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GOVERNMENT DEBT AND FINANCIAL REPRESSION: EVIDENCE FROM A RARE DISASTER

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Government Debt and Financial Repression: Evidence from a Rare Disaster

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PRELIMINARY

Abstract

We identify the effect of exposure to government debt on banks' performance. We use confidential balance-sheet and securities portfolio data for the universe of banks in Turkey between 1986–2012. The identification relies on a natural experiment. Government hit by a major fiscal shock as a result of the 1999 Marmara Earthquake that created significant fiscal stress. Using a differences-in-differences methodology, we compare the performance of banks with high exposure to government debt against the banks with low exposure before and after the earthquake. Banks who hold a significant amount of government securities on their balance sheets got hurt relatively more than banks who do not in terms of equity and profits. Results are not driven by the extensive margin, i.e., the banks that were taken over by the Savings and Deposit Insurance Fund before or during 2001 crisis. Results are also not driven by banks in Marmara region ruling out alternative stories on selection and customer demand.

JEL: E32, F15, F36, O16

Keywords: banking crisis, sovereign crisis, earthquake, public debt, investment

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I Introduction

The connection between a stressed banking sector and a troubled sovereign is at the heart of the recent European financial crises. This has been a common and a reoccurring phenomena in the emerging markets during the last 30 years, where banking and sovereign crises go hand-in-hand. One the one hand, public sector intervenes after a banking crisis, assuming private debts, which in turn reduces sustainability of its own debt, as recently happened in Iceland and Ireland.[1] On the other hand, fiscal troubles of the sovereign can lead to the demise of the banking system, as in Greece. It is not uncommon that governments follow a financial repression policy, coercing healthy banks to buy government debt in significant quantities. The recent events show that in a currency union, such events can be catastrophic where banks in the healthy members of the union are exposed in large quantities to the sovereign debt of the sickly members.

Empirical literature cannot identify the effect of banking crises on sovereign defaults or the effect of sovereigns fiscal unsustainability on banking failures since the causality run both ways.[2] In addition, many other factors such as domestic credit expansion and external debt accumulation drive both of the phenomena. It is hard to identify any of these effects in the absence of a natural experiment.

We provide direct evidence on a fiscally unsustainable sovereign bringing down the domestic banking sector using a natural experiment. Our natural experiment is a large exogenous fiscal shock to Turkish government, which helps us to identify the link from fiscal stress to

[1] Systematic evidence on this channel is shown in Reinhart and Rogoff (2010).

[2] The empirical literature in general only focuses on one side of this two-way relation. Two exceptions are Panizza and Borenstein (2008) and Reinhart and Rogoff (2010). The first paper finds that probability of a banking crisis conditional on a sovereign default is much higher then the unconditional probability, whereas probability of default conditional on banking crisis is only slightly higher. The second paper finds the opposite result that banking crises are the most significant predictors of defaults. A related paper is by Baltenau and Erce (2011), who undertake an event analysis to study the behavior of key macro aggregates before and after banking crises combined with sovereign crises.

banking crises. On the bank side, we utilize confidential regulatory monthly data from the universe of Turkish banks between 1986–2012 on balance sheets and bank portfolios. The fiscal shock is a natural disaster, the 1999 Marmara Earthquake. This event is clearly exogenous but our identification strategy also relies on the size of the fiscal shock and existence of financial repression, where the latter can be endogenous. To get around this problem we use a differences-in-differences strategy, where our estimates will be identified from the *relative* difference between banks with low and high exposure to government debt, before and after the earthquake, where we keep the exposure fixed (predetermined). To be a threat to our identification it has to be such that banks who hold more government securities on their balance sheets must be affected from earthquake more, which is not the case.

In terms of the size of the fiscal shock, this earthquake is very significant. On August 17, 1999 and November 12, 1999 , two big earthquakes (7.6, 7.2) hit industrial heartland of Turkey, composed of cities such as Kocaeli, Sakarya, Duzce, Bolu, Yalova, Eskisehir, Bursa, Istanbul. The share of this region's population in country total is 25 percent and it's share in GDP is 50 percent. Total cost of the disaster is estimated to be 20 billion USD, which makes of 11 percent of GDP as of 2000. To put this event in context, the ratio of damaged buildings (including key industrial/chemical factories) is 4 times higher than 1995 Kobe earthquake and 12 times higher than 1994 Northridge earthquake. The Marmara Earthquake is listed in top ten in the U.S. Department of Commerce Significant Earthquakes database.

Our story is as follows. A series of events, such as Asian and Russian crises, led government force banks to increase their exposure to government debt (financial repression). Banks dramatically change the composition of their portfolio from private sector lending to lending to government during the course of these events as seen in Figure 1. At the same time, banks also increased their risk exposure feeling safe based on their government paper dominated portfolio. Then the exogenous rare disaster comes and financial deterioration has reached to critical levels. Government went into downward debt spiral which brought the banks down culminating into twin crisis (banks and currency) and devaluation in February 2001.

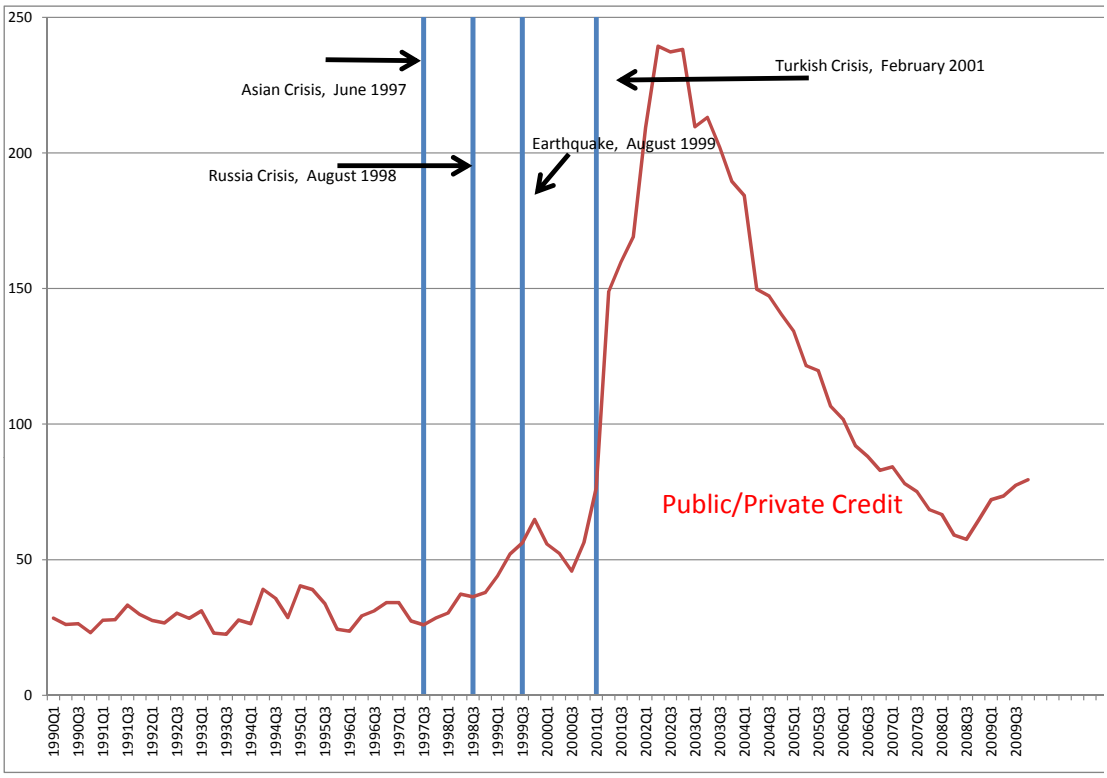

Figure 1: Change in Bank Lending from Private to Public Sector

We find that banks with higher exposures to government debt have witnessed declining equity values and profits. These effects are very significant economically: A bank whose government securities share in total assets is 13 percent, which corresponds to the median of the distribution across banks, witnesses 1.3 percentage point decline in profits to assets ratio and 1.4 percentage point decline in shareowners' equity to total assets ratio, corresponding a decline of 46 percent and 8.6 percent respectively. Such a bank also faces a 37 percent increase in probability of being taken over by Savings Deposit Insurance Fund (SDIF) relative to pre-Earthquake mean. Taking a more conservative stand, we estimate the effect of earthquake on the profits-to-assets and equity-to-assets ratio of the banks who were not taken over by SDIF (intensive margin). We find that the banks at the median of the share of government securities in total assets distribution faced a 15 percent decline in profits to assets ratio and 2.2 percent decline in the equity to assets ratio.

Our paper relates to the recent theoretical literature motivated by the European crisis. Gennaioli, Martin, and Rossi (2011) develop a model where sovereign defaults weaken banks' balance sheets because domestic banks hold the sovereign bonds, yielding a complementarity between domestic credit and public debt. They also document empirical patterns where public defaults followed by large private credit contractions. Our results suggest that these effect can be realized even without an outright default. Traditional models assume government bonds are held by foreigners and repayment is enforced given the reputational constraints and market exclusion (Eaton and Gersovitz, 1981). Arellano (2008) shows that, in a calibrated model, loss of reputation/market access is not enough for the low frequency of defaults and a large domestic output cost is needed. Gertler and Rogoff (1990) show countries financial institutions shape country's borrowing by affecting the share of output that can be pledged as collateral to foreigners. Gennaioli, Martin, and Rossi (2011) and Broner, Martin, and Ventura (2011) show that this external collateral constraint can be internalized if domestic banks hold the public debt and/or if foreigners can sell the sovereign debt in the secondary market to domestic agents. In the case of Turkey most of the public debt was hold by the domestic banking sector. As argued by Reinhart and Rogoff (2011), this

is a common emerging market phenomena that explains sovereign crisis and defaults even seemingly at very low levels of external debt. On the empirical front, Reinhart and Sbranica (2011) show evidence on financial repression in the form of liquidation of government debt through negative real interest rates, where we provide, to the best of our knowledge, first time evidence on the effects of repression (in the form of lending to government) on banks performance and hence on the real sector through credit provision.

Section 2 discusses the economic and political background in Turkey. Section 3 lays out the identification methodology. Section 4 presents the data. Section 5 undertakes the empirical analysis and Section 6 does robustness. Section 7 concludes.

II Background: Turkish Case

Turkey liberalized the foreign trade and launched an export-led growth program in 1980. Initially, this policy has lead to a substantial increase in the growth performance. However, starting from the second half of 1980s, the fiscal performance deteriorated, resulting in an increase in public sector borrowing requirement, which led to the liberalization of the capital account in 1989. This step allowed the government to finance its borrowing requirement using the capital inflows intermediated by the banking sector, thanks to the managed floating exchange rate regime as well as the explicit guarantees to the banks' deposit liabilities. In particular, as typical in may emerging markets those days, the exchange rate policy was geared towards trying to keep depreciation of the Turkish lira against foreign currencies below the difference between the return on government debt and the world interest rate. However, this implied a rapid surge in short-term foreign debt as well as loss in the external competitiveness by late 1993, which later brought about the massive economic crises in 1994. Concerns about the government debt dynamics were high and hence a sharp devaluation and a rapid surge in inflation were the situation in the aftermath of 1994 crisis. This "financial repression" helped partly inflating away the government debt. The 1994 crisis also resulted in the take-over of 3 private banks by the Savings Deposit Insurance Fund. As a result of

these takeovers, government extended the existing guarantee on the deposits banks in a way to cover the entire deposit liabilities.

The public sector borrowing requirement continued to be an important issue for the Turkish economy in post-1994 period. The sustainability of the government debt remained a key issue in the second half of 1990s, thanks to the domestic factors such as the political instability and the series of foreign shocks such as the Asian crises of 1997 and the Russian Crises in August 1998. While Asian Crisis in 1997Q3 constituted the first shock to Turkish banks that borrow internationally, the major shock was observed in 1998Q3 when Russia devalued its currency and defaulted on its debt. This resulted in large decline in exports, as Russia was second largest exports market for Turkey, a massive capital outflow of 7.2 billion USD - constituting one third of the FX Reserves of CBRT) and a discrete jump on nominal interest rates on T-bills from 77 percent to 137 percent within a 1.5 months (see Figure 2).

However, the trigger point about the sustainability of the Turkish governments' debt has occurred in August 1999, when the Turkey was hit by one of the largest earthquakes in world history in terms of the number of causalities and as well as the economic cost. This was followed by the second earthquake in November 1999, which made an economic program directed towards maintaining the debt sustainability inevitable. On December 9, 1999, the Government and the CBRT announced the program aiming at reducing inflation and restoring the fiscal balance, which involved a 36-month Stand-By agreement with IMF.[3] On the monetary policy side, this program entailed a preannounced exchange rate path for Turkish lira against the currency basket composed of US dollar and Euro, determined in line with the year end inflation targets. Following a 18-month crawling peg period, the program envisaged a gradual exit to floating exchange rate regime via gradually widening crawling band regime planned to be implemented in July 2001–December 2002 period. The program also involved CBRT's commitment to no sterilization of the capital flows, whereby the net foreign assets of CBRT would be the main source of the changes in the monetary base. The program also

[3]See Özatay and Sak (2002) for an account of the 2000 Stand-By program and 2000–2001 Financial Crises in Turkey.

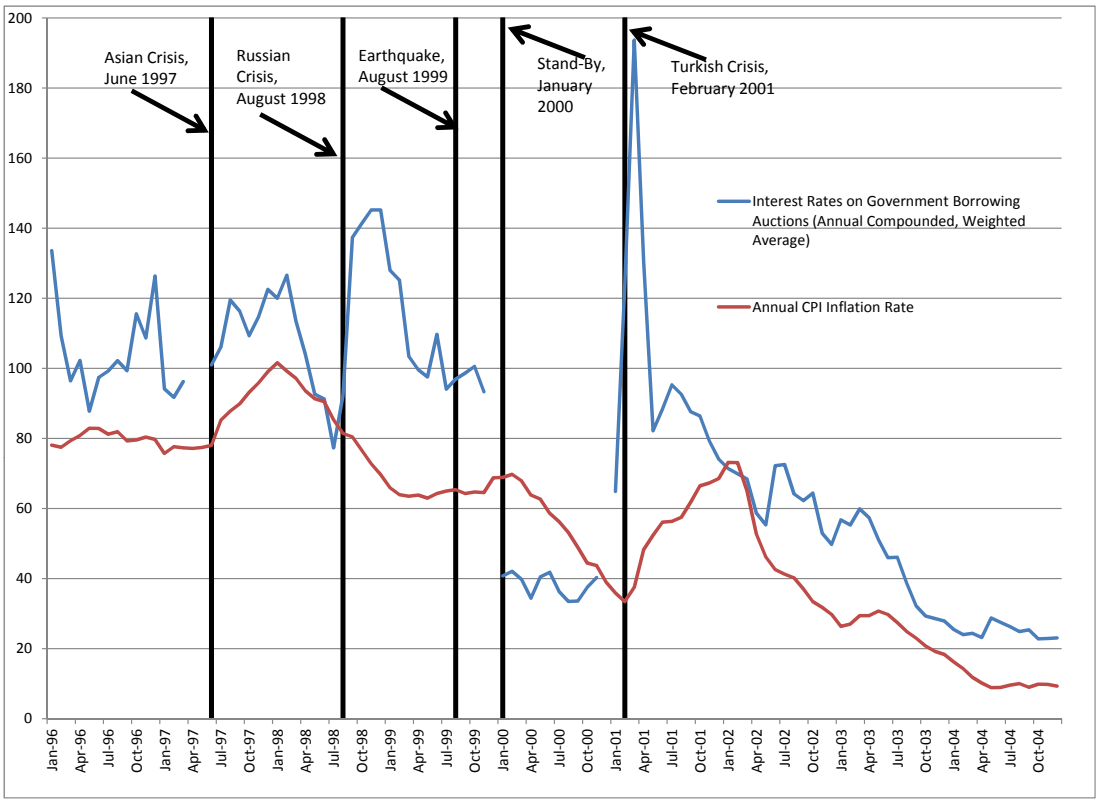

Figure 2: Nominal Interest Rates and Inflation

involved explicit austerity measures on government expenditures, an extensive privatization plan and the explicit government primary surplus targets as performance criteria.

Relative to pre-program period, the Stand-By brought about a rapid decline in inflation and interest rates, and a significant improvement in the primary fiscal surplus, leading to a lower ratio of debt to GDP and public sector borrowing requirement. On the other hand, the weaknesses in the banking system and the political uncertainties undermining the credibility of the structural reform agenda brought about concerns on the sustainability of the program in 2000Q4. In November 2000, one of the major banks was taken over by the SDIF, further raising concerns about the Stand-By, which led to the start of capital outflows. However, the official collapse of the Stand-By, triggered by a political crises, came about in February 2001, resulting in the free-float of Turkish lira associated with a sharp devaluation, a rapid surge in the inflation rates, nominal interest rates on government debt and one of the largest contraction episodes in the economic activity in Turkey. This also resulted in a substantial financial crises associated with a collapse of a number of private banks.

In May 2001, Turkey announced a new Stand-By program, aiming at maintaining the discipline in fiscal and monetary policy and restructuring the banking sector. The implementation of the comprehensive reform agenda in the period afterwards resulted in a substantial improvement in the economic fundamentals in the post-2001 period, including bringing the inflation to around 5-6 percent from 68 percent in 2001 and government debt to GDP ratio to 35-40 percent from 100 percent.

III Identification

We want to know if sovereign's fiscal problems can cause a banking crisis. As a result we ask whether the higher level of exposure of a bank to government debt market has resulted in a higher failure risk, measured both at the extensive and intensive margin.

At the extensive margin, since we know the banks that are taken over by the SDIF,

we ask whether the probability of being taken over increases with high level of exposure to government debt. At the intensive margin, we test whether banks' performance, measured by profit and equity, deteriorate with higher levels of government debt on their balance-sheets. For both questions, we run the following regression:

$$y_{it} = \alpha_i + \lambda_t + \beta_1 Gov\ Debt\ Exp_{it} + \beta_2 Earthquake_t \times Government\ Debt\ Exposure_{it} + \epsilon_{it} \quad (1)$$

where i is bank, t is month, α_i is bank-fixed effects, λ_t is month-fixed effects and y_{it} is banks' profits, shareholders' equity and the SDIF-status (a dummy that takes the value of 1 if the bank was taken over by the SDIF and 0 otherwise). Profits and equity used as normalized by total assets or as percent change.

The government debt exposure is measured by ratio of banks' government security holdings to total banks' assets. The key idea is that a sizable exogenous fiscal shock that can not be anticipated can lead to a higher loss for the banks who devote a higher share of their total assets to the government debt. In order to assure that we do not capture the effects of other events that might have affected the sustainability of the government debt, we also control for the other major events that happened before and after the 1999 Marmara Earthquake with dummies such as Asia Crises dummy, Russia Crisis dummy, Stand-by agreement dummy, 2001 crises dummy. We also include the interactions of these dummies with the measure of government debt exposure.

We define the crises and other dummies as follows. Asian Crises is a binary variable equal to 1 between July 1997–December 1997. Russian Crises is a binary variable equal to 1 between August 1998–December 1998. Earthquake is a binary variable equal to 1 between August 1999–December 1999. Stand-By is a binary variable equal to 1 between January 2000–June 2000 and finally 2001 Crises is a binary variable equal to 1 between December 2000–December 2002. To control for the unobserved heterogeneity at the bank level we use bank fixed effects. We control common to all shocks through month fixed effects. We can also control bank specific quarterly and yearly shocks through quarter-bank and year-bank

fixed effects. We also control for the lagged dependent variable to account for inertia.

A possible channel that may contaminate our identification of impact of an exogenous fiscal shock would be the effect of earthquake on bank balance sheets via their other banking activities. For example, if the earthquake affects the costumer base of a bank as well as the return on the loans extended to the private sector by triggering a decline in economic activity, we may observe a deterioration in banks' performance regardless of whether the earthquake triggers a fiscal shock or not. To control for that channel, we also include the ratio of banks' portfolio to non-financial sector (such as household or commercial loans) to their total assets and its interaction with the earthquake and the other 4 major events in our sample. Hence we run:

$$\begin{aligned} y_{it} &= \alpha_i + \lambda_t + \beta_1 Gov\ Debt\ Exp_{it} + \beta_2 Earthquake_t \times Government\ Debt\ Exposure_{it} \quad (2) \\ &+ \beta_3 Private\ Credit_{it} + \beta_4 Eartquake \times Private\ Credit + \epsilon_{it} \end{aligned}$$

For the intensive margin, we also consider the subsample of banks who were not taken over by the SDIF. This exercise may be useful especially if there are concerns about the unobserved confounding features of the banks taken over by the SDIF, which would affect these banks' performance even in the absence of a fiscal shock. Although most of these factors will be taken care for by a bank fixed effect, we still run our regressions in a sample of surviving banks throughout the sample period in order not to bias our result if the banks were being taken over at the time of earthquake. Another possibility is that inherently bad banks change their government debt exposure at the time of earthquake by coincidence.[4] In order to address these concerns, we test if the banks who could manage to survive would still face a profit and equity loss in the case of a fiscal shock. Notice that this exercise is expected to provide smaller estimates since by focusing on a subsample of surviving banks although we address the claim that bad performers were bad banks anyway and would have failed even without the fiscal shock, we also do not use valuable information on banks who

[4]Only 8 banks are taken over in 1999, so this is not likely to affect our results.

became bad performers exactly because they keep government debt on their balance sheet, which turned into a bomb as a result of the exogenous fiscal shock. These banks are the ones who may perform reasonably in the absence of the fiscal shock.[5]

IV Data and Descriptive Statistics

We use confidential and regulatory monthly bank balance sheet data from Turkey for 1986–2011 period. This data is collected regularly as part of the *Monitoring Package,* which is the data collection and processing system for monitoring and regulation purposes. All banks operating within Turkey are obliged with reporting their balance sheets as well as some extra items by the end-of-month to the regulatory and supervisory authorities, such as Central Bank of the Republic of Turkey (CBRT) and the Banking Regulation and Supervision Agency (BRSA). Besides the data on the balance sheets, we also use the extra reportings of the banks, such as the decomposition of the banks' securities portfolio including the information on which particular securities are held by banks by the end of each month, net debtor positions against domestic and foreign creditors and the currency denomination of assets and liabilities through interbank operations, which are not publicly available.

The banks in our sample are all banks operating within Turkey, regardless of the ownership status or the classification with respect to the main activity -such as deposits banks or investment banks, except the so-called *Participation Banks*, which are not engaged in any interest-bearing operations in order to comply with Islamic law. At the end, our sample covers more than 99 percent of the entire banking industry at any point in our sample period.

In terms of the number of banks, the Turkish Banking Industry has experienced important variations over time as shown in Figure 3. While there were 49 banks (6 of which being state-

[5]Note that if the claim on bad banks will fail anyway is true and we fail to control for it then a diff-in-diff strategy should not give us any result since this strategy identifies off of the relative difference between bad and good banks at the time of the earthquake. We come back to this point when we do our placebo earthquake exercise.

owned deposit banks) in 1986, the number of banks reached 81 (4 of which being state-owned deposit banks) by the end of 1999. However, in 1999–2003 period, the number of banks has declined substantially due to the series of events including the financial crises in 2000–2001 period. In particular, if the regulatory agency observes a private bank to experience a decline in its capital adequacy ratio resulting from losses due its operations, then the bank is asked to add new capital and to improve the balance sheet quality. However, if the bank fails to take necessary actions and bank's capital adequacy ratio falls below the legal limit, then the its control is taken over by SDIF to provide immunity to the depositors as well as to limit the risks to the banking system. In the aftermath of the 2001 crises, the weak capital structure of the Turkish Banks resulted in a number of takeovers. As a result, in 1999–2004 period, a total of 25 banks were taken over by SDIF. Also, a number of mergers and acquisitions resulted in a decline in the number of private banks in Turkey in the post-crises period, resulting in a total of 45 banks operating in Turkey as of end of 2011.

Table 1 presents standard macro aggregates specific to banking sector. During the critical period of 1995–2001, domestic public debt to GDP ratio has increased from 14 percent to 40 percent, and the share of domestic public debt in total debt has soared to 60 percent. Private credit to GDP and to total assets of banking sector has halved. Table 2 presents the key descriptive statistics of our analysis, dividing the main sample into three sub-periods, i.e. pre-2000 period, 2000–2003 period which is associated with Turkey's Stand-By Program with IMF and the crisis that interrupted it, and the post-2003 period which can be regarded as the period in the aftermath of massive restructuring and rehabilitation in the banking sector. We first observe a significant cross-sectional heterogeneity with respect to weight of government securities in banks' balance sheets. While the average share of such securities in banks' total assets have been around 13 percent, for some banks, it reached as high as 90 percent. A similar heterogeneity can be observed also for the credits.

However, what is interesting is the time series behavior of the share of credits and government securities in banks' total assets. In particular, Figure 4 shows that the banks' exposure to the government debt increased substantially in 1997-2000 period, especially for the banks

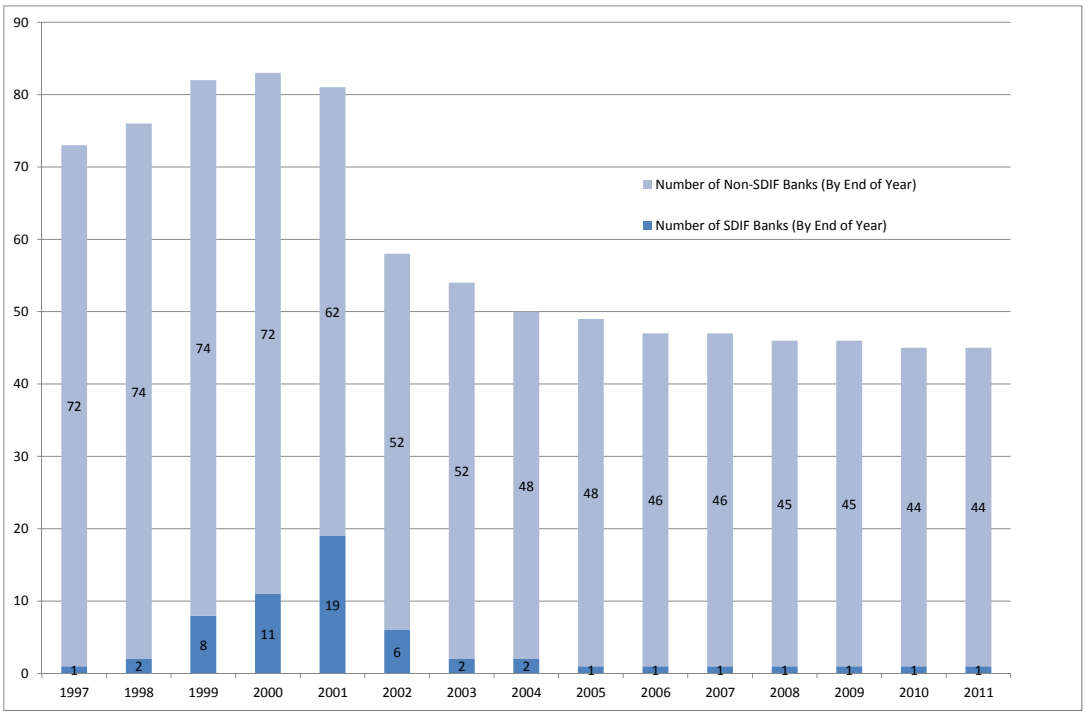

Figure 3: Surviving and Exiting Banks

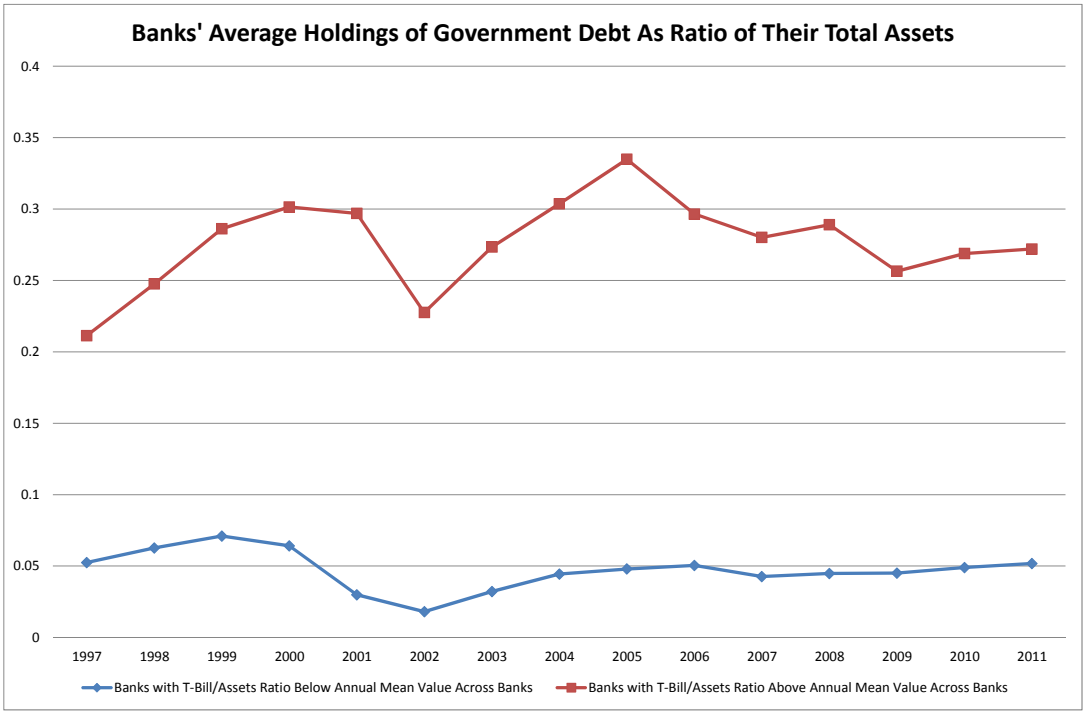

Figure 4: Share of Government Debt in Banking Sector Assets

which had tendency to hold government securities higher than the average tendency in the sector. This period, as shown in Figure 5, is also associated with a considerable decline in the share of non-financial credit in banks' total assets, reflecting the fact that the high public sector borrowing requirement accompanied by high return on the government securities has increased banks' exposure to the government debt market and decreased their lending activities to the non-financial sector.

Our target variables, namely the profits to total assets and the shareowners' equity to total assets showing the banks' performance at the intensive margin and the binary SDIF take-over status, showing the banks' performance at the extensive margin, have also show significant changes over time. In particular, as Table 2 shows, we observe that the total

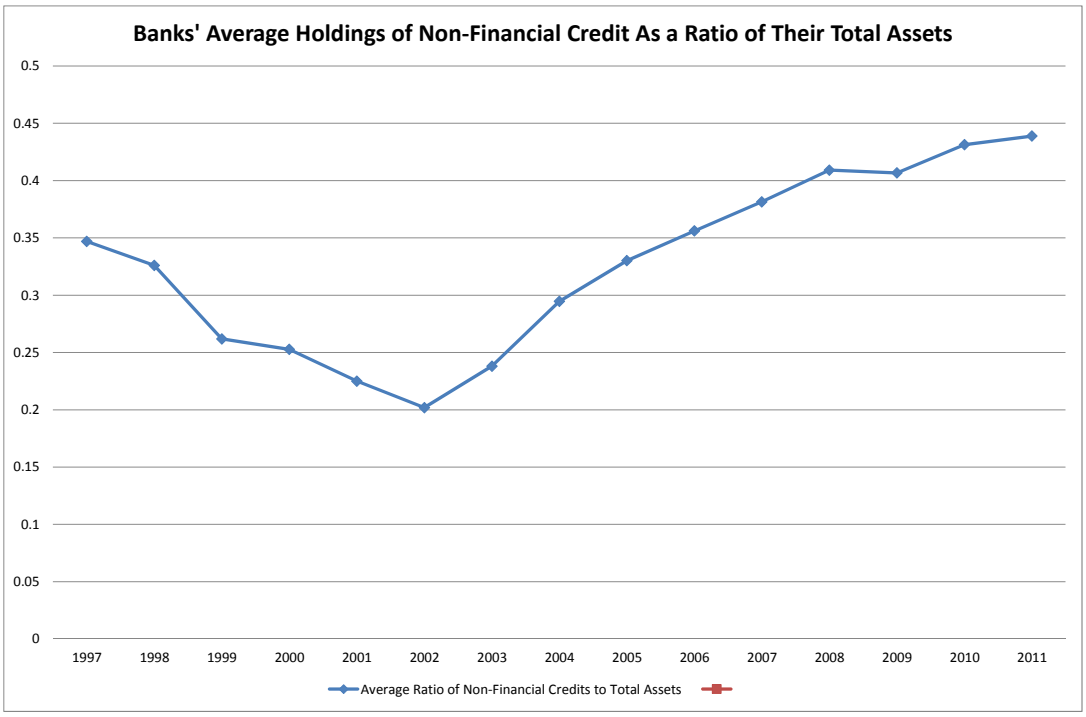

Figure 5: Private Credit Provision

size of banks under SDIF control has been approximately 2 percent in 1997–1999 period, then increased to 5 percent in 2000–2003 period. On the other hand, in the period following the banking sector restructuring, it reached a negligible amount. In a parallel manner, we observe a decline in the ratio of profits and the shareowners' equity to total assets in 1997–2003 period, followed by an improvement in the post-2003 period following the banking sector restructuring.

V Empirical Analysis

Tables 3 and 4 show our main results. In Table 3, all specifications show that the interaction term of government debt exposure and earthquake is strongly significant and negative. This implies that banks that have high exposure before the earthquake has experienced declining profits once the earthquake hit relatively more than the banks who had low exposures. The first three columns show contemporaneous effects, where the latter three lags the independent variables. Within this structure the specifications goes form least to most restrictive by adding year and month fixed effects. It is worth noting that the estimated coefficients do not change much with different time effects, which highlights the strength of our identification given our long time series data. Another significant result is the effect of Russia crisis but this effect goes away once we look at the equity and hence we do not dwell into it much.

Putting the numbers in Column 3 of Table 3 into perspective, we find that banks at the median and 90th percentile of the government debt exposure distribution face 46 percent and 97 percent extra decline on their profits to asset ratios, respectively. Using the alternative specification presented in column 6, where we aim at controlling the contemporaneous effect of the shock on the banks' securities portfolio by using the t-1 values of all the controls, we find that the extra negative effect for the profits of the banks at 50th and 90th percentile of the government debt exposure distribution is 9.5 percent and 20 percent respectively.

Table 4 shows the results on equity. Again, across specifications, there is a significant

negative effect of exposure to government debt when earthquake hits. There is also a negative effect of standby though this does not survive all specifications and also alternative definitions of the dependent variable such as percent change. Numerically, using the estimates presented in Column 3 of Table 4, we find that banks at the median and 90th percentile of the government debt exposure distribution face 8 percent and 18 percent extra decline on their equity to asset ratios, respectively, compared to a bank with less government debt exposure. Using the specification presented in Column 6, which controls for the t-1 values of the covariates rather than the contemporaneous values, we find that the differential effect for the banks at the median and 90th distribution of the government debt exposure distribution is 2.7 and 5.9 percent, respectively.

Table 5 shows that the probability of being taken over by SDIF increases significantly for the banks with high government debt exposure after the earthquake hits, again regardless of the fixed effects and different specifications used. In particular, we observe a 1 percentage point extra increase in the take-over probability, which corresponds to 37 percent increase in the probability of being taken over by SDIF, showing that the fiscal shock due to earthquake triggered a significant change in the banking sector performance at the extensive margin as well.

To focus solely on the intensive margin and address the concern that results are driven by exiting banks, we rerun our regressions in a subsample of surviving banks. Notice that this strategy has also disadvantage of killing a lot of variation that might have been induced by the fiscal shock. The results are shown for profits and equity respectively in tables 6 and 7, and as expected now we have smaller point estimates, though all our qualitative results survive. In particular, using the specification presented in column 3 of Table 6, we find that the banks at the median and the 90th percentile of the government debt exposure distribution faces a 15 percent and 31 percent extra decline in profits to assets ratio compared to a bank which had zero exposure. Using the alternative specification presented in column 6, where we aim at controlling the contemporaneous effect of the shock on the banks' securities portfolio by using the t-1 values of all the controls , we still find 7 percent and 15.6 percent decline

in the profits to asset ratios. For the results on the equity to asset ratios, we find that the extra decline faced by the banks at the median and the 90th percentile of government exposure distribution is 1.2-2.2 percent and 2.6-4.8 percent depending on how we specify the lag structure of the control variables. On the other hand, it should be noted that the smaller effect on the equity structure in Table 7 is somehow expected, given the fact that these results are based on the sample of banks who were not taken over by SDIF.

VI Robustness and Threats to Identification

The main threat to identification is differential prior trends in our dependent variables. Since we have data starting in 1986 we can check this easily. We are in the process of updating the data so for now we show this in Figures 6 and 7 starting in 1997. It is clear that there were no prior trends. What is worth noting is that the deterioration in the dependent variables, namely profits and equity, is observed particularly for the banks that had high government debt exposure in the aftermath of the massive earthquake, which has constituted a large fiscal shock.

VII Conclusion

We identify the effect of exposure to government debt on various measures of banks' performance during a significant financially repression episode in Turkey, i.e. 1990s and early 2000s. For identification we use a rare disaster, the 1999 Marmara Earthquake—one of the largest earthquakes in world history, as a major fiscal shock. Using a differences-in-differences methodology, we investigate whether the differences in the degree of banks' exposure to the government debt matter for the effect of fiscal shock on outcomes, such as profitability, equity-to-assets ratio, which measure banks' performance at the intensive margin. We also investigate whether the banks with high exposure also faced a larger increase in the probability of ending their activity as a result of being taken over by the Savings Deposit Insurance

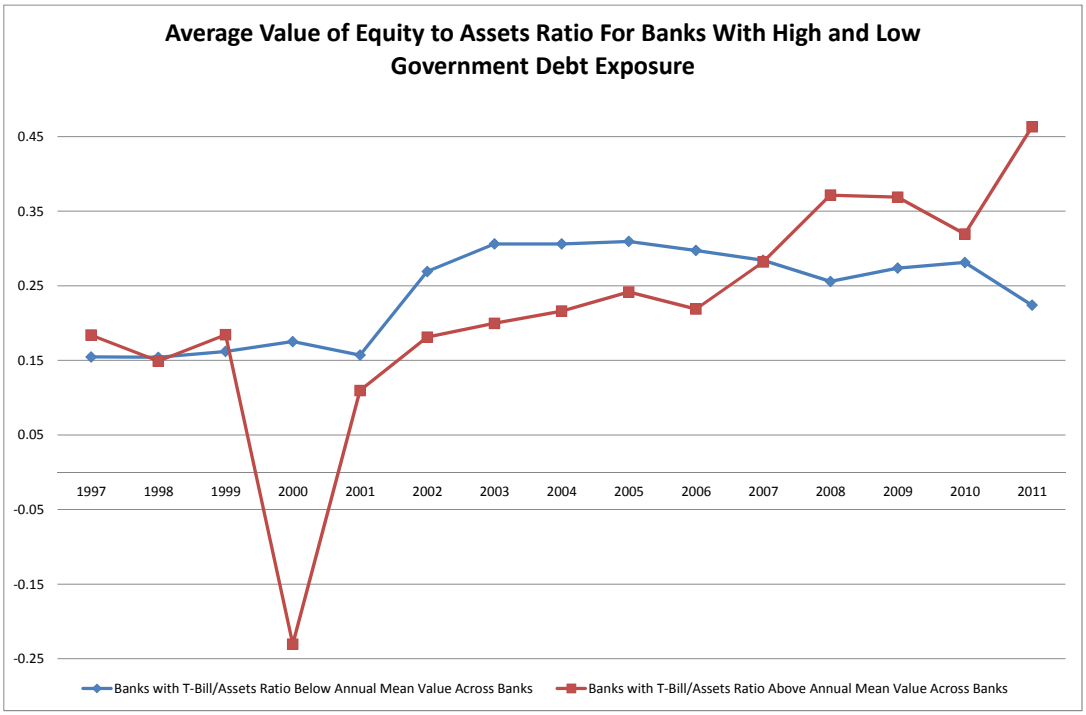

Figure 6: Prior Trends in Equity to Assets among High and Low Government Debt Exposure Banks

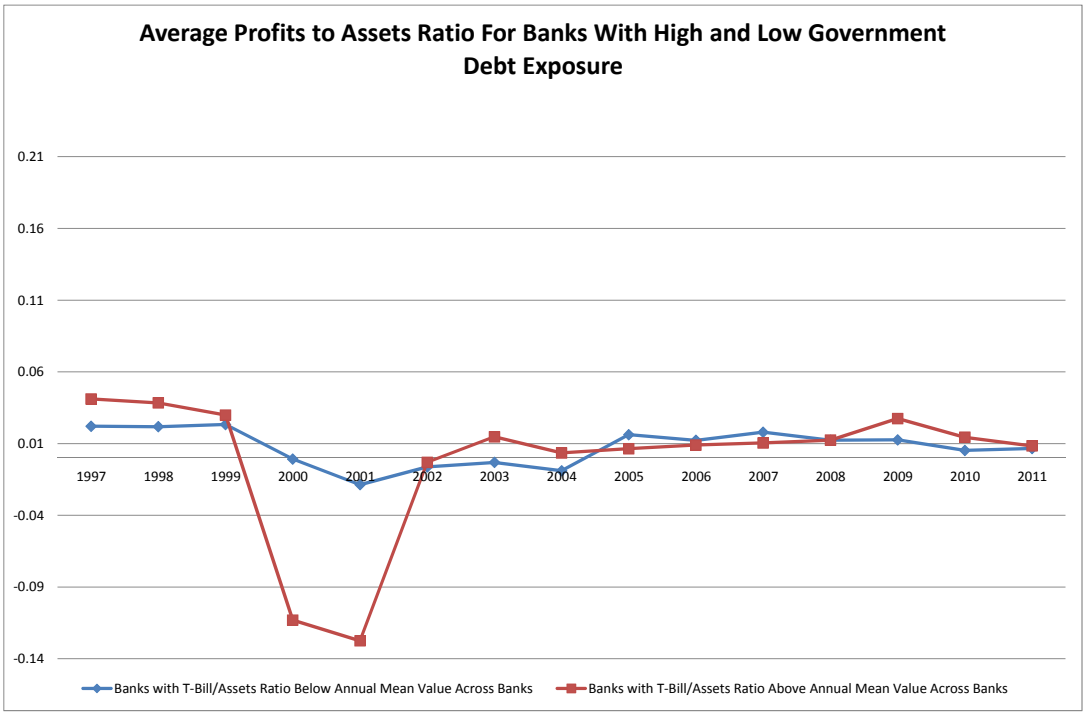

Figure 7: Prior Trends in Profits to Assets among High and Low Government Debt Exposure Banks

Fund (SDIF) (extensive margin).

Our results indicate that the high government debt exposure resulted in a differential decline in the profit-to-asset and equity-to-asset ratios and a significant increase in the probability of being taken over by SDIF due to the large exogenous fiscal shock. We show that the effects observed on the profitability and the equity positions are not due to extensive margin changes in the status of the banks: the significant negative differential effect of earthquake on the profits and the equity-to-asset ratios are also observed for the banks who were not taken over the SDIF.

Our least conservative estimates imply that the median bank faces a 46 percent decline in profits and a 9 percent decline in equity. Same bank's probability to be taken over increases almost 40 percent. Our most conservative estimates are 9 and 3 percent declines in profits and equity for the median bank. For the intensive margin only the conservative estimates imply a 16 percent and a 3 percent decline for profits and equity for the 90th percentile bank.

Our results provide first time evidence on the link between fiscal and financial imbalances, where the causality goes from fiscal to financial stress. Using an exogenous rare event which triggered a fiscal shock, we identify that the fiscal imbalances has important causal implications for the performance of the financial sector. Although our identification is clear, valid and policy relevant, it works only for the link from the government to banks. The caveat is that we cannot say anything for the predictive power of banking crisis on sovereign defaults, which is equally important. Nevertheless, our results shed light on our understanding of the magnitude of the connection between stressed banking sector and the sovereign debt problems, which is at the center of current policy debates related to crises observed across Euro Area.

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Table 1: Domestic Debt, External Debt, Credit Growth (%): 1995--2012

	1995Q1-1998Q1	1998Q2-2000Q4	2001Q1--2003Q4	Post-2003
Domestic Public Debt/GDP	14.00	20.00	43.00	35.00
External Public Debt/GDP	24.00	24.00	36.00	17.00
External Private Debt/GDP	11.00	19.00	21.00	21.00
Domestic Public Debt/Total Public Debt	42.00	50.00	61.00	71.00
Private Credit/GDP	26.00	20.00	11.00	22.00
Bank Assets/GDP	42.00	70.00	50.00	60.00
Private Credit/Bank Assets	40.00	30.00	20.00	37.00

Table 2: Key Bank-Level Descriptive Statistics

Panel A: **1997-2011 Sample**

	Number of Obs.	Simple Avg.	Avg. Weigh. by Banks' Total Assets	Standard Deviation	Minimum	Maximum
Ratio of Government Securities to Total Assets	10000	0.13	0.14	0.39	0.00	0.95
Ratio of Credits to Non-Financial Private Sector to Total Assets	10000	0.31	0.15	0.21	0.00	0.94
Ratio of Period's Profits to Total Assets	10000	0.00	0.03	0.16	-6.03	0.53
Ratio of Shareowners' Equity to Total Assets	10000	0.20	0.08	0.34	-6.83	1.00
SDIF Take over Status (1 if under SDIF Control)	10000	0.04	0.09	0.21	0.00	1.00

Panel B: **1997-1999 Sample**

	Number of Obs.	Simple Avg.	Avg. Weigh. by Banks' Total Assets	Standard Deviation	Minimum	Maximum
Ratio of Government Securities to Total Assets	2662	0.14	0.13	0.12	0.00	0.86
Ratio of Credits to Non-Financial Private Sector to Total Assets	2662	0.31	0.34	0.18	0.00	0.80
Ratio of Period's Profits to Total Assets	2662	0.03	0.02	0.08	-1.73	0.53
Ratio of Shareowners' Equity to Total Assets	2662	0.16	0.09	0.20	-1.52	1.00
SDIF Take over Status (1 if under SDIF Control)	2662	0.02	0.02	0.15	0.00	1.00

Panel C: **2000-2003 Sample**

	Number of Obs.	Simple Avg.	Avg. Weigh. by Banks' Total Assets	Standard Deviation	Minimum	Maximum
Ratio of Government Securities to Total Assets	3066	0.12	0.18	0.15	0.00	0.95
Ratio of Credits to Non-Financial Private Sector to Total Assets	3066	0.23	0.25	0.16	0.00	0.85
Ratio of Period's Profits to Total Assets	3066	-0.03	0.00	0.27	-6.03	0.43
Ratio of Shareowners' Equity to Total Assets	3066	0.15	0.11	0.50	-6.83	1.00
SDIF Take over Status (1 if under SDIF Control)	3066	0.09	0.05	0.29	0.00	1.00

Panel D: **2004-2011 Sample**

	Number of Obs.	Simple Avg.	Avg. Weigh. by Banks' Total Assets	Standard Deviation	Minimum	Maximum
Ratio of Government Securities to Total Assets	4272	0.13	0.18	0.57	0.00	0.90
Ratio of Credits to Non-Financial Private Sector to Total Assets	4272	0.38	0.47	0.24	0.00	0.94
Ratio of Period's Profits to Total Assets	4272	0.01	0.01	0.04	-0.63	0.32
Ratio of Shareowners' Equity to Total Assets	4272	0.27	0.12	0.24	-0.59	1.00
SDIF Take over Status (1 if under SDIF Control)	4272	0.02	0.00	0.15	0.00	1.00

Table 3: The Determinants of Profits to Asset Ratios of the Banks

	'(1)	'(2)	'(3)	(4)	(5)	(6)
Gov_Sec	0.002	0.002	0.002	0.000	0.001	0.001
	(0.001)+	'(0.001)*	'(0.001)*	'(0.001)	'(0.001)	'(0.001)
Private Credit	0.030	0.036	0.032	0.025	0.028	0.026
	'(0.018)	(0.021)+	(0.019)+	'(0.013)	'(0.014)*	'(0.014)
Gov_Sec*Asian Crisis	0.003	0.006	0.015	-0.005	-0.003	0.004
	'(0.020)	'(0.022)	'(0.025)	'(0.013)	'(0.015)	'(0.013)
Gov_Sec*Russian Crisis	0.057	0.059	0.065	0.049	0.051	0.058
	'(0.017)**	'(0.019)**	'(0.021)**	'(0.011)**	'(0.011)**	'(0.012)**
Gov_Sec*Earthquake	-0.104	-0.105	-0.103	-0.025	-0.026	-0.021
	'(0.016)**	'(0.019)**	'(0.018)**	'(0.006)**	'(0.008)**	'(0.008)*
Gov_Sec*Stand-By	0.016	0.013	0.018	0.031	0.028	0.035
	'(0.009)	'(0.012)	'(0.009)*	'(0.040)	'(0.039)	'(0.040)
Gov_Sec*Crisis	0.061	0.066	0.044	-0.169	-0.166	-0.162
	'(0.055)	'(0.051)	'(0.048)	'(0.151)	'(0.149)	'(0.146)
Private Credit*Asian Crisis	0.013	0.016	0.017	0.011	0.014	0.015
	(0.012)	(0.012)	(0.015)	(0.011)	(0.011)	(0.011)
Private Credit*Russian Crisis	0.030	0.033	0.029	0.007	0.010	0.010
	'(0.022)	'(0.021)	'(0.020)	'(0.021)	'(0.019)	'(0.019)
Private Credit*Earthquake	-0.009	-0.005	-0.018	-0.057	-0.053	-0.059
	'(0.029)	'(0.028)	'(0.026)	'(0.045)	'(0.043)	'(0.041)
Private Credit*Standby	0.061	0.064	0.062	0.059	0.062	0.065
	(0.034)+	'(0.032)*	'(0.029)*	'(0.027)*	'(0.026)*	'(0.025)**
Private Credit*2001 Crises	0.027	0.036	0.015	-0.017	-0.009	-0.012
	'(0.031)	'(0.028)	'(0.018)	'(0.017)	'(0.021)	'(0.018)
Asian Crisis	0.010	-0.007	-	0.011	-0.006	-
	(0.010)	(0.010)	-	'(0.004)**	'(0.005)	-
Russian Crisis	-0.004	-0.017	-	0.004	-0.009	-
	'(0.009)	'(0.008)*	-	'(0.013)	'(0.010)	-
Earthquake	0.023	0.009	-	0.022	0.008	-
	'(0.012)*	'(0.009)	-	'(0.018)	'(0.014)	-
Stand-By	-0.013	0.009	-	-0.016	0.008	-
	'(0.010)	'(0.010)	-	'(0.006)**	'(0.011)	-
Crisis	-0.020	0.012	-	0.011	0.056	-
	'(0.015)	(0.010)	-	'(0.007)	'(0.031)	-
Lagged Dependent Variable	Yes	Yes	Yes	Yes	Yes	Yes
Lagged Independent Variables	-	-	-	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	-	Yes	-	-	Yes	-
Month Fixed Effects	-	-	Yes	-	-	Yes
Observations	9916	9916	9916	9923	9923	9923

Notes: (1) Dependent variable in all columns is the banks' flow profits as a ratio to their total assets at time t. (2) Gov-Sec refers to the amount of government securities held by the banks as a ratio to their total assets. (3) Credits refers to the amount of loans extended to non-financial sector by the banks as a ratio to their total assets. (4) "Asian Crises" is a binary variable equal to 1 between july 1997-December 1997, "Russian Crises" is a binary variable equal to 1 between August 1998 and December 1998, the Earthquake is a binary variable equal to 1 between August 1999 and December 1999, "Stand-By" is a binary variable equal to 1 between January 2000 and June 2000 and "2001 Crises" is a binary variable equal to 1 between December 2000 and December 2002. (5) Robust standard errors clustered for year and bank id are presented in parentheses. '+ significant at 10%; * significant at 5%; ** significant at 1%.

Table 4: The Determinants of Equity to Asset Ratios of the Banks

	'(1)	'(2)	'(3)	(4)	(5)	(6)
Gov_Sec	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	'(0.002)	'(0.002)	'(0.002)	'(0.002)	'(0.002)	'(0.002)
Private Credit	0.019	0.017	0.018	0.000	-0.009	-0.009
	'(0.020)	'(0.021)	'(0.020)	'(0.019)	'(0.018)	'(0.018)
Gov_Sec*Asian Crisis	-0.018	-0.020	-0.018	-0.014	-0.019	-0.018
	'(0.018)	'(0.018)	'(0.018)	'(0.022)	'(0.007)*	'(0.008)*
Gov_Sec*Russian Crisis	0.014	0.011	0.013	0.002	-0.003	-0.001
	'(0.006)*	(0.011)	(0.011)	'(0.022)	(0.022)	(0.015)
Gov_Sec*Earthquake	-0.108	-0.112	-0.109	-0.032	-0.037	-0.035
	'(0.018)**	'(0.019)**	'(0.019)**	'(0.014)*	'(0.009)**	'(0.010)**
Gov_Sec*Stand-By	-0.089	-0.094	-0.094	-0.105	-0.113	-0.110
	'(0.025)**	'(0.023)**	'(0.023)**	'(0.062)	'(0.041)**	'(0.041)**
Gov_Sec*Crisis	0.354	0.339	0.341	0.065	0.039	0.051
	'(0.226)	'(0.212)	'(0.215)	'(0.112)	'(0.094)	'(0.092)
Private Credit*Asian Crisis	0.048	0.048	0.048	0.056	0.058	0.057
	'(0.018)**	'(0.020)*	'(0.020)*	'(0.007)**	'(0.019)**	'(0.019)**
Private Credit*Russian Crisis	0.057	0.058	0.056	0.046	0.047	0.046
	'(0.019)**	'(0.020)**	'(0.020)**	'(0.011)**	'(0.016)**	'(0.017)**
Private Credit*Earthquake	0.033	0.035	0.024	-0.002	0.000	-0.008
	'(0.012)**	'(0.012)**	(0.013)+	'(0.023)	'(0.017)	'(0.017)
Private Credit*Standby	0.040	0.041	0.040	0.049	0.051	0.050
	'(0.042)	'(0.042)	'(0.041)	'(0.073)	'(0.043)	'(0.043)
Private Credit*2001 Crisis	0.000	-0.004	0.000	-0.021	-0.036	-0.031
	'(0.025)	'(0.030)	'(0.031)	'(0.024)	'(0.036)	'(0.035)
Asian Crisis	-0.014	-0.021	-	-0.019	-0.025	-
	'(0.007)*	'(0.009)*	-	'(0.006)**	'(0.008)**	-
Russian Crisis	-0.016	-0.021	-	-0.013	-0.016	-
	'(0.006)*	'(0.007)**	-	'(0.006)*	'(0.004)**	-
Earthquake	-0.003	-0.007	-	-0.010	-0.011	-
	'(0.008)	'(0.002)**	-	'(0.009)	'(0.003)**	-
Stand-By	-0.013	0.024	-	-0.017	0.025	-
	'(0.017)	'(0.014)	-	'(0.031)	'(0.018)	-
Crisis	-0.029	0.142	-	0.002	0.192	-
	'(0.011)**	'(0.030)**	-	'(0.008)	'(0.021)**	-
Lagged Dependent Variable	Yes	Yes	Yes	Yes	Yes	Yes
Lagged Independent Variables	-	-	-	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	-	Yes	-	-	Yes	-
Month Fixed Effects	-	-	Yes	-	-	Yes
Observations	9916	9916	9916	9923	9923	9923

Notes: (1) Dependent variable in all columns is the banks' shareowners equity as a ratio to their total assets at time t. (2) Gov-Sec refers to the amount of government securities held by the banks as a ratio to their total assets. (3) Credits refers to the amount of loans extended to non-financial sector by the banks as a ratio to their total assets. (4) "Asian Crises" is a binary variable equal to 1 between july 1997-December 1997, "Russian Crises" is a binary variable equal to 1 between August 1998 and December 1998, the Earthquake is a binary variable equal to 1 between August 1999 and December 1999, "Stand-By" is a binary variable equal to 1 between January 2000 and June 2000 and "2001 Crises" is a binary variable equal to 1 between December 2000 and December 2002. (5) Robust standard errors clustered for year and bank id are presented in parentheses. '+ significant at 10%; * significant at 5%; ** significant at 1%.

Table 5: SDIF Status of the Banks

	'(1)	'(2)	'(3)
Gov_Sec	0.000	0.000	0.000
	'(0.000)	'(0.000)	'(0.000)
Private Credit	-0.005	-0.007	-0.007
	'(0.005)	'(0.007)	'(0.007)
Gov_Sec*Asian Crisis	-0.013	-0.013	-0.013
	'(0.015)	'(0.015)	'(0.015)
Gov_Sec*Russian Crisis	-0.025	-0.025	-0.023
	'(0.015)	'(0.014)	'(0.014)
Gov_Sec*Earthquake	0.034	0.034	0.035
	'(0.014)*	'(0.014)*	'(0.013)**
Gov_Sec*Stand-By	0.004	0.006	0.006
	'(0.005)	'(0.005)	'(0.005)
Gov_Sec*Crisis	0.012	0.011	0.013
	'(0.012)	'(0.012)	'(0.012)
Private Credit*Asian Crisis	-0.016	-0.017	-0.017
	'(0.008)*	'(0.008)*	'(0.008)*
Private Credit*Russian Crisis	-0.006	-0.007	-0.007
	'(0.009)	'(0.010)	'(0.010)
Private Credit*Earthquake	-0.020	-0.022	-0.013
	'(0.009)*	'(0.009)*	'(0.009)
Private Credit*Standby	-0.005	-0.006	-0.006
	'(0.003)	'(0.003)	'(0.003)
Private Credit*2001 Crisis	-0.002	-0.005	-0.005
	'(0.005)	'(0.005)	'(0.004)
Asian Crisis	0.001	0.005	-
	'(0.002)	'(0.004)	-
Russian Crisis	0.003	0.009	-
	'(0.002)	'(0.004)*	-
Earthquake	0.008	0.011	-
	'(0.004)	'(0.004)**	-
Stand-By	-0.001	-0.007	-
	(0.001)	'(0.001)**	-
Crises	0.004	-0.007	-
	'(0.003)	'(0.003)*	-
Lagged Dependent Variable	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	-	Yes	-
Month Fixed Effects	-	-	Yes
Observations	9919	9919	9919

Notes: (1) Dependent variable in all columns is a binary variable showing whether the banks' control is under Savings and Deposit Insurance Fund at time t (time t+1). (2) Gov-Sec refers to the amount of government securities held by the banks as a ratio to their total assets. (3) Credits refers to the amount of loans extended to non-financial sector by the banks as a ratio to their total assets. (4) "Asian Crises" is a binary variable equal to 1 between july 1997-December 1997, "Russian Crises" is a binary variable equal to 1 between August 1998 and December 1998, the Earthquake is a binary variable equal to 1 between August 1999 and December 1999, "Stand-By" is a binary variable equal to 1 between January 2000 and June 2000 and "2001 Crises" is a binary variable equal to 1 between December 2000 and December 2002. (5) Robust standard errors clustered for year and bank id are presented in parentheses. '+ significant at 10%; * significant at 5%; ** significant at 1%.

Table 6: The Determinants of Profits to Asset Ratios of the Banks that are not Taken Over By SDIF

	'(1)	'(2)	'(3)	(4)	(5)	(6)
Gov_Sec	0.002	0.002	0.003	0.001	0.001	0.001
	'(0.001)**	'(0.001)**	'(0.000)**	'(0.001)	'(0.001)	'(0.001)
Private Credit	0.006	0.010	0.009	0.005	0.009	0.008
	'(0.006)	'(0.007)	'(0.006)	'(0.004)	'(0.005)	'(0.005)
Gov_Sec*Asian Crisis	0.019	0.024	0.027	0.013	0.018	0.018
	'(0.016)	'(0.017)	'(0.018)	'(0.015)	'(0.016)	'(0.016)
Gov_Sec*Russian Crisis	0.034	0.036	0.039	0.030	0.033	0.036
	'(0.011)**	'(0.012)**	'(0.011)**	'(0.009)**	'(0.010)**	'(0.010)**
Gov_Sec*Earthquake	-0.038	-0.036	-0.036	-0.020	-0.019	-0.018
	'(0.013)**	'(0.014)**	'(0.013)**	'(0.009)*	'(0.009)*	'(0.009)*
Gov_Sec*Stand-By	-0.006	-0.006	0.000	0.012	0.012	0.016
	'(0.008)	'(0.008)	'(0.008)	'(0.006)*	'(0.004)**	'(0.003)**
Gov_Sec*Crisis	0.004	0.004	0.000	0.000	0.002	0.010
	'(0.013)	'(0.014)	'(0.015)	'(0.015)	'(0.017)	'(0.017)
Private Credit*Asian Crisis	-0.014	-0.011	-0.010	-0.012	-0.010	-0.009
	'(0.008)	'(0.009)	'(0.008)	'(0.007)	'(0.008)	'(0.007)
Private Credit*Russian Crisis	-0.014	-0.012	-0.012	-0.020	-0.019	-0.017
	'(0.008)	'(0.009)	'(0.008)	'(0.010)*	'(0.010)	'(0.010)
Private Credit*Earthquake	-0.040	-0.038	-0.039	-0.037	-0.035	-0.035
	'(0.008)**	'(0.008)**	'(0.007)**	'(0.014)**	'(0.014)**	'(0.013)**
Private Credit*Standby	0.014	0.016	0.013	0.019	0.021	0.017
	'(0.012)	'(0.012)	'(0.011)	'(0.014)	'(0.014)	'(0.013)
Private Credit*2001 Crises	-0.012	-0.010	-0.015	-0.020	-0.017	-0.015
	'(0.015)	'(0.017)	'(0.019)	'(0.013)	'(0.013)	'(0.012)
Asian Crisis	0.012	0.002	-	0.012	0.002	-
	'(0.003)**	'(0.003)	-	'(0.004)**	(0.002)	-
Russian Crisis	0.011	0.005	-	0.013	0.008	-
	'(0.004)**	'(0.002)*	-	'(0.006)*	'(0.006)	-
Earthquake	0.029	0.024	-	0.026	0.021	-
	'(0.006)**	'(0.004)**	-	'(0.008)**	'(0.008)**	-
Stand-By	-0.006	-0.009	-	-0.010	-0.013	-
	'(0.005)	'(0.004)*	-	'(0.007)	'(0.005)*	-
Crisis	0.001	-0.016	-	0.003	-0.014	-
	'(0.003)	(0.015)	-	'(0.003)	(0.020)	-
Lagged Dependent Variable	Yes	Yes	Yes	Yes	Yes	Yes
Lagged Independent Variable	-	-	-	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	-	Yes	-	-	Yes	-
Month Fixed Effects	-	-	Yes	-	-	Yes
Observations	9474	9474	9474	9481	9481	9481

Notes: (1) Dependent variable in all columns is the banks' flow profits as a ratio to their total assets at time t. Sample excludes the banks under SDIF at time t. (2) Gov-Sec refers to the amount of government securities held by the banks as a ratio to their total assets. (3) Credits refers to the amount of loans extended to non-financial sector by the banks as a ratio to their total assets. (4) "Asian Crises" is a binary variable equal to 1 between july 1997-December 1997, "Russian Crises" is a binary variable equal to 1 between August 1998 and December 1998, the Earthquake is a binary variable equal to 1 between August 1999 and December 1999, "Stand-By" is a binary variable equal to 1 between January 2000 and June 2000 and "2001 Crises" is a binary variable equal to 1 between December 2000 and December 2002. (5) Robust standard errors clustered for year and bank id are presented in parentheses. '+ significant at 10%; * significant at 5%; ** significant at 1%.

Table 7: The Determinants of Equity to Asset Ratios of the Banks that are not Taken Over By SDIF

	'(1)	'(2)	'(3)	(4)	(5)	(7)
Gov_Sec	0.000	0.000	0.000	-0.001	0.000	0.000
	'(0.001)	'(0.001)	'(0.001)	'(0.001)	'(0.001)	'(0.001)
Private Credit	0.005	0.008	0.009	-0.014	-0.016	-0.015
	'(0.008)	'(0.012)	'(0.011)	'(0.007)	'(0.011)	'(0.011)
Gov_Sec*Asian Crisis	0.010	0.008	0.008	0.007	0.003	0.002
	'(0.015)	'(0.016)	'(0.015)	'(0.013)	'(0.015)	'(0.014)
Gov_Sec*Russian Crisis	0.021	0.019	0.020	0.013	0.010	0.011
	'(0.014)	'(0.014)	'(0.014)	'(0.011)	'(0.011)	'(0.011)
Gov_Sec*Earthquake	-0.031	-0.032	-0.030	-0.013	-0.015	-0.016
	'(0.005)**	'(0.005)**	'(0.006)**	'(0.002)**	(0.002)**	'(0.002)**
Gov_Sec*Stand-By	0.024	0.023	0.019	-0.063	-0.065	-0.067
	(0.024)	(0.024)	(0.020)	'(0.007)**	'(0.012)**	'(0.013)**
Gov_Sec*Crisis	0.015	0.016	0.017	0.009	0.012	0.018
	'(0.019)	'(0.019)	'(0.020)	'(0.019)	'(0.012)	'(0.012)
Private Credit*Asian Crisis	0.021	0.018	0.018	0.031	0.029	0.028
	'(0.010)*	'(0.011)	'(0.010)	'(0.008)**	'(0.010)**	'(0.010)**
Private Credit*Russian Crisis	0.029	0.027	0.026	0.029	0.028	0.028
	'(0.009)**	'(0.009)**	'(0.009)**	'(0.007)**	'(0.008)**	'(0.008)**
Private Credit*Earthquake	0.042	0.040	0.037	0.044	0.043	0.039
	'(0.009)**	'(0.010)**	'(0.010)**	'(0.008)**	'(0.011)**	'(0.011)**
Private Credit*Standby	-0.008	-0.009	-0.010	-0.027	-0.028	-0.027
	'(0.013)	'(0.014)	'(0.014)	'(0.008)**	'(0.010)**	'(0.010)**
Private Credit*2001 Crises	0.004	0.002	0.003	0.001	0.003	0.004
	'(0.019)	'(0.019)	'(0.019)	'(0.015)	'(0.018)	'(0.017)
Asian Crisis	-0.015	-0.012	-	-0.019	-0.016	-
	'(0.005)**	'(0.005)*	-	'(0.005)**	'(0.005)**	-
Russian Crisis	-0.013	-0.009	-	-0.013	-0.009	-
	'(0.005)**	'(0.005)	-	'(0.004)**	'(0.004)*	-
Earthquake	-0.012	-0.009	-	-0.018	-0.013	-
	'(0.004)**	'(0.003)**	-	'(0.003)**	'(0.002)**	-
Stand-By	0.002	0.006	-	0.017	0.023	-
	'(0.004)	(0.040)	-	'(0.002)**	'(0.003)**	-
Crisis	-0.004	-0.016	-	-0.006	-0.016	-
	'(0.005)	(0.005)	-	'(0.005)	(0.012)	-
Lagged Dependent Variable	Yes	Yes	Yes	Yes	Yes	Yes
Lagged Independent Variable	-	-	-	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	-	Yes	-	-	Yes	-
Month Fixed Effects	-	-	Yes	-	-	Yes
Observations	9474	9474	9474	9481	9481	9481

Notes: (1) Dependent variable in all columns is the banks' shareowners equity as a ratio to their total assets at time t. Sample excludes the banks under SDIF at time t. (2) Gov-Sec refers to the amount of government securities held by the banks as a ratio to their total assets. (3) Credits refers to the amount of loans extended to non-financial sector by the banks as a ratio to their total assets. (4) "Asian Crises" is a binary variable equal to 1 between july 1997-December 1997, "Russian Crises" is a binary variable equal to 1 between August 1998 and December 1998, the Earthquake is a binary variable equal to 1 between August 1999 and December 1999, "Stand-By" is a binary variable equal to 1 between January 2000 and June 2000 and "2001 Crises" is a binary variable equal to 1 between December 2000 and December 2002. (5) Robust standard errors clustered for year and bank id are presented in parentheses. '+ significant at 10%; * significant at 5%; ** significant at 1%.