)	(3.497)	(2.641)	(-2.326)	(-0.892)
BORROWER CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CHARACTERISTICS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
INDUSTRY FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,372	5,973	5,869	5,973	5,973
Adjusted R-squared	0.531	0.666	0.383	0.322	0.249

Table 8: Effects of TARP on Loan Contract Terms: Borrower Risk

This table shows additional subsample tests for analyzing the effects of TARP on loan contract terms. It reports difference-in-difference (DID) regression estimates when differentiating between low versus high risk borrowers. Panel A reports the difference-in-difference (DID) regression estimates for TARP lending to high risk borrowers (BB and below S&P credit rating borrowers) and low risk borrowers (BBB and above S&P credit rating borrowers) in Panel A1 and the tests of the equality of the effects of TARP lending for the two different types of borrowers in Panel A2. Panel B reports the difference-in-difference (DID) regression estimates for TARP lending to low risk borrowers (low leverage borrowers, that is leverage ≤ median) and high risk borrowers (high leverage borrowers, that is leverage > median) in Panel B1 and the tests of the equality of the effects of TARP lending for the two different types of borrowers in Panel B2. Panel C reports the difference-in-difference (DID) regression estimates for TARP lending to low risk borrowers (low cash flow volatility borrowers, that is cash flow volatility ≤ median) and high risk borrowers (high cash flow volatility borrowers, that is cash flow volatility > median) in Panel C1 and the tests of the equality of the effects of TARP lending for the two different types of borrowers in Panel C2.The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 8 Panel A: Effects by Borrower Risk: S&P Credit Rating

Table 8 Panel A1: Regression Estimates

	High Risk Borrowers (S&P Credit Rating BB and below)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	72.453***	-0.009	-0.034	-0.240**	0.213
	(3.466)	(-0.044)	(-0.268)	(-2.476)	(0.504)
POST TARP x TARP RECIPIENT	-63.352**	0.526**	0.313***	-0.198**	-1.980***
	(-2.108)	(2.466)	(2.834)	(-2.301)	(-4.900)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	1,453	1,590	1,533	1,590	1,590
Adjusted R-squared	0.524	0.484	0.246	0.088	0.168

	Low Risk Borrowers (S&P Credit Rating BBB and above)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	-50.191**	0.150	-0.012	-0.243*	-0.191
	(-2.292)	(0.530)	(-0.103)	(-1.850)	(-0.542)
POST TARP x TARP RECIPIENT	-7.846	0.282	-0.070	0.055	0.246
	(-0.374)	(1.044)	(-0.782)	(0.694)	(0.678)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	1,211	1,424	1,416	1,424	1,424
Adjusted R-squared	0.732	0.471	0.662	0.157	0.287

Table 8 Panel A2: Tests of the Equality of the Effects of TARP for Different Types of Borrowers

	Borrower Risk (S&P Credit Rating)				
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
***t-stat*:** Effect for high risk borrowers = effect for low risk borrowers	-1.514	0.710	2.695***	-2.167**	-4.099***

Table 8 Panel B: Effects by Borrower Risk: High Leverage vs. Low Leverage

Table 8 Panel B1: Regression Estimates

	High Risk Borrowers (Leverage > Median)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	27.066**	0.110	-0.065	-0.007	-0.132
	(2.274)	(0.965)	(-0.970)	(-0.138)	(-0.595)
POST TARP x TARP RECIPIENT	-45.707**	0.183	0.135**	-0.157***	-0.873***
	(-2.333)	(1.449)	(2.049)	(-3.056)	(-3.755)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	2,609	2,865	2,802	2,865	2,865
Adjusted R-squared	0.560	0.597	0.335	0.320	0.248

	Low Risk Borrowers (Leverage ≤ Median)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	44.304***	-0.094	0.019	-0.088**	-0.394**
	(4.525)	(-1.132)	(0.361)	(-1.976)	(-2.266)
POST TARP x TARP RECIPIENT	-26.788	0.309**	0.212**	0.006	0.044
	(-1.173)	(2.084)	(2.410)	(0.083)	(0.166)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	2,763	3,108	3,067	3,108	3,108
Adjusted R-squared	0.460	0.732	0.452	0.334	0.290

Table 8 Panel B2: Tests of the Equality of the Effects of TARP for Different Types of Borrowers

	Borrower Risk (Leverage, Median Cutoff)				
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
t-stat: Effect for high risk borrowers = Effect for low risk borrowers	-0.629	-0.648	-0.700	-1.954*	-2.615**

Table 8 Panel C: Effects by Borrower Risk: Cash Flow Volatility

Table 8 Panel C1: Regression Estimates

	High Risk Borrowers (Cash Flow Volatility > Median)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	62.459***	0.001	-0.138**	-0.057	-0.256
	(5.579)	(0.010)	(-2.384)	(-1.379)	(-1.479)
POST TARP x TARP RECIPIENT	-48.099**	0.238*	0.228***	-0.108**	-0.666***
	(-2.272)	(1.941)	(3.491)	(-2.266)	(-3.016)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	2,731	2,986	2,937	2,986	2,986
Adjusted R-squared	0.479	0.670	0.309	0.278	0.199

	Low Risk Borrowers (Cash Flow Volatility ≤ Median)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	8.916	0.020	0.159**	-0.049	-0.242
	(0.779)	(0.168)	(2.386)	(-0.773)	(-1.017)
POST TARP x TARP RECIPIENT	-28.013	0.287*	0.093	-0.026	-0.094
	(-1.543)	(1.886)	(1.113)	(-0.340)	(-0.321)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	2,641	2,987	2,932	2,987	2,987
Adjusted R-squared	0.561	0.639	0.475	0.326	0.302

Table 8 Panel C2: Tests of the Equality of the Effects of TARP for Different Types of Borrowers

	Borrower Risk (Cash Flow Volatility, Median Cutoff)				
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
t-stat: Effect for high risk borrowers = Effect for low risk borrowers	-0.720	-0.251	1.271	-0.895	-2.071**

Table 9: Effects of TARP on Loan Contract Terms: Borrower Financial Constraints

This table shows additional subsample tests for analyzing the effects of TARP on loan contract terms. It reports the difference-in-difference (DID) regression estimates for the effect of TARP on loan terms to borrowers with different characteristics: effect of TARP on large and small size borrowers (using median as a cutoff for the *BORROWER SIZE* in terms of total assets) in Panel A1 and public versus private status borrowers in Panel B1. The tests of the equality of the effects of TARP lending for the different types of borrowers are reported in Panels A2 and B2, respectively. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 9 Panel A: Effects by Borrower Financial Constraints: Large versus Small Borrowers

Table 9 Panel A1: Regression Estimates

	Large Borrowers (Borrower Size > Median)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	38.950**	0.154	-0.273**	-0.177**	-0.181
	(2.414)	(0.804)	(-2.333)	(-2.055)	(-0.630)
POST TARP x TARP RECIPIENT	-67.952***	0.403**	0.244***	-0.046	-0.662**
	(-2.919)	(2.385)	(2.777)	(-0.772)	(-2.387)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	2,315	2,665	2,625	2,665	2,665
Adjusted R-squared	0.638	0.381	0.524	0.418	0.325

	Small Borrowers (Borrower Size ≤ Median)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	40.467***	0.038	-0.001	-0.017	-0.221
	(4.202)	(0.510)	(-0.020)	(-0.417)	(-1.343)
POST TARP x TARP RECIPIENT	-15.631	0.072	0.186***	-0.035	-0.221
	(-0.795)	(0.624)	(2.855)	(-0.633)	(-0.963)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	3,057	3,308	3,244	3,308	3,308
Adjusted R-squared	0.445	0.555	0.261	0.156	0.113

Table 9 Panel A2: Tests of the Equality of the Effects of TARP for Different Types of Borrowers

	Borrower Size (Median Cutoff)				
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
t-stat: Effect for large borrowers = effect for small borrowers	-1.717*	1.615	0.530	-0.134	-1.225

Table 9 Panel B: Effects by Borrower Financial Constraints: Public versus Private Borrowers

Table 9 Panel B1: Regression Estimates

	Public Borrowers (Public =1)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	47.806***	-0.053	-0.037	-0.029	-0.263*
	(5.575)	(-0.730)	(-0.819)	(-0.793)	(-1.801)
POST TARP x TARP RECIPIENT	-51.874***	0.235**	0.203***	-0.098**	-0.565***
	(-3.145)	(2.229)	(3.537)	(-2.229)	(-3.039)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	4,235	4,716	4,652	4,716	4,716
Adjusted R-squared	0.575	0.701	0.416	0.341	0.273

	Private Borrowers (Public =0)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	42.711**	0.279	0.054	0.008	0.046
	(2.012)	(1.577)	(0.493)	(0.090)	(0.122)
POST TARP x TARP RECIPIENT	-8.560	0.249	-0.043	-0.031	-0.538
	(-0.244)	(1.160)	(-0.346)	(-0.323)	(-1.248)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	1,137	1,257	1,217	1,257	1,257
Adjusted R-squared	0.431	0.552	0.308	0.281	0.218

Table 9 Panel B2: Tests of the Equality of the Effects of TARP for Different Types of Borrowers

	Public vs. Private Borrowers				
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
t-stat: Effect for publicly listed borrowers = effect for private borrowers	-1.117	-0.058	1.791*	-0.640	-0.058

Table 10: Effects of TARP on Loan Contract Terms: Relationship Lending

This table shows additional subsample tests for analyzing the effects of TARP on loan contract terms. It reports the difference-in-difference (DID) regression estimates for TARP lending to relationship borrowers (borrowers with a prior relationship to a TARP bank in the pre-TARP period) and non-relationship borrowers (borrowers without a prior relationship to a TARP bank in the pre-TARP period) in Panel A1 and the tests of the equality of the effects of TARP lending for the two different types of borrowers in Panel A2. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 10 Panel A: Effects by Borrower Relationship Lending Status: Borrowers with a prior relationship to TARP banks versus those without one

Table 10 Panel A1: Regression Estimates

	Borrowers with a prior relationship to TARP banks				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	17.275	-0.136	0.060	-0.302***	-0.845*
	(0.530)	(-0.596)	(0.430)	(-2.666)	(-1.744)
POST TARP x TARP RECIPIENT	-87.386**	0.455**	0.151*	-0.102	-0.200
	(-2.214)	(2.300)	(1.727)	(-1.318)	(-0.540)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	1,519	1,749	1,723	1,749	1,749
Adjusted R-squared	0.596	0.643	0.522	0.404	0.318

	Borrowers without a prior relationship to TARP banks				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	47.880***	-0.032	-0.042	0.002	-0.109
	(5.951)	(-0.453)	(-0.899)	(0.050)	(-0.727)
POST TARP x TARP RECIPIENT	-27.487*	0.186*	0.203***	-0.083*	-0.542***
	(-1.788)	(1.649)	(3.212)	(-1.732)	(-2.691)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	3,853	4,224	4,146	4,224	4,224
Adjusted R-squared	0.517	0.658	0.340	0.304	0.232

Table 10 Panel A2: Tests of the Equality of the Effects of TARP for Different Types of Borrowers

	Borrowers with a prior relationship to TARP banks vs. those without one				
	LOANSPREAD	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
t-stat: Effects for relationship borrowers = Effects for non-relationship borrowers	-1.414	1.126	-0.484	-0.209	0.811

INTERNET APPENDIX Y – ADDITIONAL TESTS

This appendix contains additional tests on which borrowers benefited from the TARP bailout program. Specifically we investigate whether borrowers using term loans and revolvers benefited and how benefits differ according to borrower market concentration (relatively low and high industry HHI borrowers).

Y.1 Different Loan Types

The DealScan dataset contains term loans, revolvers, and other loans. A term loan is for a specific amount that has a specified repayment schedule, while a revolver allows a borrower to drawdown, repay, and redraw up to a certain amount at any point over the life of the agreement. As noted in Ivashina (2009), there may be differences between term loans and revolvers. We explore whether borrowers using term loans benefited more or less relative to those using revolvers.

Theoretically, term loan or revolver borrowers may be treated differently because they differ in risk and relationship characteristics, both of which may have ambiguous effects as shown in Hypotheses H2a-b and H4a-b in Section 6. Either term loans or revolvers could be safer for banks. Term loans may be safer because of the extra takedown or liquidity risk associated with revolvers. Revolvers may be safer because they may be more often given to the safer borrowers. In addition, revolvers may be more often associated with banking relationships (Berger and Udell, 1995; Dennis, Nandy, and Sharpe, 2000). We rerun our analysis according to whether borrowers use term loans or revolvers.

Regression estimates are shown in Table Y.1 Panel A1, while the tests of equality between the different types of loans are shown in Panel A2. All loan contract terms improved more for term-loan borrowers, although the differences between term-loan and revolver borrowers are not statistically significant, except for loan size. Overall, TARP banks appear to have provided more favorable terms to borrowers using both loan types but more so for term-loan borrowers.

Y.2 Other Borrower Characteristics: Borrower Industry Concentration

Borrower market power may also affect loan contract term results. We do not have information on the market power of the borrower vis-à-vis the bank. However, following Giroud and Mueller (2011), we measure the borrower industry concentration (HHI), which may be relatively correlated with the borrower market power.[34] We group borrowers according to whether they are in relatively concentrated industries (industry HHI > median) or relatively unconcentrated industries (industry HHI ≤ median). We compare the net impact of TARP on changes in loan contract terms for the two different types of borrowers.

Regression estimates are shown in Table Y.2 Panel A1, while the tests of equality between the different groups are shown in Panel A2. We find that borrowers from both relatively concentrated and relatively unconcentrated industries experience improvements in contract terms as a result of TARP. Although the coefficients for loan spread and maturity are larger for the borrowers in relatively concentrated industries, the coefficients for loan size and covenant intensity are larger for the borrowers in relatively unconcentrated industries. However, the differences between the two types are not statistically significant.[35]

[34] The HHI is computed as the sum of squared market shares of the firms in each industry, where the market shares are computed from Compustat using the firms' total sales. When computing the HHI, we use all available Compustat firms, except firms for which sales are either missing or negative.

[35] In unreported tests, we also perform tests using an alternative proxy for borrower industry concentration – the top four firms in the industry concentration ratio – and we obtain consistent results.

Table Y.1: Effects of TARP on Loan Contract Terms: Loan Types

This table shows additional subsample tests for analyzing the effects of TARP on loan contract terms. It reports the difference-in-difference (DID) regression estimates for the effect of TARP on loan terms to borrowers for different loan types (term loans versus revolvers) in Panel A1. The tests of the equality of the effects of TARP lending for the two different types of loans are reported in Panel A2. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table Y.1 Panel A: Effects for Different Types of Loans: Term Loans versus Revolvers

Table Y.1 Panel A1: Regression Estimates

Loan Type: Term Loans					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	107.423***	-0.013	-0.203**	0.021	-0.199
	(4.609)	(-0.096)	(-2.034)	(0.291)	(-0.601)
POST TARP x TARP RECIPIENT	-78.453*	0.591***	0.385***	-0.173**	-0.906**
	(-1.868)	(2.840)	(2.934)	(-2.011)	(-2.285)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	1,313	1,400	1,358	1,400	1,400
Adjusted R-squared	0.406	0.625	0.198	0.173	0.154

Loan Type: Revolvers					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	27.767***	0.000	-0.008	-0.044	-0.242
	(3.395)	(0.000)	(-0.177)	(-1.092)	(-1.507)
POST TARP x TARP RECIPIENT	-30.193**	0.088	0.137**	-0.059	-0.292
	(-1.962)	(0.845)	(2.376)	(-1.130)	(-1.408)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	3,753	4,067	4,032	4,067	4,067
Adjusted R-squared	0.600	0.696	0.196	0.336	0.242

Table Y.1 Panel A2: Tests of the Equality of the Effects of TARP for Different Types of Loans

Term Loans versus Revolvers					
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
t-stat: Effect for term loans = effect for revolvers	-1.079	2.159**	1.731	-1.134	-1.374

Table Y.2: Effects of TARP on Loan Contract Terms: Other Borrower Characteristics

This table shows additional subsample tests for analyzing the effects of TARP on loan contract terms. It reports the difference-in-difference (DID) regression estimates for the effect of TARP on loan terms to borrowers from relatively concentrated and unconcentrated industries (using median as a cutoff for the borrower industry HHI) in Panel A1. The tests of the equality of the effects of TARP lending for the different types of borrowers are reported in Panel A2. The dependent variables are the five loan contract terms: loan spread, size, maturity, collateral, and covenant intensity index. The explanatory variables are *TARP RECIPIENT* (a dummy equal to one if the bank was provided TARP capital support), *POST TARP* (a dummy equal to one in 2009-2012, the period after TARP program initiation), their interaction, as well as borrower and other bank characteristics. Borrower characteristics are borrower size, market-to-book, leverage, profitability, tangibility, cash flow volatility, cash holdings ratio. Borrower rating dummies are borrower S&P credit rating dummies. Bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, diversification, and DWTAF (Discount Window and/or Term Auction Facility programs). Models also include loan type dummies, industry (2-digit SIC) fixed effects and year-fixed effects. The estimation results are for 2005-2012. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table Y.2 Panel A: Effects for Borrowers in Relatively Concentrated (High HHI) and Unconcentrated (Low HHI) Industries

Table Y.2 Panel A1: Regression Estimates

Borrowers in Relatively Unconcentrated Industries (Borrower Industry HHI ≤ Median)					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	54.840***	-0.031	0.027	-0.015	-0.108
	(4.958)	(-0.310)	(0.411)	(-0.300)	(-0.540)
POST TARP x TARP RECIPIENT	-36.647*	0.342**	0.141*	-0.060	-0.495**
	(-1.784)	(2.227)	(1.779)	(-1.029)	(-1.988)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	2,376	2,627	2,574	2,627	2,627
Adjusted R-squared	0.507	0.659	0.354	0.329	0.272

Borrowers in Relatively Concentrated Industries (Borrower Industry HHI > Median)					
	(1)	(2)	(3)	(4)	(5)
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
TARP RECIPIENT	26.818**	0.005	-0.050	-0.041	-0.466**
	(2.287)	(0.057)	(-0.887)	(-0.846)	(-2.388)
POST TARP x TARP RECIPIENT	-49.436**	0.170	0.203***	-0.060	-0.381
	(-2.054)	(1.406)	(2.912)	(-1.079)	(-1.557)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BORROWER RATING DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
2-DIGIT SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	2,996	3,346	3,295	3,346	3,346
Adjusted R-squared	0.567	0.674	0.408	0.329	0.249

Table Y.2 Panel A2: Tests of the Equality of the Effects of TARP for Different Types of Borrowers

Borrowers in Relatively Unconcentrated (Low HHI) and Concentrated (High HHI) Industries					
VARIABLES	***LOANSPREAD***	***LOG (LOAN SIZE)***	***LOG (LOAN MATURITY)***	***COLLATERAL***	***COV_INTENSITY_INDEX***
t-stat: Effects for low HHI borrower = effects for high HHI borrower	0.404	0.878	-0.587	0.000	-0.327