ISSN: 2688-9323

The Effects of TARP on Public Trust in Banks -- Evidence from the Deposit Market

Zixi Guo*

School of Accounting and Finance, University of Bristol, Bristol, UK

*zixiguo18@gmail.com

Abstract

This paper investigates how the Troubled Asset Relief Program (TARP) affects the public trust in banks, taking advantage of the changes in the deposit market share of banks during the financial crisis. By exploiting quarterly data from 2008 to 2011, this paper finds that the TARP funding substantially benefits the public trust, showing banks' increased deposit market share with the TARP funding. Specifically, this paper estimates that the effect of the TARP funding on the bank increases the deposit market share by 0.057‰. The significant positive effect of the capital injection is more substantial for a bank with a relatively smaller size, a lower-risk tolerance, and not subject to strict supervisory scrutiny. Generally, the empirical analysis demonstrates that TARP funding was an effective method for improving public trust and mitigating bank runs. This paper sheds new light on the links between government intervention, public trust and the deposit market and adds to the studies and policy arguments regarding the efficiency of strict supervisory and regulatory monitoring.

Keywords

TARP; Government Intervention; Public Trust; Deposit Market; Bank Run.

1. Introduction

In response to the 2008 financial crisis, the U.S. Treasury Department (Treasury) introduced the Troubled Asset Relief Program (TARP), which involved up to $700 billion, to stabilize the financial market and restate economic growth. The establishment of TARP funding was explicitly aimed at pumping money into failing banks and other business entities through asset purchases and acquiring equity while relieving consumers' debts and bolstering the auto industry [1]. Under TARP, the Capital Purchase Program (CPP) specialized in bailing the banking sector by injecting as much as $250 billion into eligible financial institutions. It was instituted to restore public trust in the banking industry and enhance the safety and effectiveness of the banking system by promoting the capital base of economically healthy banks [2]. However, it is still elusive that the assessment of total costs and benefits brought by TARP.

One of TARP's ultimate objectives was to improve public trust. Trust plays a pivotal role in the banking system, and it is generated by endogenous sources and exogenous sources. Banks are trust-driven industries. As informational intermediaries, banks create endogenous trust by functioning to bridge depositors and borrowers, that is, maturity and liquidity transformation. On the other hand, external factors such as government aid, a predetermined legal framework (such as liquidity and solvency requirements and deposit insurance), and supervisory and regulatory requirements are integral to maintaining and continuing banking stability. To maintain stable and integrated financial stability, the government took intervening measures in various forms of bailouts, including TARP. The government intervention was supposed to

ISSN: 2688-9323

restore public trust in the banking sector and financial system. However, several bank runs happened right after their bailout announcements. For these cases, bailouts did not promote public trust instead of triggering bank runs.

This paper aims to determine the specific effect of government intervention on public trust: whether government assistance as an exogenous source might mitigate or intensify the loss of endogenous public trust in banks during financial distress. This paper employs quarterly bank-level data and provides empirical evidence regarding the impact of the TARP funding on the public's trust in a bank, which is reflected by the bank's market share by deposit during the period from 2008 to 2011. This paper applies a staggered difference-in-difference model and finds that all else equal, a bank that receives TARP funding occupies 0.057‰ more deposit market share than a bank that does not receive a capital injection. Overall, this paper clearly illustrates unique findings that the public trust in a bank significantly increases when a bank receives the TARP funding, which could be seen from the changes in the deposit market share of a TARP recipient bank. To some extent, TARP promotes public trust and mitigates bank runs. This paper provides policymakers with crucial insight and facilitates a deeper understanding of the effects of government intervention on banking stability and the effectiveness of supervisory monitoring.

2. Hypothesis Development and Literature Reviews

2.1. Hypothesis Development

The motivation for investigating the effect of TARP funding on the depositor's trust in a bank derives from the article that discusses the close association of the bank's efficient operation and the maintenance of public trust created by them and by exogenous factors [3]. Concerning the essential function, a bank is a financial institution that utilises short-term funding to finance long-term loans, while public trust plays a critical role in this process. Specifically, the bank bridges the trust gap between depositors and borrowers. As informational intermediaries, banks play the delegated monitoring function to reduce the information asymmetries and moral hazards between depositors and borrowers. However, this leads to the agency problem between the creditors and banks [4]. If the depositors lose trust in the bank, the pivotal services that banks provide, maturity and liquidity transformation, will be negatively impacted and furtherly might result in bank instability. During the global financial crisis, the runs on Washington Mutual, Wachovia and IndyMac Bank in the U.S. and other banks in different countries raised government concerns, and massive rescue programs, assistance and intervention were implemented to protect the public trust. This paper aims to determine the specific effect of government intervention on public trust. Considering bank runs occur when depositors withdraw all their money simultaneously, and the market share by deposit of a bank would be impacted, the change in the deposit market share of a bank is utilized to be a proxy for the effect of government intervention on the public trust.

Hypothesis 1: The TARP capital injection improves the public trust in banks and mitigates bank runs, and the deposit market share of TARP recipients will increase.

Further research in this paper focuses on bank cross-sectional heterogeneity and the level of supervision or montoring. First, the public trust in the TBTF banks might not be sensitive to the TARP funding because of the perceived safety brought by the reasonable expectation that these banks are sure to receive government assistance when insolvency [5]. Next, the banks with a relatively higher tolerance for risk are likely to have more efficient risk management. Banks take advantage of loan loss allowance for efficiency, and loan loss allowance could be taken as a buffer against credit losses during financial distress, so the likelihood of bank failure decreases. Thus, the public might trust higher-risk tolerance banks more due to their efficient risk management, and the effect of TARP on them is less obvious. In contrast, government

ISSN: 2688-9323

interference might significantly affect public trust in lower-risk tolerance banks since such banks might suffer a more severe loss of trust. Lastly, stricter supervisory and regulatory monitoring might indirectly improve the public trust and the stability of banks since these banks operate in a highly regulated environment. The Supervisory Capital Assessment Program (SCAP) could provide valuable information about banks regarding solvency and capital adequacy [6]; thus, a bank would ensure a healthy operation and liquidity for passing the stress test. In contrast, the public might have more incentive to monitor the banks under less rigorous supervisory scrutiny because of fear of bank failure. Thus government assistance might be more effective in maintaining public trust for banks under less rigorous supervisory monitoring. All else being equal, a reasonable expectation is that a more potent influence of TARP on the deposit market share of a bank that suffers more loss of trust could be seen.

Hypothesis 2: The substantial beneficial effect of the TARP funding is significantly more robust for a smaller bank, with a lower-risk tolerance and under less supervisory monitoring.

3. Data and Methodology

3.1. Sample Construction

This paper collects the primary financial data between 2008 and 2011 from the Federal Deposit Insurance Corporation (FDIC) database. Bank holding company (BHC) information is collected from the National Information Center (NIC), and the TARP investment transaction data and the recipients' list are acquired from the U.S. Department of the Treasury. Primarily, the TARP recipients make up of BHCs and a few banks. In total, there were 707 TARP recipients during this period. The TARP transaction data includes the identity and location of the institution, the TARP enrollment date, and the amount of funding received. Since the Capital Purchase Program (CPP) under the TARP was mainly implemented from 2008 to 2009, and most of the capital-injected institutions repaid the funding by the end of 2011, the sample period is set as between 2008 and 2011. Moreover, it could be reasonably perceived that the TARP funding would function in the quarter of being injected, so the dataset consists of quarterly data. Precisely, this paper matches the subsidiary banks with their BHCs which are in TARP recipients lists according to the RSSD ID (a unique and primary identifier assigned to financial institutions), institution status (active or inactive) and location information (city and/or state) identified in the NIC. In the case that non-TARP recipient banks were acquired by the BHCs with TARP funding, they are still identified as non-TARP banks when the acquisition happened after the TARP capital injection. After the matching process, 822 financial institutions in the sample are identified as the TARP funding recipient. After removing the missing values, we finally obtained a final sample of 5870 institutions (93920 obs) for the empirical analysis.

3.2. Measuring Deposit Market Share and TARP

Based on the primary hypothesis that the TARP capital injection could enhance the public trust in those with TARP funding and stops bank runs and the deposit market share of TARP recipients will increase, in this empirical analysis, *Market share by deposit*, a bank's share that captures its portion of the deposit market, is used as the proxy for the public trust in the bank. According to the approach used by the FIDC, the deposit market share of an individual bank is defined as the amount on deposit at a particular bank divided by the total amount on deposit at all banks and calculated as below:

$$Market\ share\ by\ deposit_{it} = \frac{Total\ deposits_{it}}{Total\ deposits\ of\ all\ FDIC\_insured\ institutions_t} \quad (1)$$

ISSN: 2688-9323

where $Market\ share_{it}$ is the deposit market share for *bank i in fiscal quarter t; Total deposits*$_{it}$ *is the total deposit for bank i in fiscal quarter t; Total deposits of all FDIC_insured institutions*$_t$ is the total deposits of all FDIC-insured institutions in fiscal quarter t. The market share index is scaled by 10000 for precise observation and explanation. According to the 10000-fold value, the independent variable increases by one unit, and the deposit market share increases by 0.1‰ units [7].

The primary measure, *TARP*post*, is defined as an interaction term of *TARP* and *period*. *TARP* is a dummy variable equal to one if the bank receives a TARP capital injection or the bank is a subsidiary of TARP recipients and zero otherwise; *period* equals one after the bank receives the TARP funding and zero otherwise. *TARP*post* is a dummy variable with a value of one when a bank becomes a TARP recipient and is created to identify the TARP program's difference-in-differences (DID) effect on the bank's deposit market share while allowing variation in TARP enrollment periods, comparing the difference of the public trust in treated versus non-treated banks [8].

A substitute TARP measure is described as the $TARP\ infusion\ rate$, a continuous variable. It is calculated by the capital injection over a bank's total risk-weighted assets (RWAs). The $TARP\ infusion\ rate$ equals to zero if a bank is a non-TARP recipient or not a subsidiary of TARP recipients or TARP recipients outside its TARP enrollment periods. In this case, $TARP\ infusion\ rate * post$, an alternative interaction term, consists of $TARP\ infusion\ rate$ and $period$ [9].

3.3. Control Variables

Improvement in financial performance is closely associated with the stakeholders' trust. The control variables for bank characteristics are measured in the four reported quarters each fiscal year and primarily include five aspects. $Size$, measured by the natural log of total assets in $thousands, is a proxy for TBTF. $Tier\ 1\ capital\ ratio$, calculated by Tier 1 capital over risk-weighted assets, represents the regulatory capital requirement. $Cash$ is calculated by total cash over the total asset, while $Liquidity$ is the aggregate amount of total cash and securities available for sales divided by total assets. Both measure the banks' ability to repay. ROA, a variable computed as net income over total assets, captures the banks' profitability. The $Loan\ allowance$ computed by loan loss allowance over total assets and $Leverage$ measured by Tier 1 capital over total assets reflects the bank's risk tolerance. We include two dummy variables, $Top\ BHC$ and $Top\ CSB$, to represent the information advantage of banks in our analysis [10]. $Top\ BHC$ equals one if the bank is a subsidiary of a bank holding company (BHC) that ranks in the Top 50 in the deposit market and zero otherwise. $Top\ CSB$ equals one if the bank ranks in the top 50 in the deposit market and zero otherwise.

3.4. Empirical Design

Since the TARP funding was enrolled in multiple periods, we apply the staggered difference-in-difference model in this literature [11]. To examine the differential effect of the TARP capital injection on the public trust in the bank, which is the TARP recipient and non-TARP recipient, the baseline model specifications (Eq. 2 & 3) are as follows:

$$Market\ share\ by\ deposit_{\ it} = \beta_0 + \beta_1\ TARP * post_{it} + \gamma\ bank\ characteristics_{it} + \lambda\ Individual\ fixed\ effect_i + \theta\ Quarter\ fixed\ effect_t + \delta\ State\ fixed\ effect_i + \varepsilon_{it} \quad (2)$$

$$Market\ share\ by\ deposit_{\ it} = \beta_0 + \beta_{1^*}\ TARP\ infusion\ rate * post_{it} + \gamma\ bank\ characteristics_{it} + \lambda\ Individual\ fixed\ effect_i + \theta\ Quarter\ fixed\ effect_t + \delta\ State\ fixed\ effect_i + \varepsilon_{it} \quad (3)$$

ISSN: 2688-9323

The coefficient β_1 focuses on the two effects of TARP and period, and it captures the marginal effect not only between TARP recipients and TARP non-recipients but also before and after the TARP capital injection. If the coefficient estimates of $TARP * post$ and $TARP\ infusion\ rate * post$, β_1 and β_{1^*}, respectively, is significantly positive, then it is consistent with the first hypothesis that the TARP capital injection improves the public trust in banks and stops bank runs, and the deposit market share of TARP recipients will increase. In addition, the baseline model also includes *individual fixed effect*, *quarter fixed effect* and *state fixed effect*. ε_{it} represents an error term. The equation is estimated with an OLS that clusters the heteroscedastic robust standard errors.

4. Empirical Analysis

4.1. The TARP's Effect on the Deposit Market Share of Banks

Table 1. The effect of TARP on the deposit market share of banks

	TARP*post		TARP infusion rate*post	
	(1)	(2)	(3)	(4)
did	0.7784***	0.5662**	12.0976***	8.0903***
	(0.2635)	(0.2499)	(3.8294)	(3.1881)
Size		1.8065***		1.8362***
		(0.2477)		(0.2557)
Tier 1 capital ratio		-0.0070***		-0.0070***
		(0.0015)		(0.0015)
Cash		0.3013		0.2387
		(0.2204)		(0.2240)
Loan loss allowance		10.6459***		12.6357***
		(3.3000)		(3.9809)
ROA		-3.0199***		-2.9011***
		(1.0309)		(1.0436)
Liquidity		-0.3139		-0.2589
		(0.2135)		(0.2177)
Leverage		5.4469***		5.6629***
		(0.9482)		(1.0071)
Top BHC		1.6975***		1.6405***
		(0.3706)		(0.3424)
Top CSB		8.5099***		8.5271***
		(0.8155)		(0.8138)
Constant	1.1433***	-21.4047***	1.1735***	-21.7926***
	(0.0242)	(3.1021)	(0.0150)	(3.2088)
Observations	93,920	93,920	93,920	93,920
R-squared	0.9764	0.9766	0.9764	0.9766
Individual fixed effect	YES	YES	YES	YES
State fixed effect	YES	YES	YES	YES
Quarter fixed effect	YES	YES	YES	YES

This paper investigates the specific effect of TARP on the public trust and the deposit market share of banks in this subsection. Table 1 reports the estimated results of the baseline regression (Eq. 2&3), where Columns (1) and (2) show the results when applying the dummy variable $TARP * post$, while in Columns (3) and (4), the interaction term $TARP\ infusion\ rate * post$ is used. Columns (1) and (3) show the baseline regression results that only control the

ISSN: 2688-9323

variable of the interaction term ($TARP * post/TARP\ infusion\ rate * post$) represented by did and fixed effects of individual, state and quarter. Columns (2) and (4) further include control variables of bank characteristics, reaching a complete result.

Table 1 shows that the coefficient estimates for both $TARP * post$ and $TARP\ infusion\ rate * post$ are positive and statistically significant at the 1% level in all specifications, except for model (2), which is statistically significant at the 5% level. When applying the dummy variable $TARP * post$ in model (2), the coefficient estimate is 0.57. It indicates that all else being equal, the average deposit market share of banks after the capital injection has increased about 0.057‰ compared with that before and banks without TARP capital injection. From the perspective of economic magnitude, this coefficient estimate means that the effect of TARP on the deposit market share of a bank was an additional $370.82 million for average total deposits of $6.55 trillion per quarter in the sample. Similarly, in model (4), the coefficient estimate is 8.1 when using the $TARP\ infusion\ rate * post$, which indicates that all else being equal, a bank, after a TARP capital injection in addition to the amount of its RWAs, occupies approximately 0.81‰ more market share by deposit on average relative to the deposit market share of that before and banks without TARP funding.

The results are consistent with the first hypothesis that the TARP capital injection improves the public trust in banks and stops bank runs, and the deposit market share of TARP recipients will increase. Overall, the results show that TARP is an effective mechanism for promoting public trust in banks because the TARP capital injection positively affects the banks' deposit market share. The empirical evidence is that the TARP capital injections allow the banks to increase their influence on the deposit market to generate trust and signal reliability to their depositors. Overall, this suggests that banks should apply for and try to obtain government assistance during the financial crisis to ensure their influence in the deposit market and obtain public trust.

4.2. The TARP's Effect on the Deposit Market Share of Banks by Subsample

In this subsection, the sample is divided into three subsamples based on the TBTF factor, the tolerance for risk, and the stringency of supervisory monitoring to examine whether TARP has different effects on a bank's deposit market share. First, we examine the TBTF factors by analyzing the subsample based on the sample median of total assets. Next, the sample is split by the sample median of loan loss allowance to check the level of risk tolerance. Lastly, the sample is divided by the supervisory scrutiny level based on whether the banks are under the Supervisory Capital Assessment Program (SCAP), also known as supervisory stress tests.

For brevity, Table 2 only shows the results for the interaction $TARP * post$. In each subsample, qualitatively similar results are reached for the primary explanatory variable and the controls. Initially, we examined the cross-sectional heterogeneity for the TBTF factor by bank size, and there is a positive and statistically significant effect of TARP on the bank's deposit market share for the small subsample at the 1% level. At the same time, it becomes statistically insignificant for the large subsample. Column (2) in Panel A shows that all else being equal, the average deposit market share of small banks after the TARP capital injection has increased about 0.0017‰ compared with that before and small banks without TARP capital injection. In other words, for an average total deposit of $6.55 trillion per quarter in the sample, the effect of TARP on the deposit market share of small banks is an additional $11.13 million. The evidence that small banks, after the capital injection, significantly retain a larger deposit market share is consistent with the expectation that the TARP capital injection has a significantly positive effect on small banks. However, Panel A could not provide evidence of TARP's effect on the TBTF banks. This finding means that TARP funding might not affect the public trust in TBTF banks which are influential in the deposit market.

In Table 2, the results of the low-risk tolerance subsample (i.e., banks with loan loss allowance smaller than the sample median) in Column (2) of Panel B show that a bank, after TARP capital

ISSN: 2688-9323

injection, occupies approximately, on average, 0.001‰ more deposit market share relative to the deposit market share of that before and banks without TARP funding. Based on an average total deposit of $6.55 trillion per quarter, the effect equals an additional contribution of $7.33 million. The evidence that the effect of TARP on the deposit market share of a bank is significantly more vital when the bank has a low tolerance for risks is consistent with the second hypothesis. The coefficient estimates are statistically insignificant for the high-risk tolerance subsample (i.e., banks with loan loss greater than or equal to the sample median). Typically, bank with high-risk tolerance is more willing to endure the volatility in the market and have a larger allowance for loan loss compared with banks with a low tolerance for risk. It then could be rationally perceived that the loss of trust in higher-risk tolerance banks might be less than that in lower-risk tolerance banks because of the better position of higher-risk tolerance banks in the crisis of trust. Therefore, during the economic turmoil, the public trust in the TARP recipients with lower-risk tolerance is more significant, while public trust in those with higher-risk tolerance is relatively unaffected by the TARP funding.

Table 2. The effect of TARP on the deposit market share of banks by subsample

Independent variables	(1)	(2)
Variables		
Panel A: Size subsample	TBTF factor	Non-TBTF factor
	Above median total assets	Below median total assets
TARP*post	1.8749	0.0170***
	(1.4645)	(0.0016)
Constant	-404.0882***	-2.4691***
	(66.9721)	(0.0477)
Observations	4,549	89,350
R-squared	0.9771	0.9834
Controls	YES	YES
Fixed effects	YES	YES
Panel B: Risk appetite subsample	High-risk tolerance	Low-risk tolerance
	Above median loan loss allowance	Below median loan loss allowance
TARP*post	1.4577	0.0112***
	(1.3340)	(0.0014)
Constant	-433.2082***	-2.7595***
	(73.4148)	(0.0789)
Observations	4,691	89,213
R-squared	0.9772	0.9785
Controls	YES	YES
Fixed effects	YES	YES
Panel C: Supervisory scrutiny subsample	High degree of supervisory scrutiny	Low degree of supervisory scrutiny
	Under SCAP	Not Under SCAP
TARP*post	-15.5657	0.0879***
	(12.7524)	(0.0203)
Constant	-7,723.6294***	-7.1350***
	(753.9733)	(0.3163)
Observations	214	93,705
R-squared	0.9901	0.9851
Controls	YES	YES
Fixed effects	YES	YES

ISSN: 2688-9323

Examining the subsample by the level of supervisory scrutiny in Panel C, in Column (2), the coefficient estimates of TARP*post for banks with a low degree of supervisory scrutiny is positive, economically large, and statistically significant at the 1% level, which is 0.088. Besides, the coefficient estimates for a bank after TARP funding that is not under SCAP has a smaller economic magnitude than 0.57 in the baseline model. In other words, the positive effect of TARP on the deposit market share of a bank without a stress test is an additional $57.57 million for an average total deposit of $6.55 trillion. However, for the banks under SCAP, the TARP effects become negative and statistically insignificant. This might be explained by the advantage brought by the stringent supervisory monitoring. Since the solvency of banks under SCAP will be credibly assessed and disclosed to the public, banks under SCAP would make efforts in the operational capacity and liquidity [12]. Thus, the public might have reduced the incentive to monitor and trust them more. However, banks not under SCAP might suffer more trust losses during the economic crisis, making the TARP capital injection more effective in maintaining public trust in them. Thus, it assumptively could be reasonable that the effect of the TARP funding on public trust is more evident in banks that are not under SCAP.

Overall, it can be seen that the results in the baseline regression, which is that banks after TARP capital injection experience a positive and statistically and economically significant effect in the deposit market, remains robust with small banks, lower-risk tolerance banks and non-stress-tested banks, which supports the first hypothesis. Further, the results of the subsample analysis in Table 2 show that the TARP's economic effect is more negligible with banks that are smaller, have a lower tolerance for risk, and are less supervisory scrutinized; while consistent with the second hypothesis, it also indicates that the positive effects of TARP capital injections on a bank's deposit market share are more pronounced for them.

5. Conclusion

This paper investigates the effect of capital injections via TARP on the public trust in the deposit market during the financial crisis. To examine the effect of TARP on public trust, this paper takes advantage of the changes in the deposit market share of a bank to reflect the changes in public trust. The results illustrate that the banks significantly improve the public trust after receiving the TARP injection, showing banks' increased deposit market share with TARP funding. Besides, this paper explores the potential heterogeneity of TARP's impact on public trust among banks of different sizes, risk tolerance and supervisory monitoring level. The results demonstrate that the positive effects of TARP on public trust are significantly more substantial among banks that are smaller, lower risk-tolerant, and less scrutinized. Overall, the results show that the government intervention provides a positive signal that the bailed-out banks are more likely to eliminate the illiquidity, function normally and survive during the financial crisis.

From a policy standpoint, this paper demonstrates that TARP capital injections enable the banks to restore public trust. However, the positive effects become statistically insignificant when limiting the subsample banks subject to the supervisory stress tests. The results imply that strict supervisory scrutiny efficiently protects public trust by monitoring the solvency of banks during the economic turmoil. To some extent, efficient supervisory scrutiny might offset the shocks to the public trust and reduce the impact of government intervention.

References

[1] Brown, L. W., De Leon, J. A., & Rasheed, A. A. Corporate political activity and free riding under market uncertainty: An investigation of TARP funding. Business and Society Review, 2019, 124(1):115-143.

[2] Fan, Y., Huang, Y., Jiang, Y., & Liu, F. H. Watch out for bailout: TARP and bank earnings management. Journal of Financial Stability, 2020, 51, 100785.

ISSN: 2688-9323

[3] Basaran, B., & Bagheri, M. The Relevance of "Trust and Confidence" in Financial Markets to the Information Production Role of Banks. European Journal of Risk Regulation, 2020, 11(3): 650-666.

[4] Beatty, A & Liao, S. Financial Accounting in the Banking Industry: A Review of the Empirical Literature, Journal of Accounting and Economics,2014, 339: 342–43.

[5] Berger, A.N., Lamers, M., Roman, R. A., & Schoors, K. Unexpected effects of bank bailouts: depositors need not apply and need not run. Philadelphia, PA: Research Department, Federal Reserve Bank of Philadelphia, 2021.

[6] Peristiani, S., Morgan, D. P., & Savino, V. The information value of the stress test and bank opacity. FRB of New York Staff Report, 460, 2020.

[7] Newey, W. K., & West, K. D. Hypothesis Testing with Efficient Method of Moments Estimation. International Economic Review, 1987, 28(3): 777-87.

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

[9] Enkhtaivan, B. & Lu, W. The effect of TARP on lending: Evidence from the lead bank's share in syndicated loans[J]. Review of Quantitative Finance and Accounting,2021, 57(4): 1169-1193.

[10] Lin, C., Ma, Y., Malatesta, P., & Xuan, Y. Corporate ownership structure and bank loan syndicate structure. Journal Financ Econ,2012, 104:1-22

[11] Beck, T., Levine, R., & Levkov, A. Big Bad Banks? The Winners and Losers from Bank Deregulation in the United States[J]. Journal of Finance, 2010, 65(5):1637-1667.

[12] Candelon, B., & Sy, M. A. N. How did markets react to stress tests?. International Monetary Fund, 2015.