Did Bank Borrowers Benefit from the TARP Program?
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
makaewt@sec.gov

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

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Abstract

We study the effects of the Troubled Asset Relief Program (TARP) on loan contract terms to businesses borrowing from recipient banks. Using a difference-in-difference analysis, we find that TARP led to more favorable terms to these borrowers in all five contract terms studied – loan amounts, spreads, maturities, collateral, and covenants. This suggests recipient banks' borrowers benefited from TARP. These findings are statistically and economically significant, and are robust to dealing with potential endogeneity issues and other checks. The contract term improvements are concentrated primarily among safer borrowers, consistent with a decrease in the exploitation of moral hazard incentives. Benefits extended to both relationship and non-relationship borrowers, and to term loan, revolver, and other loan borrowers. Results contribute to the TARP benefits-costs debate, by adding to the list of benefits of the program.

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1. Introduction

The U.S. Treasury infused capital into a large number of banking organizations during 2008-2009 as part of the Troubled Asset Relief Program (TARP). From a policy perspective, whether or not the TARP program was worthwhile depends on its many consequences, one of which is whether the borrowers from the recipient banks benefited. Many of the other consequences (e.g., whether credit increased, changes in bank portfolio risk, employment effects, competitive advantages conferred, etc.) have been covered elsewhere in the literature, but there is very little evidence on the issue of whether the recipient banks' borrowers benefited from the bailout. As discussed below, the event study evidence that does exist on this point is contradictory and only covers borrowers with prior relationships with these banks.

This paper examines the effects of TARP on loan contract terms to business borrowers using information from Loan Pricing Corporation (LPC)'s DealScan dataset. Importantly, while most of the prior studies are at the bank or market level, we use loan-level data and examine the effects of TARP from the perspective of the borrowers. Moreover, unlike most of the prior TARP literature, we are able to control in the regressions for borrower characteristics using COMPUSTAT. This is important because certain types of loan customers may self-select to borrow from TARP or non-TARP banks, and because these characteristics are key determinants of loan contract terms. We also control for bank characteristics using Call Report information. In addition, we identify which types of borrowers – safer or riskier, relationship and non-relationship, and term loan versus revolver – benefited more from the bailout. Using a difference-in-difference (DID) methodology, we have several main findings.

First, TARP led to more favorable loan contract terms to borrowers in all five dimensions studied. Conditional on borrower attributes, bank characteristics, loan type, and time, recipient banks granted larger loans with lower spreads, longer maturities, less frequency of collateral, and less restrictive covenants. These results strongly suggest that the recipient banks' borrowers benefited from the TARP program. These findings are statistically and economically significant and robust to dealing with potential endogeneity issues and other checks.

Second, improvements in loan contract terms are concentrated primarily among safer borrowers, consistent with a decrease in the exploitation of moral hazard incentives. Borrowers with lower leverage and higher credit ratings experienced significantly greater improvements in loan spread, arguably the most important contract term, than riskier borrowers as a result of the bailout.

Third, both relationship and non-relationship borrowers benefited from TARP. Both experienced improvements in loan credit terms, with slightly more improvements for the non-relationship borrowers. This is consistent with the notion that TARP banks used bailout funds to reach out to both new and existing loan borrowers.

Fourth, borrowers using term loans, revolvers, and other loans all experienced more favorable loan credit terms. Finally, benefits in terms loans are pertinent for lenders with both low and high lender shares, with slightly better improvements when the lender has a higher share. Overall, these results strongly suggest that the recipient banks' borrowers benefited from the TARP program.

Our paper contributes to several strands of literature. We add to the event study literature of TARP. Two recent 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. By contrast, Liu (2013) finds that borrowers with relationships with TARP banks suffered significant valuation losses around the time of TARP approval announcements. Our work adds to this event-study research in several 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 unclear 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 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). Borrower conditions may change between the time the TARP program is initiated and the time the loan is issued and for many reasons, possibly in part because the TARP acceptance may be related to improving local economic conditions or relationship borrower characteristics that are not caused by the capital injection itself. 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. In contrast, we are able to control for borrower characteristics and examine the actual effects of TARP on the borrowers' loan contract terms at the time the loans are issued.

Finally, 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 find that non-relationship borrowers benefited slightly more than relationship borrowers from the bailout program.

We also add to the studies that investigate the impact of TARP on credit supply. The results of these studies are not uniform. Li (2013) and Puddu and Walchli (2013) find that TARP banks expanded their credit supply.[2] Black and Hazelwood (2013) find mixed results 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 examine the effects on credit supply to borrowers by examining their loan amounts as well as other types of loan contract terms, which also give direct evidence on whether the change in supply significantly benefited borrowers, providing a fuller picture of the change in credit supply. We find that loan terms become more significantly favorable after TARP for all of the borrower groups studied, consistent with an increase in credit supply and with significant net benefits to the borrowers.

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[2] Chang, Contessi, and Francis (2014) find that banks that received TARP funds maintained lower cash-to-assets ratios (and thus lower excess reserves ratios), consistent with the view that the TARP capital injections may have resulted in more lending for TARP beneficiaries.

Our paper also adds to the bank bailout and moral hazard literature. Some papers predict that bailouts 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; Duchin and Sosyura, 2014; Berger and Roman, 2015; forthcoming). Alternatively, TARP 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[3]; Duchin and Sosyura, 2014). This evidence is generally viewed as support for the increased moral hazard incentives.

However, we argue that any increase in average risk of borrowers by TARP banks alone is not a sufficient condition for increased moral hazard. An alternative explanation is that TARP increases the supply of credit overall and TARP banks have to dip deeper into the pool of riskier borrowers to lend more. Our analysis of loan contract terms where we are able to control for borrower risk and other characteristics enables us to take a closer look at the moral hazard hypotheses. Our findings that the preponderance of improvements in loan contract terms due to TARP goes to safer borrowers suggests, if anything, a decrease in the exploitation of moral hazard incentives and suggests that safer borrowers may have more market power than riskier borrowers.

Our paper also adds to the substantial literature on other effects of TARP. Some recent papers examine the effects of TARP on banks' market power and valuations. Berger and Roman (forthcoming) find that TARP gave recipients competitive advantages and increased both their market shares and market power. Koetter and Noth (forthcoming) also find competitive distortions as a result of TARP for unsupported banks. Some related papers look at TARP banks' valuations. Ng, Vasvari, and Wittenberg-Moerman (2013) find that, despite lower initial equity returns during the program initiation, TARP banks

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[3] Black and Hazelwood (2013) find a decrease in risk for small recipient banks.

experienced significant increases in their valuations in subsequent periods. Veronesi and Zingales (2010) find that TARP increased the value of banks' financial claims by $130 billion. Kim and Stock (2012) report a positive impact on the market value of the supported banks' preferred stock. Liu, Kolari, Tippens, and Fraser (2013) find that TARP was successful in fostering bank financial and stock price recovery from the crisis. While these papers find that TARP increases recipient banks' market power and valuations, our paper suggests that these banks do not extract all the rents. Bank borrowers also receive substantially better treatment as a consequence of TARP.

Another study looks at the effects of TARP on real economic conditions. Berger and Roman (2015) find that banks' TARP bailouts were followed by increased net job creation and net hiring establishments, and decreased business and personal bankruptcies in the local markets in which the TARP banks operate. We show that the channel through which these real economic conditions may have improved is through an increase in credit supply. Calomiris and Khan (2015) summarize much of the literature on the costs and benefits of TARP. [4]

Another 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, 2015), and finds either reductions or increases in risk-taking, and reductions in credit growth and liquidity creation.

Our paper also adds to the large literature on bank loan contracting, which examines how loan contract terms reflect risk and information asymmetry. There are papers that focus on loan amounts,[5]

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[4] 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, 2013; Li, 2013; Duchin and Sosyura, 2014).

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

spreads,[6] loan maturity,[7] collateral,[8] and loan covenants.[9] Most papers focus on one or a few loan contract terms.[10] However, none of this literature has examined the effects of bank bailouts, the focus of this study. We study all five loan contract terms in a single study and find that all of them become more favorable after TARP.

The remainder of the paper is organized as follows. Section 2 outlines our main hypotheses. Section 3 describes the data and methodology. Sections 4 and 5 present our main results and robustness checks, respectively, of the effects of TARP on loan contract terms. Section 6 presents ancillary hypotheses for safer versus riskier borrowers, relationship versus non-relationship borrowers, and term loan versus revolver borrowers. Section 7 tests the hypotheses in Section 6. Section 8 concludes.

2. Main Hypotheses

It is unclear ex ante whether firms that borrow from TARP banks would benefit from the bailout. There are a number of channels through which the treatment of borrowers by TARP banks would improve, and others through which the treatment would worsen. These channels were previously used to motivate changes in competitive conditions for TARP banks (Berger and Roman, forthcoming), and changes in

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[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), Berger, Makaew, and Turk-Ariss (2014).

[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), Winton (1995), Chava and Roberts (2008), Nini, Smith, and Sufi (2009), Roberts and Sufi (2009a), Sufi (2009), Murfin (2012), and Freudenberg, Imbierowicz, Saunders, and Steffen (2013), 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), and Hasan, Hoi, and Zhang (forthcoming).

economic conditions in the local markets in which these banks operate (Berger and Roman, 2015), but they also may affect the treatment of borrowers through loan contract terms.

The following channels predict benefits for TARP bank borrowers in terms of more favorable loan contract terms:

- **Predation channel:** TARP banks may use the capital infusions to compete more aggressively, offering more favorable credit terms.

- **Stigma channel:** TARP 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.

- **Cost advantage channel:** TARP funds may be relatively cheap, resulting in TARP banks offering more favorable credit terms because of their lower marginal costs.

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

- **Charter value / quiet life channel:** The extra capital from the bailout may increase charter value and/or allow for a "quiet life," decreasing incentives to compete more aggressively, and offering less favorable credit terms.

- **Safety channel:** TARP banks may be perceived as safer due to the bailout and/or the selection TARP criteria which targeted "healthy, viable institutions," so borrowers may accept less favorable contract terms because TARP banks are less likely to fail or become financially distressed.

- **Cost disadvantage channel**: TARP funds may be relatively expensive, resulting in banks offering less favorable credit terms because of their higher marginal costs.

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.[11]

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[11] The predation and charter value/quiet life channels may also be regarded as opposites because they have opposing implications.

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

H1a: TARP results in more favorable loan terms for the borrowers of recipient banks.

H1b: TARP results in less favorable loan terms for the borrowers of recipient banks.

Berger and Roman (forthcoming) find that the safety channel and the cost disadvantage channel were the most important for the competitive conditions of TARP banks. However, in this research, we are unable to differentiate among the channels and determine which channels are most important, but we will find evidence consistent with one of these hypotheses. The hypotheses are not mutually exclusive and each of them may apply to different sets of banks. Our empirical analysis tests which of these hypotheses empirically dominates the other overall. We test empirically the net impact of TARP on loan size, spread, maturity, collateral, and covenant intensity to understand which of these hypotheses finds stronger empirical support. Our ancillary hypotheses are discussed below in Section 6.

3. Data and Methodology

3.1 Data and Sample

To examine the effects of TARP on recipient banks' borrowers, we use the Loan Pricing Corporation (LPC) DealScan dataset on corporate loans, which has detailed information on deal characteristics for corporate and middle market commercial loans.[12] We match the DealScan loan 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 our empirical analysis is a loan, also referred to as a facility or tranche in DealScan.

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[12] Although lenders in this data 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.

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). We follow Ivashina (2009) to identify the lead bank of a facility. If a lender is denoted as the "administrative 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 greatest assets.[13]

For each lender in DealScan, 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 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 $0.01 \times$ GTA, we replace equity with 1% of GTA (as in Berger and Bouwman, 2013). 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 transactions data for the period October 2008 to December 2009 (when TARP money

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

was distributed) and TARP recipients list are obtained from the Treasury's website.[14] 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 bank holding companies (BHCs), 87 commercial banks, 51 S&Ls and thrifts), since some institutions have multiple transactions – some received more than one TARP capital purchase and some made one or more repayments.[15] We exclude S&Ls and 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 also match DealScan to COMPUSTAT to obtain borrower financial information. COMPUSTAT contains accounting information on publicly traded 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-US 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 5,986 loan-firm-bank observations with complete information on firm and bank characteristics.

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

[15] 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.

3.2 Econometric Methodology

As our main 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). In this case, the treated group consists of banks that received TARP funds, and the control group consists of 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 banks alike.

To examine how the TARP program affects loan contract terms, the DID regression model has the following form for loan i from bank b to borrower j at time t:

(1) $Y_{i,j,b,t} = \beta_1$ *TARP RECIPIENT$_b$* + β_2 *POST TARP$_t$ x TARP RECIPIENT$_b$* +

+ β_3 *Borrower Characteristics$_{j,t-1}$* + β_4 *BORROWER RATING DUMMIES$_{j,t-1}$* +

+ β_5 *Other Bank Characteristics$_{b,t-1}$* + β_6 *LOAN TYPE DUMMIES$_i$* +

+ β_7 *SIC FIXED EFFECTS$_j$* + β_8 *YEAR FIXED EFFECTS$_t$* + $\mathcal{E}_{i,j,b,t}$

Y is one of the five loan contract terms: loan size, spread, 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). The *POST TARP* dummy 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 size 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 *SIC FIXED EFFECTS*; bank control variables other than TARP, *Other Bank Characteristics*; *LOAN TYPE DUMMIES;* and *YEAR FIXED EFFECTS*. ε 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 the variable descriptions and summary statistics for the full sample. We present the means, medians, standard deviations, and 25th and 75th percentiles across all loans in the sample for the variables used in our analyses.

Main dependent variables

For dependent variables, we consider five loan contract term dimensions. *LOG (LOAN SIZE)* is the natural logarithm of the amount of the loan. *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.[16] *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.[17]

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

[17] 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.

Table 1 shows that the average loan in our sample has *LOG (LOANSIZE)* of 19.209 (mean loan size is $585 million), *LOANSPREAD* of 187.819 basis points over LIBOR, *LOG (LOANMATURITY)* of 3.815 (mean loan maturity is 50.343 months). *COLLATERAL* is pledged on 46.8% of the loans, and the average covenant intensity index (*COV_INTENSITY_INDEX*) is 2.060.

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 also noted above, *POST TARP* is not included without the interaction term because it would be perfectly collinear with the time fixed effects. The table also shows *LOG (1+Bailout Amount)*, which is used below 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 industry fixed effects based on SIC Codes (*SIC FIXED EFFECTS*) to control for any industry patterns in

the loan contracts to borrowers.

We next control for bank characteristics. We include proxies for CAMELS (the declared set of financial criteria used by regulators for evaluating banks) following Duchin and Sosyura (2014). These are *CAPITAL ADEQUACY* (the ratio of equity capital divided by GTA); *ASSET QUALITY* (the fraction of nonperforming loans to total loans); *MANAGEMENT QUALITY* (the ratio of overhead expenses to GTA), *EARNINGS (*return on assets (ROA), the ratio of the annualized net income to GTA); *LIQUIDITY (*the ratio of cash over 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: *BANK SIZE*, the logarithm of gross total assets (GTA)[18]; *HHI DEPOSITS*, local deposit concentration; *PERCENT METROPOLITAN*, the percent of the bank deposits in metropolitan areas, either Metropolitan Statistical Areas (MSAs) or New England County Metropolitan Areas (NECMAs); *FEE INCOME*, the ratio of bank's non-interest income to total income, following Bayazitova and Shivdasani (2012), Berger and Bouwman (2013), Duchin and Sosyura (2014), Berger, Bouwman, Kick and Schaeck (2015), and Berger and Roman (2015, forthcoming); *DW* (Discount Window) – dummy equal to 1 if a bank received discount window loans during the crisis; and *TAF* (Term Auction Facility) – dummy equal to 1 if a bank received Term Auction Facility (TAF) funding during the crisis.[19]

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 LPC Dealscan

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[18] 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.

[19] Berger, Black, Bouwman, and Dlugosz (2014) 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.

is any of the following two categories, Revolver/Line < 1 Yr or Revolver/Line >= 1 Yr. Finally, we also create a dummy *OTHER LOANS* which comprises of any other loan type that do not fit in the first two categories. Finally, we also include *YEAR FIXED EFFECTS*, to control for any 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 bailout leads to more favorable loan contract terms in all five dimensions (columns 1-5). Conditional on other bank characteristics, borrower attributes, loan type, and time, we find that recipient banks tended to grant larger loans with lower spreads, longer maturities, less frequency of collateral, and less restrictive covenants. The estimated coefficients on the DID terms are 0.234 for *LOG (LOANSIZE)*, -39.941 for *LOANSPREAD*, 0.149 for *LOG (LOAN MATURITY)*, -0.098 for *COLLATERAL*, and -0.535 for *COV_INTENSITY_INDEX*, and all are statistically significant.

These results are also economically significant. The coefficient on the DID term of 0.234 in the loan size equation suggests that TARP results in an increase in loan size by approximately one-quarter. The coefficient on the DID term of -39.941 in the loan spread equation suggest that TARP results in a decrease in the loan spread by about 40 basis points.[20] The coefficient on the DID term of 0.149 in the maturity equation suggests that TARP results in an increase in the loan maturity by almost one-sixth. The coefficient on the DID term of -0.098 in the collateral equation suggests that TARP results in a decrease in the likelihood of collateral by about 10 percentage points. The coefficient on 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 2.080. Thus, TARP results in statistically and economically

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[20] 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 make sense for the other contract terms as it is not reasonable to assume that they are set last.

significant improvements in all five loan contract terms.[21] This is 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 size 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 covenant intensity is statistically significant but very small (a one standard deviation in the market-to-book ratio produces an average increase in the covenant intensity index of 0.032). 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 size and loan maturity, and increases loan spread, collateral, and covenant intensity. As expected, borrower *PROFITABILITY* favorably affects loan contract terms. It increases loan size and maturity and negatively impacts loan spread, collateral, and covenant intensity. Borrower *TANGIBILITY* is mostly insignificant, but has a slight negative effect on the collateral term. Borrower *CASH FLOW VOLATILITY* is mostly insignificant, but has a small positive impact on the loan size. Higher borrower *CASH HOLDINGS RATIO* yields mostly unfavorable contract terms – reduced loan size 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 unrated ones. For

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[21] In the loan size and loan maturity equations, because the dependent variable is expressed in logarithmic form, the coefficient estimates represent proportional change effects on the dependent variables of the independent variables.

example, in the loan spread regressions, the estimated coefficients on borrower dummies are -50.429, -39.323, -49.155,-33.507, 5.616, 43.202, and 90.843 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, TARP recipients tend to receive more favorable loan contract terms in all five dimensions: loan size, spread, maturity, collateral, and covenant intensity, 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. 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 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), and Berger and Roman (2015, forthcoming).

To find an instrument, we note that 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.[22] 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 3-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 all control variables from the main regression model for predicting the probability of receiving TARP. We then use the predicted probability obtained from the first stage as an instrument for the second stage. We instrument our *TARP Recipient* 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.[23]

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, stage regression in column (1) indicates that the instrumental variable is positively related to TARP injections, and the F-test indicates that the instrument is valid ($F = 227.497$ 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

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[22] 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 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).

[23] 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.

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 regress the *TARP Recipient* dummy on all control variables from our main specification and our instrumental variable. In the second stage (outcome equation), the loan contract terms are the dependent variables, and we include the self-selection parameter (inverse Mills ratio) estimated from the first stage.

The second-stage results are reported in Table 3 Panel C. When we control for potential self-selection bias, the results of the two-step estimation model continue to suggest that TARP is associated with improvements in loan contract terms for the borrowers in all dimensions studied, consistent with our main findings.

5.3 Placebo Experiment

As mentioned in Roberts and Whited (2012), the key assumption behind the DID estimator, the parallel trends assumption, is untestable, however authors propose performing a falsification sensitivity test to alleviate the concern that some alternative forces may drive the effects documented. To mitigate this potential problem, we follow their advice and conduct a placebo experiment. We 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 for the DID terms.

The results of the first placebo experiment, reported in Table 4, confirm that indeed there are no statistically significant results on all loan contract terms but one for the fictional TARP. In the case of loan size, loan spread, collateral, and covenant intensity, the effect of the fictional TARP program is insignificantly different from zero. The positive effect for loan maturity may reflect that these banks may have been providing higher loan maturity terms to customers in the period just before the TARP program started. In sum, the placebo experiment suggests that our main results generally do not appear to be driven by alternative forces.

5.4 Alternative Measure of TARP

We next test the robustness of our main results 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, industry, and 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. We also exclude various other bank control variables and borrower controls in Panels H-J. We use alternative functional forms for collateral in Panel K. The results show consistently more favorable treatment to borrowers by the TARP banks, and are generally statistically significant in all cases.

5.6 Additional Robustness Tests

Table 7 has additional robustness checks where 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 examine the timing of the effects of TARP on loan contract terms to borrowers. In the regressions, we replace our DID term, *POST TARP* x *TARP RECIPIENT*, with a series of DID terms, interacting the *TARP RECIPIENT* with each of the years after the TARP was implemented (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 in 2012.

Finally, in Panel D, 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, Goldman Sachs, Bank of New York, Bank of America, and State Street Bank.[24] We specify variables for the TARP involuntary and voluntary banks and interact these variables with our *Post TARP* dummy. Regression estimates are shown in Panel D. We find more favorable loan contract terms for borrowers from both involuntary and voluntary participants.

6. Ancillary Hypotheses

Given that find that TARP generally resulted in improved contract terms for borrowers, we next develop hypotheses to understand which types of borrowers benefited more from the bailout – safer or riskier, relationship or non-relationship, and those with term loans versus revolvers.

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

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[24] We exclude Merrill Lynch from the original 9 involuntary recipients because it is not a bank.

opposing predictions.

- **<u>Increased moral hazard channel</u>**: TARP increases 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.

- **<u>Decreased moral hazard channel</u>**: TARP reduces 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 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.

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.

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

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

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

These hypotheses are not mutually exclusive and each of them may apply to different sets of banks and borrowers. Our empirical analysis tests which of these hypotheses empirically dominates the other overall

We next examine whether the changes in the credit terms for relationship borrowers as a result of TARP is more or less favorable relative to the treatment for non-relationship borrowers. We offer two channels with opposing predictions.

- **Relationship-borrowers preservation channel**: TARP banks may improve contract terms relatively more for relationship borrowers than non-relationship borrowers to help preserve or enhance the relationships and enable the banks to make more profits in the long run from continuing business.

- **Non-relationship-borrowers attraction channel**: TARP 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 TARP on changes in loan contract terms for relationship and non-relationship borrowers in our next set of opposing hypotheses:

H3a: TARP results in greater improvements in loan terms for relationship borrowers relative to non-relationship borrowers of recipient banks.

H3b: TARP results in greater improvements in loan terms for non-relationship borrowers relative to relationship borrowers of recipient banks.

As above, these hypotheses are not mutually exclusive and each of them may apply to different sets of banks and borrowers, and we are only able to measure which hypothesis empirically dominates the other overall.

Finally, as noted in Ivashina (2009), there may be differences between term loans and revolving credit facilities (or revolvers). 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. We explore whether borrowers using term loans or revolvers benefited more.

Results could go either way for term loans versus revolvers because they differ in risk and relationship characteristics, both of which may have ambiguous effects as shown in Hypotheses H2a-b and H3a-b above. Either term loans or revolvers could be safer. Term loans may be safer because of the extra

takedown 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 compare the net impact of TARP on changes in loan contract terms for the different types of loans to test the following opposing hypotheses:

H4a: TARP results in greater improvements in loan terms to borrowers using term loans relative to those using revolvers.

H4b: TARP results in greater improvements in loan terms to borrowers using revolvers relative to those using term loans.

As in the case of risk and relationships, these hypotheses are not mutually exclusive and each of them may apply to different sets of banks and borrowers, and we are only able to measure which hypothesis empirically dominates the other overall.

7. Ancillary Results

7.1 Borrower Risk

Borrower Leverage

Depending on which of the two hypotheses H2a and H2b presented in Section 6 empirically dominates, the improvements in loan contract terms could be greater for riskier or safer borrowers, respectively. We first test these hypotheses using leverage.

We group borrowers according to whether they have low leverage ratio (*LEVERAGE* < 0.50) or high leverage ratio (*LEVERAGE* ≥ 0.50) and create the following two dummies: *LOW RISK BORROWER* and *HIGH RISK BORROWER*. We interact these dummies with the *TARP RECIPIENT* dummy and obtain the following interaction terms: *TARP RECIPIENT_LENDING TO LOW RISK BORROWER* and *TARP*

RECIPIENT_LENDING TO HIGH RISK BORROWER. We then create interaction terms between the previously obtained variables and our *POST TARP* dummy.

The regressions are shown in Table 8 Panel A1, columns (1)-(5). Panel A2 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 low-risk borrowers, consistent with the empirical dominance of the Hypothesis H2b over H2a. This is especially important for the effect on *LOANSPREAD*, where DID term is only statistically significant for the safer borrowers, and the difference is a statistically and economically significant 30.381 basis points.

Borrower S&P Credit Rating

Similarly, we test hypotheses H2a and H2b using the borrower S&P credit rating. We group borrowers according to whether they have low-risk (A- and B- rated) or high-risk (C- and D- rated), and create analogous variables and interaction terms. We exclude unrated borrowers because their risks are unknown.

Regression estimates are shown in Table 8 Panel B1, columns (1)-(5). Panel B2 reports the tests of equality between the two types of borrower groups. The results suggest that low-risk borrowers generally experienced more favorable loan contract terms as a result of TARP as indicated by the DID term coefficients, again consistent with the empirical dominance of the Hypothesis H2b over H2a. This is especially important when looking at the effect on *LOANSPREAD*, which is only significant for the safer borrowers, and the difference between the two groups is a statistically and economically significant 66.827 basis points.

7.2 Relationship Lending

We next explore whether relationship borrowers benefited more or less relative to non-relationship borrowers, i.e., which of the two hypotheses H3a and H3b, respectively, presented in Section 6 empirically dominates.

We group borrowers according to whether they had a relationship with a TARP bank (*TARP RECIPIENT_LENDING TO RELATIONSHIP BORROWER*) or not (*TARP RECIPIENT_LENDING TO NON-RELATIONSHIP BORROWER*) 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 9 Panel A, columns (1)-(6). Panel B reports the tests of equality between the DID terms for two types of borrowers. The estimated coefficients on the DID terms 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 effects on collateral and covenant intensity suggest that the change in contract terms is generally more favorable for the non-relationship borrowers, weakly consistent with the empirical dominance of the Hypothesis H3b over H3a. 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.

7.3 Different Loan Types

Finally, we explore whether borrowers using term loans benefited more or less relative to those using revolvers, i.e., which of the two hypotheses presented in Section 6, H4a and H4b, respectively, empirically dominates.

We group borrowers according to whether they use term loans from TARP banks (*TARP RECIPIENT_TERM LOANS*), revolvers (*TARP RECIPIENT_REVOLVERS*), or other loans (*TARP RECIPIENT_OTHER LOANS).*

Regression estimates are shown in Table 10 Panel A1, columns (1)-(6). Panel A2 reports the tests of equality between the different types of loans. Some terms are improved more for term loan borrowers, others improved more for revolver borrowers, so there is no clear dominating hypothesis. The effects of TARP on collateral and covenant intensity index tend to be stronger for term loans than revolvers, whereas

the effects on size, spread and maturity tend to be stronger for revolvers, however the difference between the two types is not statistically significant for these terms. We also see improvements in loan terms for loan size, collateral, and covenant intensity index for other loans. Overall, TARP banks appear to have provided more favorable terms to borrowers using all loan types.

7.4 Different Lead Lender Shares

Finally, we explore whether borrowers benefited more or less when the lead lender has a lower versus a higher share. For observations in which the share of the lead lender is stated in DealScan, we use the actual shares of credit provided. For observations in which the exact shares are missing, we use the median share of the lead lender as a proxy for the lead lender's share. We group borrowers according to whether they get loans from TARP banks with low share (*TARP RECIPIENT_LOW SHARE*) or high share (*TARP RECIPIENT_HIGH SHARE*).

Regression estimates are shown in Table 11 Panel A1, columns (1)-(6). Panel A2 reports the tests of equality between the different lender shares. The estimated coefficients on the DID terms for the two groups of lenders suggest that the beneficial change in contract terms is pertinent for lenders with both low and high lender share. However, the effects on loan spread and covenant intensity suggest that the favorable change in contract terms is generally higher when lenders have a higher share since these lenders may have a higher vested interest in the syndicated process. These findings suggest that TARP banks with both low and high lender share granted more favorable terms to their borrowers.

8. Conclusions

This paper formulates and tests hypotheses about the effects of TARP on loan contract terms to business borrowers – whether loan contract terms became more or less favorable for the borrowers of recipient banks (Hypotheses H1a and H1b, respectively); whether terms improved more for riskier or safer borrowers of TARP banks (Hypotheses H2a and H2b, respectively); and whether terms improved more for relationship or non-relationship borrowers of TARP banks (Hypotheses H3a and H3b, respectively); and whether terms

improved more for borrowers using term loans or revolvers from TARP banks (Hypotheses H4a and H4b, respectively).

We first find that TARP generally led to more favorable loan contract terms for recipient banks' business customers, consistent with the empirical dominance of H1a over H1b. Conditional on other bank characteristics, borrower attributes, loan type, and time, we find that recipient banks tended to grant larger loans with lower spreads, longer maturities, less frequency of collateral, and less restrictive covenants. These findings are robust to dealing with potential endogeneity issues and other robustness checks, and suggest that the recipient banks' borrowers significantly benefited from the TARP program.

Second, the improvement in loan contract terms due to TARP is more pronounced among the safer borrowers, consistent with a reduction in the exploitation of moral hazard incentives and the empirical dominance of H2b over H2a. Borrowers with lower leverage and higher credit ratings experienced significantly greater improvements in loan spread after the bailout than other borrowers.

Third, we find that both relationship and non-relationship borrowers benefited from TARP. However, the effects on collateral and covenant intensity suggest that the change in contract terms is generally more favorable for the non-relationship borrowers, weakly consistent with the empirical dominance of the Hypothesis H3b over H3a. This finding suggests that TARP banks used bailout funds to reach out to new loan customers as well as grant more favorable terms to existing clients.

Fourth, TARP banks provided more favorable terms to term loan, revolver, and other loan borrowers. Finally, benefits in terms loans are pertinent for lenders with both low and high lender shares, with slightly better improvements when the lender has a higher share. Overall, these results strongly suggest that the recipient banks' borrowers benefited from the TARP program.

This paper contributes primarily to two important strands of research. First, it adds to the TARP and bailout literature by studying whether the recipient banks' borrowers benefited from the 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. This clears up some of the ambiguities in the event studies on the effects of TARP on the recipient banks' borrowers. Second, 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 literature and policy debate on the benefits and costs of the TARP bailouts. A number of social benefits and costs of the program have been identified and studied extensively in the literature and are summarized elsewhere in Calomiris and Khan (2015).

However, there is very little evidence on the issue of whether the recipient banks' borrowers benefited from the program. Our findings strongly suggest that the TARP bank borrowers benefited significantly through improvements in their loan contract terms. While the prior literature suggests that the recipient banks increased their market power, a social cost of the program, our paper suggests that the TARP banks did not extract all the rents – borrowers of these banks still received substantially better treatment as a result of TARP. Another benefit that we document is a possible decrease in the exploitation of bank moral hazard incentives to take on excessive risk – more of the contract term improvements went to safer rather than riskier borrowers. Finally, we find that the benefits extended to both relationship and non-relationship borrowers, and to borrowers using all types of loans – all received significant improvements in their loan contract terms. Our results add to the list of benefits of the program, although we cannot say overall whether the program's total benefits or costs were greater.

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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)	LOG (LOAN SIZE)	Natural logarithm of the loan facility amount. Loan amount is measured in millions of dollars.	19.209	19.337	1.492	18.369	20.212	5,986
	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.	187.819	175.000	137.216	92.500	250.000	5,385
	LOG (LOAN MATURITY)	Natural logarithm of the loan maturity. Maturity is measured in months.	3.815	4.111	0.581	3.611	4.111	5,882
	COLLATERAL	A dummy variable that equals one if the loan facility is secured by collateral and zero otherwise.	0.472	0.000	0.499	0.000	1.000	5,986
	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.	2.080	2.000	1.984	0.000	3.000	5,986
TARP VARIABLES (SOURCE: US 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	5,986
	LOG (1+BAILOUT AMOUNT)	The natural logarithm of (1 + the bank dollar bailout support); A larger value indicates a higher degree of TARP support.	15.923	17.034	3.752	17.034	17.034	5,986
	POST TARP	An indicator equal to 1 in 2009-2012 and 0 in 2005-2008.	0.332	0.000	0.471	0.000	1.000	5,986
BORROWER CONTROL VARIABLES (SOURCE: COMPUSTAT)	BORROWER_SIZE	The natural logarithm of book value of total assets of the borrower (in millions of dollars).	7.528	7.466	1.776	6.281	8.723	5,986
	MARKET-TO-BOOK	Market-to-book ratio determined as the market value of equity (PRCC_F * CSHO), scaled by the book value of equity (CEQ).	1.966	2.110	40.928	1.359	3.319	5,986
	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 = DLTTQ + DLCQ.	0.273	0.223	0.228	0.097	0.394	5,986
	CASH FLOW VOLATILITY	Standard deviation of previous 12 quarterly cash flows where Cash Flow = (IBQ + DPQ) / ATQ and DPQ is set to zero if missing.	0.026	0.010	0.147	0.005	0.022	5,986
	PROFITABILITY	The ratio of EBITDA to Total Assets. OIBDPQ / ATQ.	0.035	0.033	0.030	0.021	0.047	5,986
	TANGIBILITY	The ratio of NPPE to Total Assets. PPENTQ / ATQ	0.326	0.251	0.249	0.123	0.502	5,986
	CASH HOLDINGS RATIO	Cash and marketable securities (CHEQ) divided by total assets (ATQ).	0.093	0.049	0.117	0.017	0.122	5,986
	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)

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.	20.448	20.887	1.139	20.000	21.064	5,986
	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	5,986
	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	5,986
	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	5,986
	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	5,986
	CAMELS PROXY: *LIQUIDITY*	Cash divided by bank total deposits.	0.087	0.079	0.060	0.056	0.098	5,986
	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	5,986
	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	0.062	0.120	0.176	5,986
	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	5,986
	FEE INCOME	The ratio of bank's non-interest income to total income.	0.353	0.350	0.098	0.290	0.429	5,986
	DW	Dummy equal to 1 if a bank received discount window loans during the crisis.	0.958	1.000	0.201	1.000	1.000	5,986
	TAF	Dummy equal to 1 if a bank received Term Auction Facility (TAF) funding during the crisis.	0.949	1.000	0.220	1.000	1.000	5,986
OTHER CONTROLS	LOAN TYPE DUMMIES	Dummy variables for loan types. It includes term loans, revolvers, and other loans.						
	SIC FIXED EFFECTS	Dummy variables for borrower SIC codes.						
	YEAR FIXED EFFECTS	Dummy variables for each of the years in the sample.						
INSTRUMENTAL VARIABLE (SOURCES: CENTER FOR RESPONSIVE POLITICS, HOUSE OF REPRESENTATIVES, MISSOURI CENSUS DATA CENTER)	SUBCOMMITTEE 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	5,932

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 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, 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, and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies, SIC- and year-fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

VARIABLES	(1) LOG (LOAN SIZE)	(2) LOANSPREAD	(3) LOG (LOAN MATURITY)	(4) COLLATERAL	(5) COV_INTENSITY_INDEX
TARP RECIPIENT	0.049	44.997***	-0.027	-0.023	-0.166
	(0.720)	(5.638)	(-0.590)	(-0.664)	(-1.178)
POST TARP x TARP RECIPIENT	0.234**	-39.941***	0.149***	-0.098**	-0.535***
	(2.369)	(-2.623)	(2.801)	(-2.444)	(-3.063)
BORROWER_SIZE	0.651***	-19.710***	0.039***	-0.086***	-0.242***
	(54.614)	(-15.193)	(6.155)	(-17.537)	(-11.445)
MARKET-TO-BOOK	-0.000	-0.015	0.000	-0.000	0.001**
	(-0.366)	(-0.914)	(1.194)	(-0.959)	(2.159)
LEVERAGE	-0.402***	150.534***	-0.178***	0.286***	0.415**
	(-4.667)	(12.897)	(-3.545)	(7.393)	(2.401)
CASH FLOW VOLATILITY	0.255***	11.655	0.009	-0.001	0.002
	(3.351)	(1.098)	(0.463)	(-0.033)	(0.026)
PROFITABILITY	1.965***	-328.788***	0.785***	-1.279***	-1.534*
	(3.977)	(-3.683)	(3.529)	(-6.111)	(-1.919)
TANGIBILITY	-0.133	13.345	-0.053	-0.103**	-0.102
	(-1.352)	(1.040)	(-0.942)	(-2.115)	(-0.499)
CASH HOLDINGS RATIO	-0.832***	48.987**	-0.133*	0.134**	-0.032
	(-6.196)	(2.331)	(-1.735)	(2.173)	(-0.120)
BORROWER RATING DUMMIES	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.560	0.410	0.365	0.296

Table 3: Effects of TARP on Loan Contract Terms – Instrumental Variable 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 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, 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, and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies and year-fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level. 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	0.907***
	(2.689)
BORROWER CONTROLS	**YES**
BANK CONTROLS	**YES**
LOAN TYPE DUMMIES	**YES**
YEAR FIXED EFFECTS	**YES**
Observations	6,285
Pseudo R-squared	0.617
Kleibergen-Paap rk Wald F-test	227.891***

Table 3 Panel B: IV 2SLS – Final Stage as in Wooldridge (Section 18.4.1)

VARIABLES	(1) LOG (LOAN SIZE)	(2) LOANSPREAD	(3) LOG (LOAN MATURITY)	(4) COLLATERAL	(5) COV_INTENSITY_INDEX
TARP RECIPIENT	0.176	6.113	-0.030	-0.263***	-1.014***
	(1.106)	(0.325)	(-0.261)	(-3.948)	(-3.541)
POST TARP x TARP RECIPIENT	0.213*	-44.730**	0.220***	-0.090*	-0.785***
	(1.887)	(-2.240)	(3.469)	(-1.922)	(-3.727)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,796	5,255	5,698	5,796	5,796
Adjusted R-squared	0.678	0.554	0.380	0.355	0.284
First Stage Kleibergen-Paap rk Wald F-test	227.891***	227.891***	227.891***	227.891***	227.891***

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

VARIABLES	(1) LOG (LOAN SIZE)	(2) LOANSPREAD	(3) LOG (LOAN MATURITY)	(4) COLLATERAL	(5) COV_INTENSITY_INDEX
TARP RECIPIENT	0.212	1.640	0.099	-0.239***	-0.911***
	(1.274)	(0.091)	(1.055)	(-3.180)	(-2.914)
POST TARP x TARP RECIPIENT	0.232**	-40.652**	0.167***	-0.088**	-0.538***
	(2.302)	(-2.513)	(2.962)	(-2.021)	(-2.899)
LAMBDA	-0.118	18.050*	-0.064	0.098**	0.440**
	(-1.294)	(1.888)	(-1.255)	(2.325)	(2.401)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,455	4,978	5,363	5,455	5,455
Adjusted R-squared	0.675	0.554	0.365	0.348	0.280

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 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), *PLACIBO 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, and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies and year-fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level. The estimation results are for 2001-2008. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

VARIABLES	Assuming TARP Program Took Place Four Years Earlier				
	(1)	(2)	(3)	(4)	(5)
	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	-0.096*	19.843***	-0.141***	0.024	-0.688***
	(-1.792)	(3.741)	(-4.082)	(1.008)	(-6.498)
PLACIBO POST TARP x TARP RECIPIENT	-0.058	9.784	0.167***	-0.006	0.040
	(-0.852)	(1.353)	(3.929)	(-0.191)	(0.283)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	9,396	8,602	9,079	6,253	9,397
Adjusted R-squared	0.738	0.571	0.498	0.526	0.331

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 size, spread, 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, and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies, SIC- and year-fixed effects. 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	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.005	2.882***	-0.002	-0.002	-0.014
	(1.041)	(5.626)	(-0.656)	(-1.004)	(-1.467)
POST TARP x TARP RECIPIENT	0.014**	-2.182**	0.008**	-0.006**	-0.036***
	(2.277)	(-2.319)	(2.568)	(-2.329)	(-3.371)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.559	0.410	0.366	0.296

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, 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, state and year fixed effects with errors clustered at the borrower level in Panel E, 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, probit model with year and SIC fixed effects, logit model with year and SIC fixed effects, and conditional logit with year fixed effects and errors clustered at the SIC level in Panel K. 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, 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, and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies, SIC- and year-fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

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

	Bank and Year Fixed Effects				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	*LOG (LOAN SIZE)*	*LOANSPREAD*	*LOG (LOAN MATURITY)*	*COLLATERAL*	*COV_INTENSITY_INDEX*
POST TARP x TARP RECIPIENT	0.312***	-34.378**	0.197***	-0.098**	-0.670***
	(2.678)	(-1.963)	(3.469)	(-2.274)	(-3.695)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
BANK FIXED EFFECTS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	NO	NO	NO	NO	NO
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	6,508	5,855	6,393	6,508	6,508
Adjusted R-squared	0.616	0.520	0.410	0.312	0.246

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

	Bank, Year, and SIC Fixed Effects				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
POST TARP x TARP RECIPIENT	0.274**	-39.994**	0.159***	-0.080*	-0.541***
	(2.399)	(-2.267)	(2.689)	(-1.790)	(-2.850)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
BANK FIXED EFFECTS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.686	0.562	0.418	0.375	0.306

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

	State, Year, and SIC Fixed Effects				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.007	45.994***	-0.025	-0.008	-0.163
	(0.108)	(5.601)	(-0.521)	(-0.233)	(-1.128)
POST TARP x TARP RECIPIENT	0.223**	-38.280**	0.120**	-0.091**	-0.537***
	(2.237)	(-2.501)	(2.214)	(-2.183)	(-3.018)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
STATE FIXED EFFECTS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,904	5,317	5,801	5,904	5,904
Adjusted R-squared	0.690	0.567	0.414	0.375	0.302

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

	State, Year, and SIC Fixed Effects and Borrower Clusters				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.007	45.994***	-0.025	-0.008	-0.163
	(0.093)	(4.644)	(-0.476)	(-0.180)	(-0.867)
POST TARP x TARP RECIPIENT	0.223**	-38.280**	0.120*	-0.091**	-0.537**
	(2.259)	(-2.265)	(1.746)	(-2.028)	(-2.489)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
STATE FIXED EFFECTS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
BORROWER CLUSTERS	YES	YES	YES	YES	YES
Observations	5,904	5,317	5,801	5,904	5,904
Adjusted R-squared	0.690	0.567	0.414	0.375	0.302
No. Clusters	2059	1989	2044	2059	2059

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	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.049	44.997***	-0.027	-0.023	-0.166
	(0.619)	(4.601)	(-0.531)	(-0.503)	(-0.896)
POST TARP x TARP RECIPIENT	0.234**	-39.941**	0.149**	-0.098**	-0.535**
	(2.423)	(-2.357)	(2.164)	(-2.253)	(-2.462)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
BORROWER CLUSTERS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.560	0.410	0.365	0.296
No. Clusters	2102	2024	2086	2102	2102

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	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.049	44.997***	-0.027	-0.023	-0.166
	(0.621)	(4.584)	(-0.525)	(-0.519)	(-0.891)
POST TARP x TARP RECIPIENT	0.234**	-39.941**	0.149**	-0.098**	-0.535**
	(2.406)	(-2.352)	(2.199)	(-2.237)	(-2.482)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC 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	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.560	0.410	0.365	0.296
No. Clusters	2525	2378	2501	2525	2525

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

	Excluding Bank Controls Other than Proxies for CAMELS				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.068	45.444***	-0.009	-0.030	-0.147
	(0.994)	(5.716)	(-0.192)	(-0.905)	(-1.071)
POST TARP x TARP RECIPIENT	0.220**	-30.774**	0.158***	-0.093**	-0.451***
	(2.273)	(-2.037)	(3.048)	(-2.415)	(-2.675)
BORROWER CONTROL	YES	YES	YES	YES	YES
BANK CONTROLS other than CAMELS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	6,012	5,409	5,908	6,012	6,012
Adjusted R-squared	0.686	0.558	0.409	0.366	0.296

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

	Excluding All Bank Controls				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.162***	20.755***	0.047	-0.069**	-0.207*
	(2.795)	(2.955)	(1.269)	(-2.483)	(-1.818)
POST TARP x TARP RECIPIENT	0.260***	-27.682**	0.156***	-0.081**	-0.178
	(2.883)	(-1.974)	(3.210)	(-2.315)	(-1.143)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	NO	NO	NO	NO	NO
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	6,014	5,411	5,910	6,014	6,014
Adjusted R-squared	0.684	0.550	0.406	0.363	0.291

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

	Excluding All Borrower Controls				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	-0.167*	39.699***	-0.129***	0.015	-0.096
	(-1.880)	(4.641)	(-3.072)	(0.447)	(-0.743)
POST TARP x TARP RECIPIENT	0.243*	-49.813***	0.227***	-0.122***	-0.470***
	(1.902)	(-3.129)	(4.480)	(-2.864)	(-2.796)
BORROWER CONTROLS	NO	NO	NO	NO	NO
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	7,396	6,668	7,250	7,396	7,396
Adjusted R-squared	0.341	0.419	0.378	0.214	0.222

Table 6 Panel J: Regression Parameters – Exclude All Bank and Borrower Controls

| VARIABLES | Excluding All Bank and Borrower Controls | | | | |
| | (1) | (2) | (3) | (4) | (5) |
	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.812***	-7.278	0.035	-0.160***	-0.458***
	(10.918)	(-1.087)	(0.995)	(-6.100)	(-4.583)
POST TARP x TARP RECIPIENT	0.216*	-34.294**	0.217***	-0.096**	-0.219
	(1.769)	(-2.370)	(4.551)	(-2.552)	(-1.502)
BORROWER CONTROLS	NO	NO	NO	NO	NO
BANK CONTROLS	NO	NO	NO	NO	NO
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	7,426	6,696	7,280	7,426	7,426
Adjusted R-squared	0.255	0.343	0.159	0.192	0.175

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

| VARIABLES | Alternative Models for Collateral | | | | |
| | (1) | (2) | (3) | (4) | (5) |
	PROBIT	LOGIT	PROBIT	LOGIT	CLOGIT
TARP RECIPIENT	0.052	0.071	-0.027	-0.060	-0.068
	(0.474)	(0.376)	(-0.210)	(-0.266)	(-0.209)
POST TARP x TARP RECIPIENT	-0.464***	-0.762***	-0.551***	-0.852***	-0.804***
	(-3.143)	(-2.989)	(-3.133)	(-2.669)	(-2.648)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	NO	NO	YES	YES	NO
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
SIC CLUSTERS	NO	NO	NO	NO	YES
Observations	6,463	6,463	5,520	5,520	5,646
Pseudo R-squared (or R-squared)	0.265	0.266	0.320	0.321	0.258

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 using only excluding borrowers with missing S&P credit rating. . Panel B reports estimates when using only excluding borrowers with only 1 loan. Panel C 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, and C). In Panel C, 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 D, 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 and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies, SIC- and year-fixed effects. 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	**LOG (LOAN SIZE)**	**LOANSPREAD**	**LOG (LOAN MATURITY)**	**COLLATERAL**	**COV_INTENSITY_INDEX**
TARP RECIPIENT	-0.033	28.724**	-0.034	-0.154**	-0.182
	(-0.217)	(2.022)	(-0.380)	(-2.149)	(-0.648)
POST TARP x TARP RECIPIENT	0.438**	-45.195**	0.182**	-0.092	-0.981***
	(2.571)	(-2.410)	(2.232)	(-1.573)	(-3.631)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	3,014	2,664	2,949	3,014	3,014
Adjusted R-squared	0.539	0.690	0.513	0.480	0.396

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

	Exclude borrowers with only 1 loan				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.033	38.884***	0.015	-0.050	-0.163
	(0.397)	(4.345)	(0.286)	(-1.278)	(-0.984)
POST TARP x TARP RECIPIENT	0.323***	-38.852**	0.161***	-0.089**	-0.543***
	(2.927)	(-2.341)	(2.755)	(-2.043)	(-2.843)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,382	4,827	5,288	5,382	5,382
Adjusted R-squared	0.667	0.568	0.415	0.377	0.319

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

	Timeline of TARP Effects				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT	0.043	46.203***	-0.029	-0.023	-0.154
	(0.636)	(5.769)	(-0.620)	(-0.665)	(-1.092)
POST TARP 2009 x TARP RECIPIENT	0.195*	-35.665**	0.130**	-0.093**	-0.387**
	(1.839)	(-2.172)	(2.329)	(-2.233)	(-2.057)
POST TARP 2010 x TARP RECIPIENT	0.315***	-54.522***	0.161***	-0.103**	-0.681***
	(2.676)	(-3.504)	(2.602)	(-1.973)	(-3.070)
POST TARP 2011 x TARP RECIPIENT	0.323***	-46.192***	0.197***	-0.113*	-0.911***
	(2.611)	(-2.775)	(2.874)	(-1.905)	(-3.846)
POST TARP 2012 x TARP RECIPIENT	0.235	-46.445**	0.221***	-0.082	-0.914***
	(1.510)	(-2.236)	(2.686)	(-1.084)	(-3.168)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.560	0.410	0.365	0.296

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

VARIABLES	Involuntary and Voluntary Participants				
	(1)	(2)	(3)	(4)	(5)
	LOG (LOAN SIZE)	*LOANSPREAD*	*LOG (LOAN MATURITY)*	*COLLATERAL*	*COV_INTENSITY_INDEX*
TARP RECIPIENT INVOL	-0.066	76.006***	-0.161**	0.041	-0.273
	(-0.733)	(7.083)	(-2.568)	(0.902)	(-1.436)
TARP RECIPIENT VOL	0.074	41.447***	-0.024	-0.029	-0.205
	(1.007)	(5.146)	(-0.487)	(-0.775)	(-1.345)
POST TARP x TARP RECIPIENT INVOL	0.219**	-32.150*	0.101*	-0.080*	-0.624***
	(2.080)	(-1.949)	(1.818)	(-1.865)	(-3.348)
POST TARP x TARP RECIPIENT VOL	0.194*	-36.675**	0.155**	-0.094*	-0.433**
	(1.782)	(-2.331)	(2.503)	(-1.936)	(-2.117)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.561	0.411	0.366	0.296

Table 8: Effects of TARP on Loan Contract Terms: Subsample Analyses

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 low risk borrowers (low leverage borrowers, that is leverage is < 0.50) and high risk borrowers (high leverage borrowers, that is leverage is ≥ 0.50) 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 (S&P A and B- grade borrowers) and high risk borrowers (S&P C and D-grade borrowers) 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. 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, 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 and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies, SIC- and year-fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

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

Table 8 Panel A1: Regression Estimates

	Borrower Risk (Leverage, 50% cutoff)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT_LENDING TO SAFE BORROWER	0.078	38.185***	-0.001	-0.039	-0.210
	(1.226)	(5.201)	(-0.030)	(-1.176)	(-1.569)
TARP RECIPIENT_LENDING TO RISKY BORROWER	0.190**	31.827***	0.015	-0.076*	-0.608***
	(2.142)	(3.257)	(0.275)	(-1.793)	(-3.507)
POST TARP x TARP RECIPIENT_LENDING TO LOW RISK BORROWER	0.330***	-64.464***	0.294***	-0.063	-0.681***
	(2.637)	(-3.088)	(4.456)	(-1.433)	(-3.176)
POST TARP x TARP RECIPIENT_LENDING TO HIGH RISK BORROWER	0.224*	-34.083	0.247***	-0.089*	-0.527**
	(1.651)	(-1.533)	(3.564)	(-1.863)	(-2.272)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.561	0.411	0.365	0.297

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

	Borrower Risk (Leverage, 50% cutoff)				
Dependent Variable:	(1)	(2)	(3)	(4)	(5)
Independent Variables:	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
t-stat: Effect for low risk borrowers = effect for high risk borrowers	1.487	3.426***	1.273	0.762	1.118

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

Table 8 Panel B1: Regression Estimates

	Borrower Risk (Credit Ratings)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
TARP RECIPIENT_LENDING TO SAFE BORROWER	-0.058	29.161**	-0.043	-0.165**	-0.231
	(-0.372)	(2.077)	(-0.484)	(-2.302)	(-0.811)
TARP RECIPIENT_LENDING TO RISKY BORROWER	0.710	45.864	0.647**	0.185	1.333*
	(1.599)	(0.951)	(2.222)	(1.079)	(1.674)
POST TARP x TARP RECIPIENT_LENDING TO LOW RISK BORROWER	0.413**	-51.779***	0.161**	-0.103*	-1.035***
	(2.431)	(-2.724)	(2.025)	(-1.731)	(-3.792)
POST TARP x TARP RECIPIENT_LENDING TO HIGH RISK BORROWER	0.208	15.048	-0.071	-0.202*	-1.401***
	(0.768)	(0.415)	(-0.427)	(-1.846)	(-3.028)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	3,014	2,664	2,949	3,014	3,014
Adjusted R-squared	0.539	0.692	0.514	0.480	0.396

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

	Borrower Risk (Credit Ratings)				
Dependent Variable:	(1)	(2)	(3)	(4)	(5)
Independent Variables:	LOG (LOAN SIZE)	LOANSPREAD	LOG (LOAN MATURITY)	COLLATERAL	COV_INTENSITY_INDEX
t-stat: Effect for low risk borrowers = effect for high risk borrowers	0.933	2.081**	1.584	1.020	0.906

Table 9: 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. Panel A 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 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, 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 and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies, SIC- and year-fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 9 Panel A: Effects for Relationship Borrowers vs. Non-Relationship Borrowers

Table 9 Panel A1: Regression Estimates

	Borrowers with a prior relationship to TARP banks vs. those without one				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	**LOG (LOAN SIZE)**	**LOANSPREAD**	**LOG (LOAN MATURITY)**	**COLLATERAL**	**COV_INTENSITY_INDEX**
TARP RECIPIENT_LENDING TO RELATIONSHIP BORROWER	0.095	40.620***	-0.032	-0.059	-0.337**
	(1.308)	(4.702)	(-0.666)	(-1.624)	(-2.272)
TARP RECIPIENT_LENDING TO NON-RELATIONSHIP BORROWER	0.028	46.693***	-0.026	-0.007	-0.091
	(0.410)	(5.843)	(-0.541)	(-0.206)	(-0.640)
POST TARP x TARP RECIPIENT_LENDING TO RELATIONSHIP BORROWER	0.225**	-38.298**	0.154***	-0.032	-0.257
	(2.156)	(-2.362)	(2.782)	(-0.734)	(-1.394)
POST TARP x TARP RECIPIENT_LENDING TO NON-RELATIONSHIP BORROWER	0.233**	-40.538***	0.146***	-0.133***	-0.680***
	(2.322)	(-2.675)	(2.697)	(-3.238)	(-3.783)
BORROWER CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
BANK CONTROLS	**YES**	**YES**	**YES**	**YES**	**YES**
LOAN TYPE DUMMIES	**YES**	**YES**	**YES**	**YES**	**YES**
SIC FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
YEAR FIXED EFFECTS	**YES**	**YES**	**YES**	**YES**	**YES**
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.560	0.410	0.367	0.298

Table 9 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				
Dependent Variable:	(1)	(2)	(3)	(4)	(5)
Independent Variables:	*LOG (LOAN SIZE)*	*LOANSPREAD*	*LOG (LOAN MATURITY)*	*COLLATERAL*	*COV_INTENSITY_INDEX*
t-stat: Effects for relationship borrowers = effects for non-relationship borrowers	0.141	0.374	0.283	4.073***	4.299***

Table 10: 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. Panel A reports the difference-in-difference (DID) regression estimates for the effect of TARP on loan terms to borrowers for different loan types (term loans, revolvers, and other loans) 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 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, 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 and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies, SIC- and year-fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 10 Panel A: Effects for Different Loan Types

Table 10 Panel A1: Regression Estimates for Different Types of Loans (Term Loans, Revolvers, and Other Loans)

	Loan Types (Term Loans, Revolvers, Other Loans)				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	**LOG (LOAN SIZE)**	**LOANSPREAD**	**LOG (LOAN MATURITY)**	**COLLATERAL**	**COV_INTENSITY_INDEX**
TARP RECIPIENT_TERM LOANS	0.125	82.001***	-0.057	0.062	0.113
	(1.052)	(5.729)	(-0.686)	(1.031)	(0.441)
TARP RECIPIENT_REVOLVERS	0.040	34.981***	-0.013	-0.051	-0.244
	(0.531)	(4.267)	(-0.270)	(-1.393)	(-1.621)
TARP RECIPIENT_OTHER LOANS	0.030	64.727*	-0.165	0.016	-0.200
	(0.116)	(1.945)	(-0.626)	(0.124)	(-0.532)
POST TARP x TARP RECIPIENT_TERM LOANS	0.155	-34.766**	0.131**	-0.165***	-0.923***
	(1.399)	(-1.972)	(2.127)	(-3.494)	(-4.446)
POST TARP x TARP RECIPIENT_REVOLVERS	0.213**	-47.116***	0.166***	-0.069*	-0.391**
	(2.124)	(-3.130)	(3.079)	(-1.654)	(-2.183)
POST TARP x TARP RECIPIENT_OTHER LOANS	0.428***	-22.706	0.109	-0.134***	-0.584***
	(3.250)	(-0.923)	(1.517)	(-2.749)	(-2.707)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.561	0.410	0.367	0.298

Table 10 Panel A2: Tests of the Equality of the Effects of TARP for Different Types of Loans (Term Loans, Revolvers, and Other Loans)

	Loan Types (Term Loans, Revolvers, Other Loans)				
Dependent Variable:	(1)	(2)	(3)	(4)	(5)
Independent Variables:	*LOG (LOAN SIZE)*	*LOANSPREAD*	*LOG (LOAN MATURITY)*	*COLLATERAL*	*COV_INTENSITY_INDEX*
t-**stat:** Effect for term loans = effect for revolvers	0.927	1.428	1.015	3.098***	4.001***
t-**stat:** Effect for term loans = effect for other loans	2.474***	0.548	0.332	0.721	1.797*
t-**stat:** Effect for revolvers = effect for other loans	2.189**	1.192	0.954	1.775*	1.249

Table 11: Effects of TARP on Loan Contract Terms: Lead Lender Share

This table shows additional subsample tests for analyzing the effects of TARP on loan contract terms. Panel A reports the difference-in-difference (DID) regression estimates for the effect of TARP on loan terms to borrowers for low lender share (lender share ≤ median) versus high lead lender share (lender share > median) 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 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, 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 and borrower S&P credit rating dummies. Other bank characteristics are bank size, capital adequacy, asset quality, management quality, earnings, liquidity, sensitivity to market risk, HHI, percent metropolitan, fee income, DW (Discount Window), and TAF (Term Auction Facility). Models also include loan type dummies, SIC- and year-fixed effects. All variables are defined in Table 1. *, **, and *** denote significance at 10%, 5%, and 1% level.

Table 11 Panel A: Effects for Low versus High Lender Shares

Table 11 Panel A1: Regression Estimates for Low versus High Lender Shares

	Low versus High Lender Share				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	*LOG (LOAN SIZE)*	*LOANSPREAD*	*LOG (LOAN MATURITY)*	*COLLATERAL*	*COV_INTENSITY_INDEX*
TARP RECIPIENT_LOW SHARE	0.023	46.340***	-0.009	-0.072**	-0.536***
	(0.328)	(5.535)	(-0.187)	(-2.051)	(-3.712)
TARP RECIPIENT_HIGH SHARE	0.068	45.707***	-0.042	0.013	0.098
	(0.981)	(5.633)	(-0.890)	(0.360)	(0.689)
POST TARP x TARP RECIPIENT_LOW SHARE	0.228**	-35.647**	0.147***	-0.111***	-0.635***
	(2.264)	(-2.307)	(2.775)	(-2.692)	(-3.576)
POST TARP x TARP RECIPIENT_HIGH SHARE	0.239**	-47.352***	0.155***	-0.085**	-0.423**
	(2.325)	(-3.029)	(2.717)	(-1.978)	(-2.280)
BORROWER CONTROLS	YES	YES	YES	YES	YES
BANK CONTROLS	YES	YES	YES	YES	YES
LOAN TYPE DUMMIES	YES	YES	YES	YES	YES
SIC FIXED EFFECTS	YES	YES	YES	YES	YES
YEAR FIXED EFFECTS	YES	YES	YES	YES	YES
Observations	5,986	5,385	5,882	5,986	5,986
Adjusted R-squared	0.685	0.560	0.410	0.371	0.318

Table 11 Panel A2: Tests of the Equality of the Effects of TARP for Low versus High Lender Shares

	Low versus High Lender Share				
Dependent Variable:	(1)	(2)	(3)	(4)	(5)
Independent Variables:	*LOG (LOAN SIZE)*	*LOANSPREAD*	*LOG (LOAN MATURITY)*	*COLLATERAL*	*COV_INTENSITY_INDEX*
t-stat: Effects for low lender share = effects for high lender share	0.224	1.931**	0.300	1.049	2.114**