**The Cohabitation of Institutional Investors with The Government: A Case Study of the TARP-CPP Program**


## ABSTRACT

We take advantage of a unique setting taken place in the U.S. during the financial crisis of 2007-2009 to examine institutional investors' investment behavior surrounding government investments. We examine 202 publicly-listed banks that received bailout funds through the Troubled Asset Relief Program Capital Purchase Program (TARP-CPP). We document that banks with higher existing institutional ownership, especially long-term oriented institutional ownership, were more likely to receive CPP funding. These banks were also more likely to pay back bailout funds in a shorter timeframe. We argue that the institutional investors profitably exploited the market signals emanating from TARP-CPP. Initially, they supported banks' access to cheap TARP-CPP funding from the U.S. Treasury, which also benefits them as shareholders. Next, they espoused the recipient banks' decision to repay the CPP funds expeditiously by issuing new shares to manifest their capital-raising ability to the U.S. Treasury which causes a dilutive effect.



**Keywords:** Financial Crisis; Institutional Investors; Institutional Ownership; TARP; CPP.
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# The Cohabitation of Institutional Investors with the Government: A Case Study of the TARP-CPP Program

## 1. Introduction

According to a Dec. 10, 2009, *Wall Street Journal* (WSJ) article entitled "*Citi's TARP Payback Could Cheer Institutional Investors*"[1], the US government, via the US Treasury, converted Citigroup's preferred stock into 34% common stock ownership that was later sold in the open market. The WSJ article conjectured that the government's exit from Citigroup could trigger the re-entry of institutional investors such as mutual and pension funds. Institutional investors' view of government involvement as shareholders is vital since, as the WSJ article notes, they hold 70% or more of shares in large companies.

How do institutional investors coexist with the government when both own stocks in the same corporation? Institutional investors are in the business of making money, while the government investment objective is not driven by profit. So, when both sets of investors find themselves together as shareholders in the same company, how they behave is an empirical question. Historically, the US Treasury's mission has been "*to act as a steward of U.S. economic and financial systems and to participate in and influence the global economy*."[2] Its position as an owner of public banks following the 2007-2009 subprime mortgage crisis is unchartered territory, which leads to uncertainties in its role as a co-owner of banks alongside private investors.

When the government is the majority shareholder and given its focus is not on wealth maximization but rather on the public welfare, institutional investors may eschew such companies. Conversely, when the government is a minority shareholder, it is difficult to

[1] Source: https://www.wsj.com/articles/SB10001424052748703514404574588121855577070, accessed in Dec., 2019.
[2] Source: https://www.gao.gov/assets/290/283887.html, accessed in Dec., 2019.

ascertain the rapport de force between the government (with its legislative power) as one group of shareholders and the institutional shareholders as another group or the majority group. That is to say that despite its small share of ownership, given its power to legislate, the government can still impose restrictions on the company.

We are not claiming that the government invests in corporations to lose money if social welfare is upheld. Indeed, recent experiences—as will be discussed later—suggest that the government is keen to see that taxpayers' money is invested wisely and in a way that generates returns. We argue, however, that the government's focus on return generation is not the same as that of institutional investors. For example, while the government might be willing to settle for a minimal rate of return, institutional investors tend to pursue abnormally positive returns. Inevitably, therefore, there would be clashes between their investment objectives.

One possible tension when the government joins in as a shareholder is that private institutional investors may believe that the company has less leeway to pursue high-risk, high-reward ventures. As stated earlier, it is not the US government's mandate to invest in public corporations. It tends to become a shareholder only as a measure of last resort. During normal times, the government would leave it to private investors to fund the corporations. Thus, when governments decide that they have little choice but to invest in publicly-traded corporations, they are doing so more out of obligation than by choice.

Moreover, the government was investing in public corporations because institutional investors have failed to support the companies. This point is important because when we are trying to explain the rapport de force between the government and institutional investors, then the decision whether to stay or leave is in the hands of the institutional investors. They decide whether they want the government to be a partner by maintaining their investment in the

company, or they decide that they do not want the government, and therefore, they sell their stakes.

In this study, we take advantage of a unique setting that took place in the U.S. during the financial crisis of 2007-2009 to examine institutional investors' investment behavior surrounding investments by the government. We examine a sample of 202 publicly-listed banks that received bailout funds through the Capital Purchase Program (CPP), the largest one of the 13 programs under the Troubled Asset Relief Program (TARP)[3]. Specifically, we explore the relationship between institutional ownership in the banks and the banks' decision to receive government funding from the CPP program. We document that banks with higher existing institutional ownership were more likely to receive CPP funding. Institutional owners encouraged the banks to use the CPP fund, which, despite the restrictions, was an easy, accessible, and cheap source of financing.

Next, we investigate institutional investors' investment behavior after the CPP funding receipt. We find that banks with higher existing institutional ownership were more likely to pay back bailout funds in a shorter timeframe. We also find that institutional investors decreased their ownership from the four quarters before the redemption of the CPP securities to the four quarters following it. This would be consistent with investors' intention to avoid the depressing effect of equity offerings on the share prices as the banks issue new shares to prove their ability to repay CPP funds to the US Treasury. Our findings echo the sentiments of the Office of the Special Inspector General for the Troubled Asset Relief Program (SIGTARP) that there was considerable flipping of shares taking place around CPP recipients' decision to redeem shares held by the US Treasury (SIGTARP, 2015).

[3] The US Congress passed the Emergency Economic Stability Act (EESA) in 2008 to authorize US Treasury to take actions, which included the creation of the Troubled Asset Relief Program (TARP), to stabilize the banking industry.

To better understand the coexisting ownership of institutional investors and the government in publicly-traded banks, we recognize that institutional investor objectives may differ. For instance, some institutional investors assume a long-term investment horizon while others focus on short-term profits as long-term investors seek long term wealth creation and short-term investors aim for short term gains. We, therefore, argue that government involvement would differentially affect the investments of these two temporally different investment approaches. Under normal economic conditions, governments do not own banks. Thus, its presence as a shareholder is transitory. Nonetheless, since the government is investing taxpayers' money, it imposes safeguards on companies that are the recipients of government funding. For example, banks that benefitted from TARP funds were required to adhere to strict financial reporting requirements and apply restraints on paying dividends and bonuses. In light of these requirements, short-term transient institutional investors with shorter time horizons should eschew investments as they perceive these safety measures to be impediments to their goals of achieving short term investment gains. (A corollary to this assertion is that short – term institutional investors may reconsider their investment aversion to recipient banks when the government exits (similar to the claim in the WSJ article in the Introduction).

An important goal of the government's participation during the financial crisis was to restore the long-term financial health of banks. Hence, in contrast to short term investors, long term institutional investors with long term wealth creation objectives, should view government investment favorably insofar as the government assistance was intended to redress banks so they could generate wealth in the long run. We, therefore, argue that long-term oriented investors welcomed government investment. Our findings support this conjecture, as results for our whole sample are driven mainly by long-term oriented institutional investors and banks with higher holdings by long-term institutional investors are more likely to seek and receive CPP funding. These banks are also more likely to pay back the funds in a shorter timeframe.

Our research adds to the literature in the following ways. The appropriate level of government participation in free market economies has long been discussed and debated. Using the unique context of the 2008 – 2009 financial crisis this study informs that debate. In particular, we investigate the differing incentives between institutional and government shareholders and how these incentives interact to affect banks' propensity for CPP participation. Specifically, we explore the relationship between institutional ownership in the banks and the banks' decision to receive government funding from the CPP program.

Furthermore, we analyze the actual movements in shareholdings between institutional investors and governments. We also provide insights into why corporations that are majority owned by informed institutional investors with expertise in corporate governance (Elyasiani and Jia, 2008), seek government assistance—especially in terms of capital infusion.

Lastly, in line with recent studies (Bayazitova and Shivdasani, 2012; Berger and Roman, 2015; Duchin and Sosyura, 2014; Calabrese et al. 2017), we focus on the CPP, the most extensive bank bailout program under the TARP launched by the US Treasury.

The remainder of the paper is organized as follows. Section 2 discusses the literature review and hypothesis development. Section 3 describes our sample. Section 4 discusses the results, and Section 5 concludes.

## 2. Theoretical and Hypothesis Development

### *2.1. Background on the CPP*

As stated by the U.S. Department of the Treasury:

> "*The Capital Purchase Program (CPP) was launched to stabilize the financial system by providing capital to viable financial institutions of all sizes throughout the nation.*

*Without a viable banking system, lending to businesses and consumers could have frozen, and the financial crisis might have spiraled further out of control*.[4]"

The government adds, "…*immediate capital injections into financial institutions were necessary to avert a potential collapse of the system*." These quotes highlight both the nature of government as a last resort for investment (we are treating the US government and Treasury as the same) and the financial exigency to prevent the downfall of the financial system. The CPP program was launched in response to the 2008 subprime mortgage crisis. A total of $205 billion was invested in 707 financial institutions across the US under CPP until December 2009. As of October 31, 2016, the Treasury has grossed $226.7 billion from their CPP investments.

The government investments (via the US Treasury) were structured as preferred stock with a 5% dividend rate for the first five years and a rate of 9% after that as an encouragement to repay the CPP funds. The government also received warrants to purchase new common shares from any financial institution for more than $100 million to provide taxpayers with the opportunity to reap additional returns should the banks recover. The types of securities issued to the government by banks in exchange for CPP funds depended on whether the banks are classified as public banks, private banks, or Sub-S Banks (see Prester, 2009 for a comprehensive account of CPP). This paper considers only public banks. While the investment was made in preferred stocks, these shares included special features that make them resemble common equity-like instruments. CPP recipients did not have to pay preferred dividends to the government if they did not have sufficient earnings. There was no obligation on the bailout banks to buy back the shares from the government. The senior preferred equity issued by public banks had a perpetual life and were deemed to be Tier 1 capital for regulatory capital purposes. This allowed the preferred stocks issued to the government to be classified as high-quality

[4] Source: https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/bank-investment-programs/cap/Pages/overview.aspx, accessed in Dec., 2019.

capital on the books of the financial institutions and were intended to help satisfy bank regulators that they were adequately capitalized. Overall, these preferred shares had features that were closer to those of common stocks than bonds.

Next, CPP investments came with warrants to give the US Treasury the right to buy new common shares in the bank (up to 15% of the original investment amount in the preferred stock), which limited some of the downside risks of the investment but did not limit the upside potential. Furthermore, the warrants came with voting rights intended to protect taxpayers' money, e.g. matters relating to the election of directors under special circumstances (failure to receive dividend and/or the bank missed interest payments), issuance of more senior securities, mergers and acquisitions, or any other reorganization that would affect US Treasury's rights as holders.

Cornett et al. (2013) treat CPP as an injection of equity capital into financial institutions. Indeed, the payoffs from the CPP investments were far superior to the 5% dividend rate. As of October 2015, and based on data published by the US Treasury, the government collected repayments of $196.63 billion and proceeds of $3.04 billion from auctions of their interest in small banks. Treating these two items as capital repayment yields a total of $199.67 billion[5]. In terms of income, the government collected $19.03 billion in dividends, interest & other income, and $8.07 billion in warrant proceeds[6]. Taken together, they represent income of $27.1 billion. Hence, income as a percentage of capital repayment is approximately 13.57% based on the capital recovered to date. Such a return percentage mirrors a more common equity-like investment.

### *2.1.1. Significance of the CPP investments*

[5] Source: https://www.treasury.gov/initiatives/financial-stability/reports/Documents/10-16-15%20Transactions%20Report%20as%20of%2010-14-15_INVESTMENT.pdf, accessed in Dec., 2019.
[6] After repaying CPP preferred stock, bailout banks also have the right to repurchase the warrants issued to US Treasury. If a bailout bank decides not to repurchase the warrants, US Treasury may liquidate them.

The amount of CPP capital that a healthy and qualified financial institution (QFI) could request was restricted to between 1% and 3% (subsequently increased to 5%) of its risk-weighted assets (Cornett et al. 2013). While the percentage seems small, the level of the investment seems reasonable when we consider that they were treated as Tier 1 capital for regulatory purposes and that the regulator required the QFI to have at least a 6% Tier 1 capital ratio to be considered adequately capitalized. In theory, half of a bank's Tier 1 capital requirement can come from funds raised through CPP.

*2.1.2. Banks' selection to participate in the CPP*

In October 2008, the nine largest U.S. banks[7] were forced to participate in the CPP and to accept a collective $125 billion in capital injections from the government (Veronesi and Zingales, 2010; Kim and Stock, 2012). Subsequent to this mandate, the government announced that the CPP would be available to a broad array of QFIs. However, not all banks that applied to the CPP program obtained funding. Other banks decided not to participate in the program, and several banks that qualified for funds and that had indicated that they would participate, did not in the end receive Treasury funding. The non-participating banks represent interesting cases. Did they decide not to participate because their institutional investors were apprehensive of the government's involvement? To answer this question, in juxtaposition with CPP banks we also include a control sample of non-CPP banks, i.e., banks that did not participate in the CPP. Note that we refer to a bank accepting CPP funds as a CPP bank or a CPP-recipient bank. Contrasting these two sets of banks is intended to foster empirical insights into the interactions between institutional investors- and government ownership.

*2.1.3. Banks' decisions to repay the CPP*

[7] Nine large institutions include Citigroup, Bank of America, JPMorgan Chase, Wells Fargo, Goldman Sachs Group, Morgan Stanley, State Street Corporation, Bank of New York Mellon, and Merrill Lynch.

To quell the public outcry over bailing out financial institutions with taxpayers' money, the CPP included numerous restrictions. For instance, with the acceptance of TARP funds[8], banks were required to: postpone evictions and modify mortgages for distressed homeowners, allow shareholders vote on executive pay packages, reduce common dividends, and withdraw job offerings to foreign citizens (Cornett et al. 2013). Since these restrictions were viewed unfavorably by bank managers, (especially the restrictions on executive pay), many banks opted to repay CPP funds as early as possible (some banks paid back the funds within three months). Although the government was not a common shareholder, due to its legislative power, it nevertheless had considerable control over banks. Hence institutional owners' power over banks were also subject to government interventions.

Besides the binding restrictions upon acceptance of CPP funds, banks were vulnerable to future actions by the US Treasury to protect their investments. In other words, the US Treasury had the power to enact subsequent legislation and force the banks to abide by them even though the CPP funds were provided to the banks before the legislation. Prester (2009) notes that many banks despised the uncertainty relating to future conditions and restrictions that Congress or the Treasury could impose that potentially included civil and criminal liability, prompting many CPP-recipient banks to redeem CPP securities as early as possible.

### *2.1.4. The Stigma that accompanies CPP Funds*

An additional incentive for early CPP repayment included the extension of CPP funds to weaker banks as well as healthy banks since the latter group were apprehensive that they would also be perceived as distressed.[9]

[8] We use TARP funds, CPP funds, TARP-CPP funds, Secured Preferred stocks issued by banks to the U.S. Treasury, CPP securities interchangeably.
[9] Source: https://www.cfo.com/banking-capital-markets/2009/03/take-this-tarp-and-shove-it/, accessed in Dec., 2019.

The original motive set out by Congress and the Treasury for CPP funds was that healthy banks would extend these funds to the private sector to boost credit supply responsibly, and it explains why big banks were required to participate in the CPP program.

The inclusion of weaker banks in the CPP, ex post its original mandated funding to large banks along with the attending stigma associated with the inclusion of weaker banks, created incentives for sufficiently capitalized banks and/or banks seeing improvements in their performance to preserve their reputations and interests as well as those of their shareholders to by redeeming CPP related shares and warrants issued.

### *2.1.5. Why would institutional investors shift their investments in response to the CPP?*

Although, prior studies have focused on TARP, The CPP is considered to be the most far reaching and significant subset of the broader TARP initiative. As such, many studies consider CPP effects parallel to TARP effects.

*Valuation effects* – Bayazitova and Shivdasani (2012) find that the passage of Congressional Bill H.R. 1586[10] on March 19, 2009 (which imposed punitive taxes on bonuses of TARP recipients) lowered the value of affected banks but benefitted non-TARP banks. The authors also find that banks repaying TARP funds experienced positive announcement returns. Focusing on the movement of bank share prices, we assume that the sale of shares by transient short-term oriented institutional investors contributed to the decline in price following TARP. Conversely, banks' exiting from TARP created buying incentives for short-term institutional investors resulting in price increases. Jordan et al. (2011) document that banks that accepted TARP funds have lower price-to-book ratios than banks that did not accept funds. In the spirit

[10] Source: https://www.congress.gov/111/bills/hr1586/BILLS-111hr1586eh.pdf, accessed in Dec., 2019.

of Jordan et al. we assert that trades by institutional investors have contributed to movements in the price to book valuation ratio.

*Compliance costs* – In addition to the many regulations emanating from agencies such as: the Office of the Comptroller of the Currency (OCC), the Office of Thrift Supervision (OTS), the Federal Reserve Board (FRB), and the Federal Deposit Insurance Agency (FDIC), (collectively referred to as the Federal Banking Agencies), banks are also required to comply with CPP related regulations. Banks accepting CPP funds are supervised by the General Accounting Office (GAO) and a newly established Special Inspector General for TARP (SIGTARP) (see Prester, 2009). Recipient banks also are required to report directly to the Treasury on their use of the proceeds from the sale of the CPP securities. As a result, CPP banks experience an increase in monitoring and compliance costs.

*Restrictions on banks dealing with the investors* – More importantly, if CPP banks paid dividends, bought back shares or engaged in any transaction with related parties, they were required to obtain prior approval from the Federal Banking Agencies. Non-CPP banks were free from such restrictions. Further, CPP banks could not pay a dividend on common shares or repurchase those shares until all dividends due on the senior preferred securities issued to the US Treasury had been paid. These restrictions were in effect over the three years following the US Treasury's investment in the bank. It is important to note that existing banking laws already restricted banks' abilities to pay dividends and repurchase shares (for example, obtaining prior approval from the OCC to pay dividends in excess of statutory limitations or subject to state laws or the Federal Deposit Insurance Act or the Federal Reserve Act), though the objectives of these laws (primarily to ensure that there is no capital depletion) differ from the CPP laws, which are mostly focused on safeguarding taxpayers' money.

*Restrictions on the bank's risk-taking ability* – TARP funds also came with restrictions on executive compensation. Wilson and Wu (2012) document that banks with higher levels of CEO pay in 2008 were more likely to escape TARP to avoid such restrictions. Perhaps, the restriction that bears direct consequence on a CPP bank's shareholder would be the elimination of CEO pay incentives that promote risk-taking behavior by the bank. The US Treasury reasoned that risky investments would negatively affect the value of the senior preferred stocks they held in the banks should the investments fail to pay off. To the extent that risk is positively correlated to expected return, the ability of the bank to accept projects that are risky but would nonetheless have been permissible under normal circumstances is significantly curtailed with direct consequences to generate wealth for the bank's shareholders.

*CPP made banks more prone to loan losses* –CPP funds came with the explicit understanding that they would be advanced to U.S. consumers and businesses. The funds could not be used for other purposes, for example, for investment purposes. Since CPP banks were forced to lend funds, the risk existed that they might loan to low credit quality borrowers, which would ultimately necessitate the banks to increase their provisions for loan losses. Indeed, commentators in the GAO TARP Report noted that mandating increased lending under the CPP may hurt the financial health of the banks (Prester, 2009).

### *2.1.6. Institutional shareholders and political connections*

To the extent that some institutional investors inn banks profit from insider information due to political connections, they could exploit their superior knowledge about CPP actions at banks. For example, they could apply pressure on investee banks to secure CPP funding since it constitutes a cheap source of funding and then pressure management to repay those funds. In the process, the institutional investors could execute trades to profit from market movements in the banks' share prices as a result of the signals conveyed by entry to and exit from CPP. Research by Jagolinzer et al. (2017) infers that some investors benefited from the wisdom

received from the private meetings government officials held with the banks before the release of CPP funds. Institutional investors' (with political connections) post-TARP performance were superior to investors without political connections. Likewise, Barbon et al. (2019) and Di Maggio et al. (2019) find higher than regular trades performed by large investors prior to market-moving announcements.

### *2.2. Government as the shareholder*

Kole and Mulherin (1997) examine the governance and performance of a sample of firms in which the U.S. federal government held a large block of common stock during and following World War II. The government held these shares for a period between 1 to 23 years (median ownership of 7 years) and served as a major shareholder that nominated and elected management teams at these organizations. The authors find that while managerial changes accompany government ownership, the rate of change is lower compared to studies of ownership changes among private investors (for example, Holderness and Sheehan, 1988).

Kole and Mulherin (1997) further examine changes in corporate performance at the time government took ownership (pre-vest), during government tenure (vest), and following the exit of the government (post-vest), separately. While they find that government owned firms grew more than control firms post-vest due to merger activity, the government-owned firms exhibited no diverging performance relative to control firms throughout the three phases.

Similar to Kole and Mulherin (1997), Caves and Christensen (1980) find that the performance of the Canadian National Railroad, a government-owned corporation, matched that of the privately-owned Canadian Pacific Railroad. The authors argue that the competitive nature within the industry forces government-owned railways to remain as competitive as private ones and are insulated from politics. Thus, we should not expect government ownership

to disrupt the ordinary course of business at their investee firms, especially in competitive industries like banking.

Not all studies concur with Kole and Mulherin. For instance, Boardman et al. (1986) find that in the case of the government takeover of Domtar, the Canadian firm's equity value dropped 25%. Since the takeover, there has been no respite in the disputes between the government and the remaining shareholders. In line with Boardman et al. (1986), the causes of value losses could be attributable to several factors. For instance, markets are accustomed to monitoring by private investors. Holderness and Sheehan (1998) report that *"majority shareholders do not merely monitor management teams. They lead them*." By contrast, Kole and Mulherin (1997) argue that the government as a shareholder adopts a hands-off, supervisory role after vesting blocks of shares. However, markets are skeptical as to whether a government's regulatory role achieves the same outcomes as the monitoring performed by private investors.

Government ownership may also affect the work attitude of the employees. While an examination of work motivation between public- and private sector employees is beyond the scope of the present study, we nevertheless note instances of discrepancies in their approaches to work (for example, Lyons et al. 2006). Alchian (1977) states that the suppression of monitoring under public ownership reduces labor efficiency.

Insofar as the US Treasury's intent is to channel CPP funds to businesses and private individuals, the government is required to discriminate among banks. We argue that institutional shareholding could be a factor in its decision. The literature documents a direct association between institutional ownership and bank performance. For example, Elyasiani and Jia (2008) report that bank holding companies' (BHC) performance is positively associated with institutional ownership stability. If the US Treasury injects CPP funds to businesses and

households through well-governed financially-sound well-established banks, then we would observe a direct correlation between the shareholdings of such investors and CPP banks. In our framework, we equate stability to the holdings of long-term dedicated institutional investors and institutional investors target such banks for their performance, stability, and size, among others.

However, Elyasiani and Jia (2008) find the direct association between performance and institutional ownership stability is weaker among BHCs than comparable utility and industrial firms. They attribute these findings to the substitution of regulation for owner monitoring at BHCs. Since CPP comes with a raft of new regulations, the link between institutional ownership and bank performance will be made more tenuous. We note though that institutional investors can be related to banks in several ways other than shareholding. For instance (especially in the case of BHCs), the investors can be bank clients, or they can have the bank as their shareholder, or they can be counterparties in trades with the banks, or the bank can be commercializing their financial products (e.g., mutual funds), among others (see Lescrauwaet, 2006). Our focus on institutional investors as bank shareholders, therefore, does not account for the different ways they can sanction or reward banks following the issuance of senior preferred to the US Treasury in return for CPP funds.

### *2.3. Likelihood of receiving CPP funds and repayment of the funds*

As described earlier, CPP funds were initially meant for "healthy" or "viable" banks. While the US Treasury did assess the financial health of banks applying for CPP funds, they eventually expanded funding to include banks that were not originally intended to be the recipient of CPP funds. Studies examining the likelihood of a bank receiving CPP funds include Bayazitova and Shivdasani (2012) and Croci et al. (2016). Bayazitova and Shivdasani (2012) assess the determinants of CPP to include bank size, amount of wholesale debt, Tier 1 ratio

capital, and commercial loans. Croci et al. (2016) find that CPP banks possess more commercial and industrial loans, credit risk, non-performing loans, cost inefficiencies, goodwill, and assets than non-CPP banks.

Contributing to this stream of literature, we argue that the interests of the banks' major shareholders could not have been set aside during this selection process as decisions to issue senior preferred securities to the US Treasury would require the approbation of the banks' major institutional shareholders. Using the categorization of institutional ownership developed by Bushee (1998), we assert that while the issuance of senior preferred stock to the Treasury would be of little interest to short-term oriented transient institutional shareholders, it would be of interest to long-term oriented institutional shareholders.

In addition, to the extent that CPP funds represent a relatively cheap source of capital, institutional investors with interest in the wellbeing of the organization should favor their acquisition. It is important to note, however, that in addition to direct costs the cost of the CPP funds included non-monetary restrictions. For example, Wilson and Wu (2012) document that banks were more likely to exit the TARP program due to restrictions on CEO pay. And while there was a period where the marginal benefits of CPP funds could exceed their marginal costs, this result should not persist over time and eventually reverse i.e., when credit is free flowing in the economy. Hence, under normal economic conditions, there is little need for special assistance programs from the government. Based on this theory, we hypothesize that institutional investors should favor the repurchase of Treasury-held senior preferred equity as soon as business resumes back to normalcy.

## 3. Data

In this paper, we focus on publicly-listed banks that received bailout funds through the CPP. The CPP is the largest of the 13 programs under the Emergency Economic Stabilization

Act (EESA)-TARP in 2008. We obtain the initial sample of publicly-listed banks that received CPP bailout funds from the US Treasury website.[11] We then manually match each bank to the Compustat Annual Fundamentals database, where we obtain bank characteristics data and retain only banks with data available in Compustat. From Compustat, we also obtain a sample of publicly-listed banks that did not receive bailout funds as the control group. Our final sample includes 202 publicly-listed banks that received bailout funds through the CPP Program and 397 banks that did not participate in the CPP program.

We report the sample distribution in Table 1. In Panel A, we report the distribution by year the banks received CPP funding. More than 65% of the banks received funding in 2008. The distribution of CPP funds occurred mostly from November 2008 to April 2009. In Panel B, we report the distribution by year in which the banks repay CPP funding in full. By the end of 2013, 170 banks (84% of the banks) have fully repaid CPP funding, 98% of which repaid in 2009 through 2012. We choose to end the sample period in 2013 since it marks the fifth anniversary after a bank first received CPP funding. In addition, extending the sample period beyond 2013 could result in confounding effects due to many corporate events taking place over the post 2013 long-run horizon.

[INSERT TABLE 1 ABOUT HERE]

## 4. Research Design and Results

### *4.1. Institutional ownership and the probability of receiving CPP funding*

Cadman et al. (2012) examine whether CEO compensation restrictions affect banks' willingness to participate in the TARP and to repay the TARP fund. Since we also consider government assistance to banks, we follow the methods of Cadman et al. (2012) as we explain

[11] Source: https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/bank-investment-programs/cap/Pages/default.aspx, accessed Oct. 6, 2012.

next. We first explore whether the institutional ownership variables affect the likelihood of a bank receiving CPP funding using the following logistic regression model (1). The dependent variable, $CPP$, is a dummy variable equal to 1 for banks that receive CPP funding and 0 otherwise.

$$CPP_i = \alpha + \beta_1 INST_i + \beta_2 LNASSET_i + + \beta_3 NPA_i + \beta_4 TIER1_i + \beta_5 LEVERAGE_i + \beta_6 ROE_i + \beta_7 COST_i + \varepsilon_i \quad (1)$$

The independent variable of interest is institutional ownership ($INST_i$). We develop various measures of institutional ownership. First, we measure the percentage of bank shares held by institutional owners (*INSTOWN*). We obtain quarterly institutional ownership data from Thomson Financial Institutional 13F common stock holdings and transactions file. All institutional investment managers must file Form 13F with the Security and Exchange Commission (SEC) if they have an aggregate fair market value of at least $100 million in equity holdings within 45 days of each quarter.

Second, we break down institutional ownership percentages for every quarter at each bank into the percentages of shares held by transient institutional investors, quasi-index investors, and dedicated investors, respectively. We obtain the data for institutional investor classification provided by Bushee (2001)[12]. Transient institutional investors are characterized by high portfolio turnover and highly-diversified portfolio holdings and thus have a short-term investment orientation (Bushee, 2001). Quasi-indexers and dedicated institutional investors, in contrast, are characterized by low portfolio turnover though quasi-indexers tend to hold a more diversified portfolio than dedicated institutional investors. Since quasi-indexers and dedicated institutional investors both exhibit low portfolio turnover (and thus have a long-term horizon to investing) and the percentage of ownership in our sample by dedicated institutional investors

[12] Source: http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html, accessed in 2018.

is small (i.e., mean = 1.8%, median = 0% and the 75th percentile = 0.8%), we combine quasi-indexers and dedicated institutional investor ownerships into one single measure that we refer to as long-term institutional ownership (*LONGINSTOWN*). In contrast, we refer to ownership by transient institutional ownership as short-term institutional ownership (*SHORTINSTOWN*).

Note that Bushee (2001) assigns no classification to a fund if it has a small portfolio (i.e., fewer than four stocks) or has no data listed in Spectrum for two years running. As such, we could not classify some institutions as either short- or long-term institutions.[13] Hence this explains why the sum of long-term institutional ownership (*LONGINSTOWN*) and short-term institutional ownership (*SHORTINSTOWN*) is not equal to total institutional ownership (*INSTOWN*).

We also categorize active versus passive owners. This dichotomy allows us to control for active owners that participate in a bank's decision to accept or refuse CPP funds. Further, there is extensive literature that documents the diverging roles of active and passive owners. While earlier, we control for long- versus short-term oriented investors even though they do not represent active and passive owners, respectively. We follow Almazan et al. (2005) and create the following two variables. *ACTIVEINSTOWN* is the percentage of bank shares held by active institutional owners, including investment advisers and investment companies. *PASSIVEINSTOWN* is the percentage of bank shares held by passive institutional owners, including bank trust departments and insurance companies, endowment funds, self-managed corporate pension funds, and a few public pension funds.

In addition to institutional ownership measures, we control for other predictors of a bank's decision to receive and repay CPP funds. *LNASSET* is the natural log of total assets;

[13] They were left out in subsequent analyses of short-term versus long-term oriented institutional investors.

larger banks are better capitalized and thus are less likely to resort to CPP funding. Furthermore, if they need CPP funding, they are more capable of repaying CPP funds early.

*NPA* is the ratio of nonperforming assets to total assets. Higher *NPA* indicates higher bank risk; riskier banks are more likely to need CPP funding and, at the same time, may take longer to repay CPP funding. *TIER1* measures the amount of core equity (i.e., common stock, retained earnings, and non-redeemable preferred stock) as a percentage of total risk-adjusted assets. Capital is the core measure of financial strength for banks, as high ratio and good quality of capital can protect banks from unexpected losses, especially in financial crisis. Related to asset size, nonperforming assets, and *TIER1* capital, Wilson and Wu (2012) find that banks leaving TARP had significantly more assets, a lower percentage of nonperforming assets, and higher capital as measured by the adjusted Tier 1 capital ratios.

Black and Hazelwood (2013) write that TARP was designed to improve the banking system's safety and soundness through increased capitalization. We surmise that TARP funds were meant to alleviate the financial burden of banks. Leverage, which can be viewed as an additional proxy for financial risk, could be a determining factor in receiving CPP funding. We control for this possibility by including *LEVERAGE*, i.e., the ratio of total debt-to-total assets, in the regression analyses.

*ROE* is a measure of profitability and is computed as the ratio of net income to average total equity. CPP funding was originally intended to be provided to healthy banks, which we can interpret as stable and profitable entities. However, and as explained earlier, shortly after its launch, the set of recipients was expanded to include all kinds of banks. Therefore, it makes it more difficult for us to predict the association between a bank's profitability as measured by its ROE and the likelihood of being a CPP receiver bank. Nonetheless, we can assume that the less profitable banks and perhaps those incurring losses are the ones in more need of the CPP

funds. Indeed, Cornett et al. (2013) find that TARP banks are more likely than non-TARP banks to have a lower return on assets, more significant decreases in return on loans, and lower noninterest income to total assets. As such, we hypothesize that CPP banks are less profitable than non-CPP banks. Profitability, though, is inversely related to the ability to repay the CPP loans. We further hypothesize that a bank's likelihood of repaying the CPP funds is inversely related to its profitability.

*COST* is the ratio of noninterest expenses to total assets, and serves as a proxy for the cost structure and operational efficiency. A lower COST is generally favorable. Related to cost, Harris et al. (2013) examine the impact of TARP funds on recipient banks' efficiency and find that efficiency declines following the receipt of TARP funds due to moral hazard. This finding implies that efficient banks, i.e., those that minimize their costs relative to their revenues, that accept TARP funds may experience a decline in their efficiency. While most banks were encouraged to apply for CPP funds, they were still subject to screening. We argue that the government would have considered applicants' efficiency to help maintain the robustness of the banking system. As a result, we hypothesize that bank efficiency is positively related to the likelihood of receiving and repaying CPP funds, respectively.

That CPP funding started only with the nine largest US banks suggests that size matters. The government held that using large banks as loan conduits would be the most effective way to get the CPP funds to businesses and private individuals to stimulate spending. Davila and Walther (2020) report that the top ten BHCs control over 50% of total bank assets. Further, the a too-big-to-fail approach suggests that the US government was especially concerned about the financial health of the US largest banks and, therefore, would include them in all the efforts to support the banking system. Hence, bank should be a determining factor in a bank's likelihood to get CPP funding. As a result, we perform multivariate analyses according to bank size. We split the sample into two. Using the sample median of banks' total assets in the quarter

preceding the bailout date, we categorize banks above the median as large banks and the rest as small banks.

We report the descriptive statistics of the CPP banks in Table 2. All variables are calculated as the averages of the four quarters in the year before the first CPP funding is disbursed. The average (median) CPP bank has $27,471.72 ($1,261.322) millions in assets in the four quarters prior to CPP funding. The average (median) non-performing asset is 0.6% (0.5%). Tier 1 capital ratio averages 10.421%. CPP banks are profitable in general, with an average ROE of 2.4% and a median ROE of 2.5%. These statistics reflect the government's original intention to transit CPP funds through healthy and profitable banks to the business community and US households. Non-interest expense is 4.273% of assets.

Institutional owners hold approximately 32.4% of CPP bank shares in the four quarters preceding CPP funding with 4.9% by short-term oriented institutional owners and 27.1% by long-term oriented institutional owners. This provides preliminary evidence that CPP funds were channeled to banks with more long-term oriented than short-term oriented institutional investors. The 32.4% of institutional ownership is comprised of 21.1% active institutional investors, and 11.3% passive investors which suggests that banks with active institutional investors are more likely to be a recipient of CPP funds. Hence, it may be conjectured that active investors affect decision-making as opposed to passive investors.

[INSERT TABLE 2 ABOUT HERE]

We report the results from the estimation of equation (1) in Table 3. The coefficient on the *INSTOWN* variable is positive and significant at the 1% level in Model 1, suggesting that banks with higher institutional ownership are more likely to receive CPP funding. Furthermore, the more shares held by long-term institutional owners, the higher the probability of the firm receiving CPP funding. In Model 2, the coefficient representing long-term oriented institutional

owners, i.e., *LONGINSTOWN*, is positive and highly significant; conversely, the coefficient representing short-term oriented owners, i.e., *SHORTINSTOWN*, is not statistically significant. The decomposition of institutional ownership between active and passive investors in Model 3 shows that both types of investors are associated with a higher likelihood of being a CPP-recipient. This could be due to the wide-ranging outreach of CPP funds, i.e., to open it to more kinds of banks instead of restricting it to certain banks. Both coefficients (i.e., *ACTIVEINSTOWN* and *PASSIVEINSTOWN*) are positive and statistically significant and equal in magnitude (i.e., 0.776 and 0.798, respectively). Well capitalized banks (i.e., banks with more assets (*LNASSET*) and higher tier 1 capital ratio (*TIER1*), and banks with more nonperforming assets (*NPA*) are less likely to resort to CPP funding. More profitable banks (i.e., banks with a higher return on equity *ROE*), banks with the higher non-interest expense (*COST*), and banks that carry more debt relative to their total assets (*LEVERAGE*) are more likely to receive CPP funding.

The lack of consistency (i.e., well-capitalized banks are less likely to accept CPP funds while profitable banks are more likely to take them) reflects the indecisiveness of the government on the banks that act as the conduit for CPP funds. At the onset, only the nine largest US banks were convened and required to accept the CPP funds. These banks were already well-capitalized and therefore had little need for the CPP funds. The US Treasury then released funds to most banks in the US. Given the public outcry that taxpayers' money was used to bail out banks, many banks decided to refrain from accepting CPP funds. At the same time, the government came out with new explanations of CPP funds to appease the public. All these factors contributed to confounding the typical profile of a CPP recipient bank.

[INSERT TABLE 3 ABOUT HERE]

In Panels B and C of Table 3, the results are presented for the sub-samples of smaller and larger banks, respectively. In general, the results are identical to those for the full sample from Panel A of Table 3 except for institutional investors' activism (i.e., Model 3). Unlike Panel A, only *ACTIVEINSTOWN* is positive and significant in Panel B containing the smaller banks, and only *PASSIVEINSTOWN* is positive and significant in Panel C comprising the larger banks. The results suggest that active institutional investors were more of a determinant factor to obtain CPP funding among small- rather than large banks.

### *4.2. Institutional ownership and the probability of repaying CPP funding*

#### *4.2.1. Existing institutional investors*

When the CPP was established in October of 2008, the CPP recipient banks could not repay the US Treasury (i.e., redeem the senior preferred stocks) for three years following receipt of the Treasury's investment. However, in February 2009, this restriction was lifted, and banks could repay CPP funds at any time following the passage of the American Recovery and Reinvestment Act 2009. All these changes suggest that initially the government had limited information and as events unfolded and new information acquired was thus required to adjust its CPP funding conceptual framework.

In this section, we explore whether institutional ownership affects the likelihood of a bank repaying CPP funding using the following logistic regression model (2). The dependent variable *REPAY* is a dummy variable equal to 1 for banks that repay CPP funding and 0 otherwise.

$$REPAY_i = \alpha + \beta_1 INST_i + \beta_2 LNASSET_i + \beta_3 NPA_i + \beta_4 TIER1_i + \beta_5 LEVERAGE_i + \beta_6 ROE_i + \beta_7 COST_i + \beta_8 MILLS_i + \varepsilon_i \quad (2)$$

The variables are as explained previously except for *MILLS*. To account for potential endogeneity, we use a two-stage Heckman model (Hackman et al. 1998) and incorporate an inverse Mills ratio (*MILLS*) obtained from Model 1, Panel A, Table 3.

In Table 4, we report the results from the estimation of equation (2) with the *INSTOWN* as the independent variable of interest. Since banks repay CPP funding in different years, the control variables are obtained for different time frames. In Model 1 (2, 3, 4), the dependent variable is a dummy variable equal to 1 for banks that repay CPP funding in 2009 (2010, 2011, 2012) and 0 otherwise; all bank characteristics are calculated as the averages of the characteristics in the four quarters of the year 2008 (2009, 2010, 2011). Once a bank repays CPP, it is excluded from the following years' regressions. For instance, banks repaying CPP in 2009 are excluded from Model 2. Likewise, banks repaying CPP in 2009 and 2010 are excluded from Model 3, and so on. In 2013, only four banks were repaying CPP and given their low numbers; we do not report the regression results for 2013.

[INSERT TABLE 4 ABOUT HERE]

The logistic regression results in Panel A of Table 4 show good model fitness. The pseudo-R-squared ranges from 28.6% to 41.8%. The percent of correct classification of the equation (2) ranges from 76.92% to 88%. In Model 1 (the year 2009) and Model 4 (the year 2012) of Table 4, the coefficient on the *INSTOWN* variable is positive and significant, suggesting that banks with more institutional ownership are more likely to repay CPP funding. This points to both their ability to redeem the senior preferred securities issued to the government and their eagerness to get rid of the stigma that accompanies TARP funds.

Conversely, the relationship between *INSTOWN* and the likelihood to repay is the opposite in the years 2010 and 2011 (i.e., Models 2 and 3 of Table 4). During these years, higher institutional ownership is associated with a lower likelihood to repay the CPP funds.

The coefficient of *INSTOWN* is negative and statistically significant in each of the two years. We argue that this finding is to be expected. Because of the stigma that comes with the CPP funds, institutional investors at healthy banks pressed for early repayment (hence the positive value of *INSTOWN* in 2009). What remained after this repayment is banks that need the CPP funds and cannot repay early despite the stigma that accompanies CPP funds. At these banks, institutional investors demand that refund of CPP funds is delayed (hence, the negative value of the *INSTOWN* coefficient in the years 2010 and 2011). Once the crisis effects have dissipated and to avoid the constraints that accompany CPP funds, many of these banks repaid the CPP by the end of the program, i.e., in 2012 (hence the positive coefficient of *INSTOWN* in the year 2012). The findings stay qualitatively the same in Panels B and C, representing the subsamples of smaller and larger banks, respectively.

Consistent with expectations, well-capitalized banks (i.e., larger *LNASSET* and *TIER1*), more profitable banks (i.e., higher *ROE*), and banks with higher non-interest expenses (i.e., higher *COST*) are more likely to repay CPP funding. Our findings are also consistent with the evidence documented by Wilson and Wu (2012) who show that larger banks with better performance and stronger capital exited the TARP program early. Banks with more troubled assets (i.e., higher *NPA*) are less likely to repay CPP funding.

*4.2.2. Short-term versus long-term oriented institutional investors*

In Panel A of Table 5, we report the results from the estimation of equation (2) with the short-term institutional ownership variable (*SHORTINSTOWN*) and the long-term institutional ownership variable (*LONGINSTOWN*) as the independent variables of interest. The hypothesized effects of institutional ownership are illustrated in the year 2010. The coefficient of *SHORTINSTOWN* is negative, while that of *LONGINSTOWN* is positive, which reflects the greater desire and ability of banks held by long-term institutional investors to repay.

Conversely in the year 2009, banks associated with short-term institutional investors were more likely to repay to attenuate the adverse effects that accompany CPP borrowing on their reputation and their stock prices, which would have adversely affected the wealth of short-term institutional investors who require the shares to hold their value in the short-run.

The reputational effect that accompanies CPP funds manifests itself in the short run. Hence once the first year of the program has passed, those effects are fully priced. Thus, banks associated with more long-term oriented institutional investors are less likely to repay the funds in 2011. We find that the coefficient of *LONGINSTOWN* is negative and statistically significant in Model 3 that contains the sample of banks that had not repaid the CPP funds by the end of 2010. The results stay qualitatively the same in subsamples' analyses of smaller banks (Panel B) and larger banks (Panel C).

[INSERT TABLE 5 ABOUT HERE]

*4.2.3. Active versus passive institutional investors*

In Panel A of Table 6, we examine the influence of institutional ownership on the bank's propensity to repay the CPP funds based on their activism level using the estimation of equation (2) where the independent variables of interests are *ACTIVEINSTOWN* and *PASSIVEINSTOWN*. Results for *ACTIVEINSTOWN* implies that investors implore banks to either repay funds early (positive coefficient in 2009) or use funds for long term growth (negative coefficients in 2010 and 2011). This is consistent with the stigma associated with receiving CPP funds. The WSJ reports that "*certain financial institutions attempting to call a competitor's soundness into question by featuring 'TARP recipient' labels in negative*

*advertising*."[14] Regarding the cost benefit relation, active institutional investors advocate early repayment of funds. Otherwise, banks are advised to keep and use the funds.

[INSERT TABLE 6 ABOUT HERE]

### *4.3. Institutional ownership changes subsequent to CPP funding repayment*

In this section, we seek to explore whether institutional investors adjust their shareholding following (or are attracted to) the banks that redeem senior preferred shares. issued to the US Treasury. We calculate the changes in institutional ownership in the CPP banks upon repaying CPP (i.e., average institutional ownership in the four quarters after the repayment minus average institutional ownership in the four quarters before repayment ( $INSTOWN\_CHG_i$)). We then regress $INSTOWN\_CHG_i$ on repayment status and the changes in other bank characteristics. Specifically, we estimate the following regression model (3):

$$INSTOWN\_CHG_i = \alpha + \beta_1 REPAY\_YEAR_i + \beta_2 LNASSET\_CHG_i + \beta_3 NPA\_CHG_i + \beta_4 TIER1\_CHG_i + \beta_5 LEVERAGE\_CHGi + \beta_6 ROE\_CHG_i + \beta_7 COST\_CHG_i + \beta_8 MILLS_i + \varepsilon_i \quad (3)$$

The variable of interest is $REPAY\_YEAR_i$, where $YEAR_i$ represents the year the CPP funds were repaid (i.e., either 2009, 2010, 2011 or 2012 alternatively). All control variables are as previously defined though they are used in the differenced form. In other words, the changes in the control variables are the differences between the average characteristics in the four quarters after the repayment and the average characteristics in the four quarters before repayment.

The estimation results of equation (3) are reported in Panel A of Table 7. In Model 1 (2, 3, 4) of Table 7, the dependent variable is *INSTOWN_CHG*, the difference in the average

[14] The Wall Street Journal, 2010. TARP Stigma Is Curtailing Bank Lending, Treasury's Alison Says by Darrell A. Hughes, Feb. 26. Accessed online at https://www.wsj.com/articles/SB10001424052748704625004575089370496737074

institutional ownership (*INSTOWN*) in the four quarters of 2010 (2011, 2012, 2013) and the average institutional ownership in the four quarters of 2009 (2010, 2011, 2012). The coefficients on the $REPAY\_2009_i$ ,$REPAY\_2010_i$, $REPAY\_2011_i$ and $REPAY\_2012_i$ variables are negative and significant, suggesting a reduction in institutional ownership among CPP banks after they repay CPP funding. Thus, this result, combined with the result in Table 4, implies that the existing institutional ownership in CPP banks affects the bank's decision to repay CPP funding; institutional investors, on the other hand, do not choose to invest in banks that repay CPP early.

[INSERT TABLE 7 ABOUT HERE]

In Panel B of Table 7, we restrict the sample to the smaller banks. A significant decline in institutional ownership is noted among the sub-sample of banks repaying in Model 3, i.e., repaying in 2011. Though, in none of the remaining years, do we observe an increase in institutional ownership following the repayment of CPP funds.

In Panel C of Table 7, we restrict the sample to the larger banks. A significant decline in institutional ownership is noted among the sub-samples of banks repaying in Models 1 and 3, i.e., repaying in years 2009 and 2011, respectively. Once again, we do not observe any increase in institutional ownership in the remaining years following the repayment of CPP funds.[15]

For banks to repay CPP funds, they had to reassure the government that they could raise high-quality capital (for example, equity capital) on their own, and they did not have to rely on government assistance any longer. As a result, many banks issued new shares to show their capacity to raise funding on their own and convince the government that they were in a position

[15] In non-tabulated results, we replace *INSTOWN* by its constituent parts, i.e., short-term oriented investors vs. long-term oriented ones, and active vs. passive investors, respectively. Our findings stay qualitatively the same, i.e., there is more decline in institutional ownership around CPP repayments.

to repay the CPP.[16] The issue of new shares caused a dilutive effect, which put downward pressure on the bank share price. The downward effect was further accentuated by the sale of the government's stake, where the government had earlier converted warrants into common stock. These forces caused institutional investors to liquidate their position in CPP banks upon exit from the CPP program.[17]

Given the imminent drop in stock price associated with CPP exit, institutional investors may position themselves to benefit from the event by selling their shares prior to exit and waiting for the government to sell their shares upon the banks' exit from the CPP program. In doing so, the institutional investors can re-establish their equity stake in the banks but also end up making a profit by selling their shares in the open market and repurchasing them later from the government. The SIGTARP acknowledged this flipping (SIGTARP, 2015). Indeed, according to press reports, institutional investors have purchased about 70% of the shares auctioned by the U.S. government divesting its TARP investments. A WSJ article reports that out of 185 such auctions by the government until December 2014, the Treasury raised $3 billion on TARP investments initially valued at $3.8 billion.[18] The government loss is the gain for the buying investors.

Our findings of a post CPP repayment decrease in institutional investors does not nullify the fact that some institutional investors repurchased shares in the banks they exited. While our findings suggest that the size of the institutional ownership that exited the banks exceeds the size of ownership that reestablished their positions at the banks this difference could be the

[16] Examples: https://www.reuters.com/article/northerntrust-tarp/update-2-northern-trust-plans-offering-to-repay-tarp-idUSN2711341720090427; https://www.bizjournals.com/kansascity/news/2015/08/06/bank-of-blue-valley-tarp-debt-payoff.html; http://pr.statestreet.com/us/en/20090609_1.html

[17] It would be consistent with the negative performance of equity issues used to retire debt commitments.

[18] Source: https://www.wsj.com/articles/hedge-funds-private-equity-win-big-at-tarp-auctions-1422421201 . The government did not disclose the list of traders surrounding CPP exit, and the WSJ report is based on a few funds that disclosed their trades and positions.

result of many factors including the reluctance by some banks to avoid the above described "flipping" of shares.

### *4.4. Trading volume changes subsequent to CPP bailout*

We empirically test whether there was abnormal volume around CPP injections in regression model (4). In Table 8, we report the regression analyses of the trading volume around the CPP injection date. The dependent variable is the difference in the average daily ratios of trading volume to shares outstanding in each quarter (*TURNOVER*).

$$TURNOVER_i = \alpha + \beta_1 CPP_i + \beta_2 AFTER_i + \beta_3 CPP * AFTER_i + \beta_4 LNASSET_i + \beta_5 NPA_i + \beta_6 TIER1_i + \beta_7 LEVERAGE_i + \beta_8 ROE_i + \beta_9 COST_i + \beta_{10} MILLS_i + \varepsilon_i \quad (4)$$

In Panel A of Table 8, we estimate the difference-in-difference regression of the average daily ratios of trading volume to shares outstanding in the (-4, +4) quarters around the CPP bailout dates. The CPP dummy variable is equal to 1 for CPP-receiving banks and 0 for the portfolios of non-CPP banks in the same period. The *AFTER* dummy variable is an indicator for the quarters after the CPP bailout dates (e.g., quarters +1 through +4). We are interested in the interaction term between *CPP* and *AFTER (*i.e.*, CPP*AFTER)*. The interaction term *CPP*AFTER* is positive and significant for the full sample (in Model 1) and smaller bank sub-sample (in Model 2), suggesting significant share turnover upon CPP injection among CPP banks, especially smaller CPP banks.

[INSERT TABLE 8 ABOUT HERE]

In Panel B, we examine only CPP-receiving banks. Similar to the results in Panel A, the coefficient on the *AFTER* dummy variable is positive and significant for the full sample (in Model 1) and smaller bank sub-sample (in Model 2), confirming significant share turnover upon CPP injection among CPP banks, especially smaller CPP banks.

## 5. Conclusions and Discussions

Using the CPP Program as a natural case study, we examine the behavior of institutional investors when the government becomes a shareholder in the firm. We focus on publicly-listed banks that received bailout funds through the CPP Program, the largest one of the 13 programs under the TARP following the 2007-2009 subprime mortgage crisis in the U.S. Under this volunteer program, the U.S. Treasury provided capital to 707 financial institutions across 48 states by investing approximately $205 billion until December 2009. In return, the U.S Treasury received preferred stock and warrants to purchase common stock or other securities.

Despite the various shifts in the government's approach in implementing the CPP program primarily due to the public's response and the inherent difficulty in executing this unprecedented program, in general, our evidence suggests that the government channeled funds to the private investors using banks that were held by long-term oriented institutional investors. Hence, their presence among CPP banks served to support the government's initial intent, We associate shareholdings by long-term oriented dedicated institutional investors as a sign of investors' belief in the viability of a bank.

As for the institutional investors, they exploited CPP to their advantage. First, they supported the banks' acceptance of the CPP funds (despite the restrictions, CPP was an easy, accessible, and cheap source of financing) by upholding their stake in the banks conditional on the benefits of the CPP funds (e.g., low cost of raising the capital) relative to the associated costs (e.g., the market reaction to the perceived quality of a CPP-bank). We document that banks with higher existing institutional ownership shareholding, especially holdings by long-term institutional investors, are more likely to become CPP-recipient banks.

Once the banks received CPP funds, institutional investors exploited the early repayment of the CPP funds. The sooner the bank repaid, the sooner the market reactions to

the banks' repayments materialize. We find that banks with higher existing institutional ownership shareholding, especially holdings by long-term oriented institutional investors, were more likely to pay back bailout funds in a shorter timeframe. In the process, the institutional investors sold their positions in the CPP banks to avoid the dilutive effect of the banks' actions to issue more shares to be able to repay the CPP funds. We find that institutional investors decreased their shareholding from the four quarters before the redemption of the CPP securities to the four quarters following it. This is consistent with investors' intention to avoid the depressing effect of equity offerings on the share prices as the banks issue new shares to demonstrate their ability to repay CPP funds to the US Treasury. Our findings echo the sentiments of SIGTARP's acknowledgement that there was considerable flipping of shares taking place around CPP recipients' decision to redeem shares held by the US Treasury.

In terms of the wealth implications, institutional investors likely exited banks to avoid the decline in share price that accompanies distressed banks. Once the banks returned to higher valuations with the help of the CPP funds, institutional investors take advantage of the shares auctioned to facilitate banks' exit from the program. The underpricing of new share issues is well documented in the literature, and since institutional investors have the funds to take advantage of new issues, they will do so. Indeed, anecdotal evidence reported in the press suggest that hedge funds and other private funds have been the most significant participants in facilitating the US Treasury department exit from its taxpayer-backed investments in banks. Upon reestablishing their positions in the banks, institutional investors wait for the banks to perform a share repurchase and profit by reselling the shares at a premium to the banks. Thus, institutional investors' moves are timed to maximize their wealth. Since they are the dominant investors in the US and its financial sector, it seems as though they determine their wealth, though, in this case, it may appear that they are doing so at the expense of taxpayers. However, they must attain some rewards through their actions; otherwise, taxpayers could have ended

holding potential risky investments at the banks in the long run. The entire process also helped in sustaining demand for the shares of the banks and, in its midst, preserve the wealth of the banks' shareholders. By accepting CPP funds, banks could generate more lending, increase profitability, and at the same time, access funds at a low cost. Also, by allowing institutional investors to buy additional share issues at a discount, banks could free themselves from the restrictive conditions that accompany CPP funds that includes the additional reporting requirements and the restrictions on bonuses and dividends, among others. Hence institutional investors' involvement in the TARP process during the financial crisis created wealth for shareholders and facilitated the restoration of banks' financial health.

**References**


Alchian, A. A., Coase, R. H., 1977. Economic forces at work. Indianapolis: Liberty Press, 127-149.

Almazan, A., Hartzell, J. C., Starks, L. T., 2005. Active institutional shareholders and costs of monitoring: Evidence from executive compensation. Financial Management, 34(4), 5-34.

Barbon, A., Maggio, M. D., Franzoni, F., Landier, A., 2019. Brokers and order flow leakage: evidence from fire sales. The Journal of Finance, 74(6), 2707-2749.

Bayazitova, D., Shivdasani, A., 2012. Assessing tarp. The Review of Financial Studies, 25(2), 377-407.

Berger, A. N., Roman, R. A., 2015. Did TARP banks get competitive advantages?. Journal of Financial and Quantitative Analysis, 50(6), 1199-1236.

Black, L. K., Hazelwood, L. N., 2013. The effect of TARP on bank risk-taking. Journal of Financial Stability, 9(4), 790-803.

Boardman, A., Freedman, R., Eckel, C., 1986. The price of government ownership: A study of the Domtar takeover. Journal of Public Economics, 31(3), 269-285.

Bushee, B. J., 1998. The influence of institutional investors on myopic R&D investment behavior. Accounting Review, 305-333.

Bushee, B. J., 2001. Do institutional investors prefer near-term earnings over long-run value?. Contemporary Accounting Research, 18(2), 207-246.

Cadman, B., Carter, M. E., Lynch, L. J., 2012. Executive compensation restrictions: do they restrict firms' willingness to participate in TARP?. Journal of Business Finance & Accounting, 39(7-8), 997-1027.

Calabrese, R., Degl'Innocenti, M., Osmetti, S. A., 2017. The effectiveness of TARP-CPP on the US banking industry: A new copula-based approach. European Journal of Operational Research, 256(3), 1029-1037.

Caves, D. W., Christensen, L. R., 1980. The relative efficiency of public and private firms in a competitive environment: the case of Canadian railroads. Journal of Political Economy, 88(5), 958-976.

Croci, E., Hertig, G., Nowak, E., 2016. Decision-making during the credit crisis: Did the Treasury let commercial banks fail?. Journal of Empirical Finance, 38, 476-497.

Cornett, M. M., Li, L., Tehranian, H., 2013. The performance of banks around the receipt and repayment of TARP funds: Over-achievers versus under-achievers. Journal of Banking & Finance, 37(3), 730-746.

Davila, E., & Walther, A., 2020. Does size matter? bailouts with large and small banks. Journal of Financial Economics, 136, 1-22.

Di Maggio, M., Franzoni, F., Kermani, A., Sommavilla, C., 2019. The relevance of broker networks for information diffusion in the stock market. Journal of Financial Economics, 134(2), 419-446.

Duchin, R., Sosyura, D., 2014. Safer ratios, riskier portfolios: Banks′ response to government aid. Journal of Financial Economics, 113(1), 1-28.

Elyasiani, E., Jia, J. J., 2008. Institutional ownership stability and BHC performance. Journal of Banking & Finance, 32(9), 1767-1781.

Harris, O., Huerta, D., Ngo, T., 2013. The impact of TARP on bank efficiency. Journal of International Financial Markets, Institutions and Money, 24, 85-104.

Heckman, J.J., Ichimura, H., Todd, P., 1998. Matching as an econometric evaluation estimator. The Review of Economic Studies, 65, 261-294.

Holderness, C. G., Sheehan, D. P., 1988. The role of majority shareholders in publicly held corporations: An exploratory analysis. Journal of Financial Economics, 20, 317-346.

Jagolinzer, A.D., Larcker, D.F., Ormazabal, G., Taylor, D., 2017. Political Connections and the Informativeness of Insider Trades (July 29, 2017). Journal of Finance (Forthcoming). Available at SSRN: https://ssrn.com/abstract=2836053 or http://dx.doi.org/10.2139/ssrn.2836053

Jordan, D. J., Rice, D., Sanchez, J., Wort, D. H., 2011. Explaining bank market-to-book ratios: Evidence from 2006 to 2009. Journal of Banking & Finance, 35(8), 2047-2055.

Kole, S. R., Mulherin, J. H., 1997. The government as a shareholder: A case from the United States. The Journal of Law and Economics, 40(1), 1-22.

Kim, D. H., Stock, D., 2012. Impact of the TARP financing choice on existing preferred stock. Journal of Corporate Finance, 18(5), 1121-1142.

Lescrauwaet, P., 2006. Links between institutional investors and banks. Background paper prepared for the Working Group on institutional investors, global savings and asset location.

Lyons, S. T., Duxbury, L. E., Higgins, C. A., 2006. A comparison of the values and commitment of private sector, public sector, and parapublic sector employees. Public Administration Review, 66(4), 605-618.

Prester, J., 2009. When the government becomes stockholder: Impact of the capital purchase program on bank regulation. University of Memphis Law Review, 39(4), 931-972.

SIGTARP, 2015. SIGTARP Quarterly Report to Congress January 28, 2015. Accessed at: https://www.sigtarp.gov/Pages/Reports-Testimony-Home.aspx.

Veronesi, P., Zingales, L., 2010. Paulson's gift. Journal of Financial Economics, 97(3), 339-68.

Wilson, L., Wu, Y. W., 2012. Escaping TARP. Journal of Financial Stability, 8(1), 32-42.

**Table 1**
**Sample Distribution**

***Panel A - Distribution of CPP Receipt***

| Year | 2008 | 2009 | Total |
|---|---|---|---|
| Number of banks | 133 | 69 | 202 |

***Panel B - Distribution of CPP Repayment***

| Year | 2009 | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|---|
| Number of banks | 42 | 24 | 54 | 46 | 4 | 170 |

We report the distribution of the sample by the year the bank receives CPP funding (in Panel A) and by the year the bank repays CPP funding (in Panel B). CPP program is the largest one of the 13 programs under the Emergency Economic Stabilization Act (EESA)-TARP in 2008. We obtain the initial sample of publicly listed banks from the U.S. Treasury website, and sample banks needs to have data available in Compustat.

**Table 2**
**Descriptive Statistics of CPP Banks**

| Variables | Mean | Median | 25th percentile | 75th percentile | Standard deviation |
|---|---|---|---|---|---|
| *LNASSET* | 7.800 | 7.513 | 6.696 | 8.468 | 1.653 |
| *NPA* | 0.006 | 0.005 | 0.002 | 0.007 | 0.004 |
| *TIER1* | 10.421 | 10.223 | 9.125 | 11.435 | 2.028 |
| *LEVERAGE* | 0.909 | 0.910 | 0.897 | 0.923 | 0.019 |
| *ROE* | 0.024 | 0.025 | 0.018 | 0.032 | 0.012 |
| *COST* | 4.273 | 3.219 | 2.408 | 4.508 | 4.362 |
| *INSTOWN* | 0.324 | 0.278 | 0.130 | 0.477 | 0.238 |
| *SHORTINSTOWN* | 0.049 | 0.029 | 0.005 | 0.073 | 0.055 |
| *LONGINSTOWN* | 0.271 | 0.228 | 0.104 | 0.394 | 0.204 |
| *ACTIVEINSTOWN* | 0.211 | 0.172 | 0.078 | 0.309 | 0.173 |
| *PASSIVEINSTOWN* | 0.113 | 0.108 | 0.020 | 0.189 | 0.102 |

We provide the summary statistics of the average of the bank characteristics in the 4 quarters preceding the earliest CPP receipt (e.g. the average of quarters 1 through 4 of the year 2007). *LNASSET* is the natural logarithm of total assets. *NPA* is ratio of nonperforming assets to total assets. *TIER1* is the ratio of the bank's core equity to its total risk-weighted assets. *LEVERAGE* is ratio of total debt to total assets. *ROE* is the return on equity. *COST* is the ratio of non-interest expense to asset. *INSTOWN* is the percentage of bank shares held by institutional owners. *SHORTINSTOWN* is the percentage of bank shares held by transient institutional owners and *LONGINSTOWN* is the percentage of bank shares held by quasi-indexer and dedicated institutional owners (Bushee, 2001). *ACTIVEINSTOWN* is the percentage of bank shares held by active institutional owners including investment advisers and investment companies and *PASSIVEINSTOWN* is the percentage of bank shares held by passive institutional owners including bank trust departments and insurance companies, endowment funds, self-managed corporate pension funds and a few public pension funds (Almazan et al. 2005).

**Table 3**
**The Relationship between Institutional Ownership and Probability of CPP Receipt**

| ***Panel A – Full sample*** | | | |
|---|---|---|---|
| ***Variables*** | ***Model 1*** | ***Model 2*** | ***Model 3*** |
| *INSTOWN* | 1.454 | | |
| | (5.749***) | | |
| *SHORTINSTOWN* | | 0.112 | |
| | | (0.382) | |
| *LONGINSTOWN* | | 1.286 | |
| | | (4.159***) | |
| *ACTIVEINSTOWN* | | | 0.776 |
| | | | (2.726***) |
| *PASSIVEINSTOWN* | | | 0.798 |
| | | | (2.605***) |
| *LNASSET* | -0.596 | -0.518 | -0.626 |
| | (-2.261**) | (-2.004**) | (-2.288**) |
| *NPA* | -0.680 | -0.678 | -0.706 |
| | (-2.570**) | (-2.539**) | (-2.651***) |
| *TIER1* | -0.833 | -0.811 | -0.809 |
| | (-2.725***) | (-2.666***) | (-2.657***) |
| *LEVERAGE* | 0.891 | 0.871 | 0.863 |
| | (2.508**) | (2.445**) | (2.436**) |
| *ROE* | 0.920 | 0.896 | 0.883 |
| | (3.156***) | (3.090***) | (3.023***) |
| *COST* | 0.419 | 0.413 | 0.396 |
| | (1.897*) | (1.879*) | (1.782*) |
| Constant | -8.916 | -8.826 | -8.509 |
| | (-2.216**) | (-2.187**) | (-2.115**) |
| Pseudo R-squared | 0.149 | 0.144 | 0.146 |
| % correct classification | 69.35% | 69.88% | 69.00% |
| Observations | 576 | 576 | 576 |
| ***Panel B – Smaller banks*** | | | |
| ***Variables*** | ***Model 1*** | ***Model 2*** | ***Model 3*** |
| *INSTOWN* | 1.115 | | |
| | (3.196***) | | |
| *SHORTINSTOWN* | | 0.495 | |
| | | (1.256) | |
| *LONGINSTOWN* | | 0.875 | |
| | | (2.440**) | |
| *ACTIVEINSTOWN* | | | 1.166 |
| | | | (3.251***) |
| *PASSIVEINSTOWN* | | | 0.025 |
| | | | (0.070) |
| Control variables | Yes | Yes | Yes |
| Pseudo R-squared | 0.174 | 0.176 | 0.179 |
| % correct classification | 76.64% | 76.64% | 75.99% |
| Observations | 307 | 307 | 307 |
| ***Panel C – Larger banks*** | | | |
| ***Variables*** | ***Model 1*** | ***Model 2*** | ***Model 3*** |

| | | | |
|---|---|---|---|
| *INSTOWN* | 1.372 | | |
| | (4.462***) | | |
| *SHORTINSTOWN* | | -0.174 | |
| | | (-0.464) | |
| *LONGINSTOWN* | | 1.412 | |
| | | (3.518***) | |
| *ACTIVEINSTOWN* | | | 0.320 |
| | | | (0.855) |
| *PASSIVEINSTOWN* | | | 1.221 |
| | | | (3.034***) |
| Control variables | Yes | Yes | Yes |
| Pseudo R-squared | 0.121 | 0.115 | 0.125 |
| % correct classification | 65.54% | 64.79% | 66.67% |
| Observations | 269 | 269 | 269 |

We report the results from the logistic regressions of the probability to receive CPP funding for whole sample in Panel A, and two subsamples (i.e. Smaller and Larger banks) in Panels B and C. We use the sample median of banks' total assets in the quarter preceding the bailout date to split the sample into two. The dependent variable is *CPP*, a dummy variable equal to 1 for banks that receive CPP funding and 0 for the portfolios of non-CPP banks in the same period. *INSTOWN* is the percentage of bank shares held by institutional owners. *SHORTINSTOWN* is the percentage of bank shares held by transient institutional owners. *LONGINSTOWN* is the percentage of bank shares held by quasi-indexer and dedicated institutional owners. *ACTIVEINSTOWN* is the percentage of bank shares held by active institutional owners. *PASSIVEINSTOWN* is the percentage of bank shares held by passive institutional owners. *LNASSET* is the natural logarithm of total assets. *NPA* is ratio of nonperforming assets to total assets. *TIER1* is the ratio of the bank's core equity to its total risk-weighted assets. *LEVERAGE* is ratio of total debt to total assets. *ROE* is the ratio of net income to total equity. *COST* is the ratio of operating expense to asset. All control variables are calculated as the averages of the characteristics from quarters 1 through 4 of the year 2007. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 4**
**The Relation between CPP Repayment Probability and Institutional Ownership**

| ***Panel A – Full Sample*** | | | | |
|---|---|---|---|---|
| ***Variables*** | ***Model 1 – 2009*** | ***Model 2 – 2010*** | ***Model 3 – 2011*** | ***Model 4 – 2012*** |
| *INSTOWN* | 10.201 | -0.663 | -1.572 | 1.546 |
| | (2.720***) | (-3.231***) | (-3.828***) | (2.012**) |
| *LNASSET* | -1.811 | 1.939 | 1.229 | -2.221 |
| | (-1.251) | (4.055***) | (2.123**) | (-3.952***) |
| *NPA* | -11.239 | -2.031 | -1.046 | -1.521 |
| | (-4.524***) | (-21.040***) | (-3.416***) | (-3.576***) |
| *TIER1* | -1.234 | 2.206 | 1.145 | 1.366 |
| | (-1.332) | (3.527***) | (2.208**) | (1.636) |
| *LEVERAGE* | 2.267 | -1.922 | -2.012 | -0.323 |
| | (2.005**) | (-8.933***) | (-4.414***) | (-0.585) |
| *ROE* | 10.536 | -3.475 | -1.775 | 0.610 |
| | (5.156***) | (-194.774***) | (-2.516**) | (0.901) |
| *COST* | 3.500 | -0.678 | 0.829 | -0.114 |
| | (4.280***) | (-6.808***) | (2.387**) | (-1.133) |
| *MILLS* | 10.309 | -3.608 | -1.923 | -0.799 |
| | (2.326**) | (-21.623***) | (-2.003**) | (-1.322) |
| *Constant* | -70.337 | 31.914 | 38.426 | 16.966 |
| | (-2.430**) | (5.358***) | (3.513***) | (1.215) |
| Pseudo R-squared | 0.418 | 0.309 | 0.286 | 0.287 |
| % correct classification | 88% | 85.99% | 76.92% | 77.46% |
| Observations | 202 | 159 | 131 | 72 |
| ***Panel B – Smaller Banks Sample*** | | | | |
| ***Variables*** | ***Model 1 – 2009*** | ***Model 2 – 2010*** | ***Model 3 – 2011*** | ***Model 4 – 2012*** |
| *INSTOWN* | 3.476 | -2.531 | -1.482 | 1.367 |
| | (1.911*) | (-3.072***) | (-0.721) | (0.816) |
| Control variables | Yes | Yes | Yes | Yes |
| Pseudo R-squared | 0.246 | 0.327 | 0.330 | 0.538 |
| % correct classification | 84.42% | 93.22% | 82.46% | 86.49% |
| Observations | 78 | 60 | 58 | 38 |
| ***Panel C – Larger Banks Sample*** | | | | |
| ***Variables*** | ***Model 1 – 2009*** | ***Model 2 – 2010*** | ***Model 3 – 2011*** | ***Model 4 – 2012*** |
| *INSTOWN* | 21.085 | -0.502 | -1.441 | 3.135 |
| | (1.891*) | (-1.768*) | (-15.527***) | (4.916***) |
| Control variables | Yes | Yes | Yes | Yes |
| Pseudo R-squared | 0.563 | 0.279 | 0.250 | 0.368 |
| % correct classification | 87.80% | 81.63% | 76.71% | 82.35% |
| Observations | 124 | 99 | 73 | 34 |

We report the results from the logit regression of the probability of CPP repaying on institutional ownership for whole sample in Panel A, and two subsamples (i.e. Smaller and Larger banks) in Panels B and C. We use the sample median of banks' total assets in the quarter preceding the bailout date to split the sample into two. The dependent variable is *REPAY,* a dummy variable equal to 1 if a bank repays CPP funding in a year and 0 otherwise. *INSTOWN* is the percentage of bank shares held by institutional owners. *LNASSET* is the natural logarithm of total assets. *NPA* is ratio of nonperforming assets to total assets. *TIER1* is the ratio of the bank's core equity to its total risk-weighted assets. *LEVERAGE* is ratio of total debt to total assets. *ROE* is the ratio of net income to total equity. *COST* is the ratio of operating expense to asset. *MILLS* is the inverse Mills ratio calculated using the predicted probability from Model 1 of Panel A of Table 3. In Model 1, the bank characteristics are calculated as the averages of the characteristics in the 4 quarters of the year 2008. In Model 2, the characteristics are the averages of the characteristics in the 4 quarters of the year 2009. In Model 3, the characteristics are the averages of the characteristics in the 4 quarters of the year 2010. In model 4, the characteristics are the averages of the characteristics in the 4 quarters of the year 2011. Banks repaying in 2009 are not included in Models 2, 3 and 4. Banks repaying in 2010 are not included in Models 3 and 4. Banks repaying in 2011 are not included in Model 4. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 5**
**The Relation between CPP Repayment Probability and Short-Term vs. Long-Term Institutional Ownership**

***Panel A – Full Sample***

| *Variables* | *Model 1 – 2009* | *Model 2 – 2010* | *Model 3 – 2011* | *Model 4 – 2012* |
|---|---|---|---|---|
| *SHORTINSTOWN* | 1.815 | -1.159 | -0.594 | 0.431 |
| | (6.280***) | (-6.989***) | (-1.189) | (1.388) |
| *LONGINSTOWN* | 3.964 | 0.747 | -1.133 | 0.482 |
| | (0.869) | (13.747***) | (-4.524***) | (1.253) |
| *LNASSET* | 0.638 | 1.679 | 1.268 | -1.877 |
| | (0.375) | (3.474***) | (2.503**) | (-3.748***) |
| *NPA* | -9.122 | -1.872 | -1.035 | -1.210 |
| | (-2.656***) | (-26.099***) | (-3.448***) | (-3.134***) |
| *TIER1* | 0.028 | 2.121 | 1.177 | 1.464 |
| | (0.022) | (3.092***) | (2.444**) | (1.928*) |
| *LEVERAGE* | 1.219 | -2.116 | -2.169 | -0.750 |
| | (0.756) | (-8.721***) | (-5.127***) | (-1.413) |
| *ROE* | 7.121 | -3.731 | -1.901 | 0.233 |
| | (2.727***) | (-47.409***) | (-2.431**) | (0.415) |
| *COST* | 2.600 | -0.578 | 0.837 | -0.134 |
| | (4.058***) | (-4.884***) | (2.384**) | (-1.792*) |
| *MILLS* | 5.281 | -3.833 | -1.912 | -1.298 |
| | (0.916) | (-38.686***) | (-2.177**) | (-3.515***) |
| *Constant* | -42.900 | 36.529 | 42.354 | 27.513 |
| | (-1.057) | (5.719***) | (3.745***) | (2.038**) |
| Pseudo R-squared | 0.426 | 0.329 | 0.294 | 0.276 |
| % correct classification | 86.50% | 85.35% | 78.46% | 74.65% |
| Observations | 202 | 159 | 131 | 72 |

***Panel B – Smaller Bank Sample***

| *Variables* | *Model 1 – 2009* | *Model 2 – 2010* | *Model 3 – 2011* | *Model 4 – 2012* |
|---|---|---|---|---|
| *SHORTINSTOWN* | -1.392 | 1.057 | -0.796 | 1.280 |
| | (-1.619) | (6.661***) | (-0.519) | (3.452***) |
| *LONGINSTOWN* | 5.621 | -2.795 | -0.807 | -0.526 |
| | (1.297) | (-2.820***) | (-0.904) | (-0.243) |
| Control variables | Yes | Yes | Yes | Yes |
| Pseudo R-squared | 0.263 | 0.336 | 0.338 | 0.546 |
| % correct classification | 84.42% | 93.22% | 85.96% | 81.08% |
| Observations | 78 | 60 | 58 | 38 |

***Panel C – Larger Bank Sample***

| *Variables* | *Model 1 – 2009* | *Model 2 – 2010* | *Model 3 – 2011* | *Model 4 – 2012* |
|---|---|---|---|---|
| *SHORTINSTOWN* | 3.526 | -1.482 | -0.364 | 1.666 |
| | (18.128***) | (-5.596***) | (-2.720***) | (2.991***) |
| *LONGINSTOWN* | 9.941 | 0.936 | -1.322 | 0.366 |
| | (14.444***) | (14.662***) | (-6.637***) | (0.729) |
| Control variables | Yes | Yes | Yes | Yes |
| Pseudo R-squared | 0.593 | 0.306 | 0.256 | 0.325 |
| % correct classification | 89.43% | 84.69% | 73.97% | 76.47% |

| | | | | |
|---|---|---|---|---|
| Observations | 124 | 99 | 73 | 34 |

We report the results from the logit regression of the probability of CPP repaying on short-term vs. long-term institutional ownership for whole sample in Panel A, and two subsamples (i.e. Smaller and Larger banks) in Panels B and C. We use the sample median of banks' total assets in the quarter preceding the bailout date to split the sample into two. The dependent variable is *REPAY*, a dummy variable equal to 1 if a bank repays CPP funding in a year and 0 otherwise. *SHORTINSTOWN* is the percentage of bank shares held by transient institutional owners. *LONGINSTOWN* is the percentage of bank shares held by quasi-indexer and dedicated institutional owners. *LNASSET* is the natural logarithm of total assets. *NPA* is ratio of nonperforming assets to total assets. *TIER1* is the ratio of the bank's core equity to its total risk-weighted assets. *LEVERAGE* is ratio of total debt to total assets. *ROE* is the ratio of net income to total equity. *COST* is the ratio of operating expense to asset. *MILLS* is the inverse Mills ratio calculated using the predicted probability from Model 2 of Panel A of Table 3. In Model 1, the bank characteristics are calculated as the averages of the characteristics in the 4 quarters of the year 2008. In Model 2, the characteristics are the averages of the characteristics in the 4 quarters of the year 2009. In Model 3, the characteristics are the averages of the characteristics in the 4 quarters of the year 2010. In Model 4, the characteristics are the averages of the characteristics in the 4 quarters of the year 2011. Banks repaying in 2009 are not included in Models 2, 3 and 4. Banks repaying in 2010 are not included in Models 3 and 4. Banks repaying in 2011 are not included in Model 4. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 6**
**The Relation between CPP Repayment Probability and Active vs. Passive Institutional Ownership**

***Panel A – Full Sample***

| ***Variables*** | ***Model 1 – 2009*** | ***Model 2 – 2010*** | ***Model 3 – 2011*** | ***Model 4 – 2012*** |
|---|---|---|---|---|
| *ACTIVEINST OWN* | 4.863 | -0.729 | -0.873 | 0.683 |
| | (2.572**) | (-2.247**) | (-3.858***) | (0.894) |
| *PASSIVEINS TOWN* | 2.276 | 0.373 | -0.917 | 0.612 |
| | (1.328) | (1.546) | (-2.602***) | (1.390) |
| *LNASSET* | -0.095 | 1.859 | 1.429 | -2.057 |
| | (-0.076) | (4.477***) | (1.877*) | (-9.145***) |
| *NPA* | -9.377 | -1.957 | -0.908 | -1.612 |
| | (-3.796***) | (-23.405***) | (-2.857***) | (-4.947***) |
| *TIER1* | -0.184 | 2.053 | 1.169 | 1.121 |
| | (-0.245) | (3.548***) | (2.384**) | (1.183) |
| *LEVERAGE* | 1.291 | -1.849 | -1.985 | -0.503 |
| | (1.260) | (-8.145***) | (-4.547***) | (-0.732) |
| *ROE* | 7.863 | -3.431 | -1.742 | 0.459 |
| | (5.097***) | (-73.859***) | (-2.465**) | (0.775) |
| *COST* | 2.910 | -0.695 | 0.831 | -0.203 |
| | (4.323***) | (-5.716***) | (2.309**) | (-1.023) |
| *MILLS* | 6.183 | -3.421 | -2.017 | -0.823 |
| | (1.630) | (-15.300***) | (-2.052**) | (-2.072**) |
| *Constant* | -45.438 | 30.282 | 38.571 | 21.488 |
| | (-1.772*) | (4.917***) | (3.539***) | (1.306) |
| Pseudo R-squared | 0.434 | 0.321 | 0.289 | 0.276 |
| % correct classification | 88.50% | 86.62% | 77.69% | 77.46% |
| Observations | 202 | 159 | 131 | 72 |

***Panel B – Smaller Bank Sample***

| ***Variables*** | ***Model 1 – 2009*** | ***Model 2 – 2010*** | ***Model 3 – 2011*** | ***Model 4 – 2012*** |
|---|---|---|---|---|
| *ACTIVEINST OWN* | 1.051 | -5.229 | -0.403 | -0.691 |
| | (0.489) | (-8.403***) | (-0.286) | (-0.285) |
| *PASSIVEINS TOWN* | -0.317 | 21.029 | -2.037 | 2.394 |
| | (-0.266) | (3.468***) | (-3.225***) | (2.387**) |
| Control variables | Yes | Yes | Yes | Yes |
| Pseudo R-squared | 0.246 | 0.530 | 0.368 | 0.578 |
| % correct classification | 85.71% | 94.92% | 87.72% | 83.78% |
| Observations | 78 | 60 | 58 | 38 |

***Panel C – Larger Bank Sample***

| ***Variables*** | ***Model 1 – 2009*** | ***Model 2 – 2010*** | ***Model 3 – 2011*** | ***Model 4 – 2012*** |
|---|---|---|---|---|
| *ACTIVEINST OWN* | 13.977 | -0.524 | -1.088 | 1.495 |
| | (2.041**) | (-1.510) | (-3.252***) | (1.723*) |

| | | | | |
|---|---|---|---|---|
| *PASSIVEINSTOWN* | 11.060 | 0.091 | -0.315 | -0.072 |
| | (0.829) | (0.754) | (-0.898) | (-0.082) |
| Control variables | Yes | Yes | Yes | Yes |
| Pseudo R-squared | 0.578 | 0.284 | 0.254 | 0.306 |
| % correct classification | 90.24% | 81.63% | 78.08% | 73.53% |
| Observations | 124 | 99 | 73 | 34 |

We report the results from the logit regression of the probability of CPP repaying on short-term vs. long-term institutional ownership for whole sample in Panel A, and two subsamples (i.e. Smaller and Larger banks) in Panels B and C. We use the sample median of banks' total assets in the quarter preceding the bailout date to split the sample into two. The dependent variable is *REPAY*, a dummy variable equal to 1 if a bank repays CPP funding in a year and 0 otherwise. *ACTIVEINSTOWN* is the percentage of bank shares held by active institutional owners. *PASSIVEINSTOWN* is the percentage of bank shares held by passive institutional owners. *LNASSET* is the natural logarithm of total assets. *NPA* is ratio of nonperforming assets to total assets. *TIER1* is the ratio of the bank's core equity to its total risk-weighted assets. *LEVERAGE* is ratio of total debt to total assets. *ROE* is the ratio of net income to total equity. *COST* is the ratio of operating expense to asset. *MILLS* is the inverse Mills ratio calculated using the predicted probability from Model 3 of Panel A of Table 3. In Model 1, the bank characteristics are calculated as the averages of the characteristics in the 4 quarters of the year 2008. In Model 2, the characteristics are the averages of the characteristics in the 4 quarters of the year 2009. In Model 3, the characteristics are the averages of the characteristics in the 4 quarters of the year 2010. In Model 4, the characteristics are the averages of the characteristics in the 4 quarters of the year 2011. Banks repaying in 2009 are not included in Models 2, 3 and 4. Banks repaying in 2010 are not included in Models 3 and 4. Banks repaying in 2011 are not included in Model 4. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 7**
**Institutional Ownership Change Subsequent to CPP Repayment**

| ***Panel A – Full Sample*** | | | | |
|---|---|---|---|---|
| ***Variables*** | ***Model 1*** | ***Model 2*** | ***Model 3*** | ***Model 4*** |
| *REPAY_2009* | -0.199 | | | |
| | (-2.414**) | | | |
| *REPAY_2010* | | -0.155 | | |
| | | (-1.735*) | | |
| *REPAY_2011* | | | -0.285 | |
| | | | (-2.910***) | |
| *REPAY_2012* | | | | -0.105 |
| | | | | (-1.158) |
| *LNASSET_CHG* | 0.362 | 0.181 | 0.243 | 0.013 |
| | (2.654***) | (2.602**) | (2.534**) | (0.127) |
| *NPA_CHG* | -0.148 | 0.018 | -0.112 | 0.037 |
| | (-1.645) | (0.294) | (-1.436) | (0.381) |
| *TIER1_CHG* | 0.214 | 0.057 | 0.356 | 0.194 |
| | (3.114***) | (0.425) | (3.280***) | (1.650) |
| *LEVERAGE_CHG* | -0.023 | -0.278 | -0.036 | -0.060 |
| | (-0.219) | (-1.365) | (-0.361) | (-0.539) |
| *ROE_CHG* | 0.006 | -0.054 | -0.269 | -0.071 |
| | (0.145) | (-0.423) | (-2.915***) | (-0.767) |
| *COST_CHG* | -0.106 | -0.051 | -0.114 | -0.086 |
| | (-1.804*) | (-0.684) | (-1.362) | (-1.004) |
| *MILLS* | -0.075 | 0.167 | 0.270 | 0.476 |
| | (-0.759) | (1.367) | (2.980***) | (4.929***) |
| Constant | 0.032 | 0.019 | 0.014 | -0.004 |
| | (6.871***) | (3.034***) | (1.472) | (-0.168) |
| Adj. R-squared | 0.180 | 0.104 | 0.226 | 0.260 |
| Observations | 194 | 177 | 161 | 152 |
| ***Panel B – Smaller Bank Sample*** | | | | |
| ***Variables*** | ***Model 1*** | ***Model 2*** | ***Model 3*** | ***Model 4*** |
| *REPAY_2009* | -0.092 | | | |
| | (-0.545) | | | |
| *REPAY_2010* | | -0.195 | | |
| | | (-1.341) | | |
| *REPAY_2011* | | | -0.371 | |
| | | | (-2.674**) | |
| *REPAY_2012* | | | | 0.119 |
| | | | | (0.663) |
| Control variables | Yes | Yes | Yes | Yes |
| Adj. R-squared | 0.261 | 0.293 | 0.406 | 0.156 |
| Observations | 66 | 62 | 51 | 47 |
| ***Panel C – Larger Bank Sample*** | | | | |
| ***Variables*** | ***Model 1*** | ***Model 2*** | ***Model 3*** | ***Model 4*** |
| *REPAY_2009* | -0.273 | | | |
| | (-2.742***) | | | |
| *REPAY_2010* | | -0.114 | | |
| | | (-1.259) | | |
| *REPAY_2011* | | | -0.196 | |
| | | | (-1.746*) | |

| | | | | |
|---|---|---|---|---|
| *REPAY_2012* | | | | -0.084 |
| | | | | (-1.100) |
| Control variables | Yes | Yes | Yes | Yes |
| Adj. R-squared | 0.238 | 0.169 | 0.357 | 0.370 |
| Observations | 128 | 115 | 110 | 105 |

In this table, we report the results from the OLS regressions of the change in institutional ownership around the CPP repayment for whole sample in Panel A, and two subsamples (i.e. Smaller and Larger banks) in Panels B and C. We use the sample median of banks' total assets in the quarter preceding the bailout date to split the sample into two. In Model 1, the dependent variable is *INSTOWN_CHG*, the difference in the average institutional ownership (*INSTOWN*) in the 4 quarters of 2010 and that in the 4 quarters of 2009, where *INSTOWN* is the percentage of bank shares held by institutional owners. Similarly, the dependent variable in Model 2 is *INSTOWN_CHG*, the difference in the average *INSTOWN* in the 4 quarters of 2011 and the corresponding average in the 4 quarters of 2010. In Model 3, the dependent variable is *INSTOWN_CHG*, the difference in the average *INSTOWN* in the 4 quarters of 2012 and the corresponding average in the 4 quarters of 2011. In Model 4, the dependent variable is *INSTOWN_CHG*, the difference in the average *INSTOWN* in the 4 quarters of 2013 and the corresponding average in the 4 quarters of 2012. The changes in the control variables are calculated in the same manner. *LNASSET* is the natural logarithm of total assets. *NPA* is ratio of nonperforming assets to total assets. *TIER1* is the ratio of the bank's core equity to its total risk-weighted assets. *LEVERAGE* is ratio of total debt to total assets. *ROE* is the ratio of net income to total equity. *COST* is the ratio of operating expense to asset. *MILLS* is the inverse Mills ratio calculated using the predicted probability from Model 1 of Panel A of Table 3. Banks repaying in 2009 are not included in Models 2, 3 and 4. Banks repaying in 2010 are not included in Models 3 and 4. Banks repaying in 2011 are not included in Model 4. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 8**
**Trading Volume Change Subsequent to CPP Bailout**

| | ***Panel A - CPP and Non-CPP Banks*** | | | ***Panel B - CPP Banks*** | | |
|---|---|---|---|---|---|---|
| | Model 1 | Model 2 Smaller | Model 3 Larger | Model 1 | Model 2 Smaller | Model 3 Larger |
| VARIABLES | Full sample | banks | banks | Full sample | banks | banks |
| *CPP* | -0.153 | -0.849 | 0.017 | | | |
| | (-8.439***) | (-37.626***) | (0.601) | | | |
| *AFTER* | 0.007 | -0.056 | -0.006 | 0.047 | 0.162 | 0.040 |
| | (0.699) | (-5.318***) | (-0.392) | (2.345**) | (3.935***) | (1.120) |
| *CPP * AFTER* | 0.048 | 0.094 | 0.047 | | | |
| | (2.216**) | (6.691***) | (1.424) | | | |
| *LNASSET* | 0.530 | 0.140 | 0.354 | 0.514 | 0.408 | 0.330 |
| | (13.368***) | (10.056***) | (7.352***) | (13.282***) | (11.293***) | (7.333***) |
| *NPA* | 0.182 | -0.004 | 0.188 | 0.161 | -0.041 | 0.192 |
| | (8.221***) | (-0.309) | (5.353***) | (7.835***) | (-0.906) | (5.323***) |
| *TIER1* | 0.016 | -0.021 | 0.020 | 0.019 | -0.024 | 0.022 |
| | (0.730) | (-1.270) | (0.635) | (0.878) | (-0.407) | (0.627) |
| *LEVERAGE* | -0.223 | -0.088 | -0.232 | -0.222 | -0.310 | -0.254 |
| | (-9.703***) | (-5.360***) | (-8.197***) | (-9.627***) | (-5.418***) | (-8.175***) |
| *ROE* | -0.148 | -0.027 | -0.178 | -0.148 | -0.132 | -0.192 |
| | (-6.419***) | (-2.689***) | (-4.967***) | (-6.405***) | (-3.603***) | (-4.953***) |
| *COST* | -0.076 | -0.042 | -0.067 | -0.073 | -0.110 | -0.073 |
| | (-3.551***) | (-5.181***) | (-1.992**) | (-3.386***) | (-3.739***) | (-1.989**) |
| *MILLS* | -0.454 | -0.023 | -0.522 | -0.420 | -0.137 | -0.505 |
| | (-13.393***) | (-1.614) | (-12.281***) | (-13.443***) | (-2.804***) | (-12.265***) |
| Constant | 0.049*** | 0.009*** | 0.062*** | 0.048*** | 0.006*** | 0.062*** |
| | (8.591***) | (5.404***) | (8.190***) | (8.277***) | (3.518***) | (8.129***) |
| Adj. R-squared | 0.540 | 0.880 | 0.428 | 0.537 | 0.241 | 0.299 |
| Observations | 3,063 | 1,685 | 1,378 | 1,502 | 660 | 842 |

In this table, we report the results from the OLS regressions of the average daily ratios of trading volume to shares outstanding around the CPP bailout dates. The dependent variable is the difference in the average daily ratios of trading volume to shares outstanding in each quarter (*TURNOVER*). In Panel A, we estimate the difference-in-difference regression of the average daily ratios of trading volume to shares outstanding in the (-4,+4) quarters around the CPP bailout dates. The *CPP* dummy variable is equal to 1 for CPP-receiving banks and 0 for the portfolios of non-CPP banks in the same period. The *AFTER* dummy variable is an indicator for the quarters after the CPP bailout dates (e.g. quarters +1 through +4). We are interested in the interaction term between *CPP* and *AFTER*. In Panel B, we examine only CPP-receiving banks for whole sample, Smaller banks, and Larger banks. We use the sample median of banks' total assets in the quarter preceding the bailout date to split the sample into two. *LNASSET* is the natural logarithm of total assets. *NPA* is ratio of nonperforming assets to total assets. *TIER1* is the ratio of the bank's core equity to its total risk-weighted assets. *LEVERAGE* is ratio of total debt to total assets. *ROE* is the ratio of net income to total equity. *COST* is the ratio of operating expense to asset. *MILLS* is the inverse Mills ratio calculated using the predicted probability from Model 1 of Table 3. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.