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THE STRUCTURE OF THE TURKISH BANKING
SECTOR AFTER THE 2000-2001 CRISIS:
AN EMPIRICAL INVESTIGATION

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Working Paper No. 0709

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Abstract

This paper aims to test the balance sheet effects of the 2000 and 2001 financial crises on the Turkish banking system. The analysis employs panel data for 54 banks that covers the disinflation periods of 2001-2004. In order to account for the size and the ownership structure, dummy variables are used. Changes in macroeconomic conditions are explained by a set of macroeconomic variables, such as GDP growth rate, annual inflation rate and average interest rates on government securities. Some banking sector specific explanatory variables are also included. The panel regression results reveal that the banks in Turkey have been restructuring their asset management and utilizing the advantages of a competitive environment in the sector. Moreover, the disinflation process in Turkey positively influences the profit margin of the banks operating in the 2001-2004 period.

ملخص

2001-2004	2001 2000	54
		2004-2001

1. Introduction

The banking sector constitutes an immense part of the Turkish financial system. Many of the transactions and activities taking place in both money and capital markets are carried out by banks. However, an unfavorable macroeconomic atmosphere caused by macroeconomic instability, persistent inflation, severe fiscal imbalances and balance of payment difficulties increases market and credit risk which in turn complicate bank management.¹ This condition is intensified if the Turkish banking system lacks a prudent regulatory environment.²

Turkey adopted a comprehensive disinflation program at the beginning of 2000. The main aims of the program were tight fiscal and monetary policies, structural reforms and the use of a pre-determined exchange rate path as a nominal anchor. The disinflation program had a major impact on banks' balance sheets³. Firstly, with the initial sharp decline in market interest rates and the expectation of a further drop in these rates, the banks reduced deposit and lending rates. The banks also increased their exposure to fixed rate Treasury securities during this period. In addition, the pre-announced exchange rate path and the real appreciation of the Turkish lira meant a lower cost of funding for foreign currency liabilities. As a result, a number of banks borrowed in short-term foreign currency terms and lent in Turkish lira for longer terms. This led to a sharp increase in maturity mismatch and foreign currency open position of the private banks.

The composition of the asset structure of the banking sector changed significantly during 2000, with an increase in the share of loans and a decline in liquid assets. Unlike the change in the currency composition of deposits, the currency composition of loans increased in favor of the Turkish lira. As a result of these changes, the exposure of the banking sector to liquidity, interest rate and exchange rate risks increased during 2000. The increasing interest rate, exchange rate and credit risks towards the end of 2000, adversely affected the Turkish Banking System because of the short term-maturity structure of the financial resources used in the sector, the widening open positions, and expanding credit.⁴ The declining confidence of foreign investors in the economic recovery program prepared the grounds for capital outflow in 2001 (Celasun, 2002:19).

The outflow of foreign funds from Turkey and the sharp increase in T-bill rates led to financing difficulties by some private and state banks. The subsequent November 2000 crisis led to a significant erosion of the capital base of the banking sector revealing the fragility of the system. The loss of credibility of the exchange rate regime and finally the abolition of the exchange rate peg in February 2001 further hit the already weak banking sector. The market value of the banks' domestic securities portfolio declined sharply as a result of the increase in secondary market interest rates during the crisis period (see BRSA, 2001, 2002).

Following the crisis, the government adopted a new program "Transition to a Strong Economy" with a strategy strongly based on market-orientation and openness to the world economy.⁵ An important pillar of the program consisted of a renewed effort to eliminate

¹ See IMF (1998, p.118) and Alper et al (2001a, b, p.81) for a comprehensive summary of the structure of the Turkish banking sector prior to the year 2000.

² See Akçay (2003) for an excellent summary of the regulatory framework and the operating environment of the Turkish banking system.

³ For further information on the disinflation program in the structure of the Turkish Banking Sector, see Inan (1999, 2000), Babuşcu et al (2000), Tunay and Uzuner (2000), Selçuk and Yeldan (2001), Selçuk and Ertuğrul (2001, 2002), Alper et.al (2001a,b) and Ertuğrul and Selçuk (2002).

⁴ See Alper et al. (2001a,b) and Ersel (1999, 2001).

⁵ The program is available at the following website: www.tcmb.gov.tr

structural weaknesses that had not been fully tackled by the 2000 program, particularly by stronger governance and good economic management. The key elements in the banking area included a deep financial restructuring of state banks, measures to facilitate the participation of private capital in the strengthening of the private banking system and further improvement in banking regulation and supervision.⁶

As a result of the financial crises experienced in November 2000 and February 2001, the government also initiated a comprehensive “Banking Sector Restructuring and Rehabilitation Program”.⁷ That envisaged convergence of the regulatory framework to international standards as well as restructuring and recapitalization of the state banks. As a result, the banking system started to restructure their portfolios away from the government securities, thus enabling commercial and consumer lending to start growing more normally. There were notable changes in the economic policies implemented in May 2001 following the letter of intent submitted to the International Monetary Fund (IMF). Inflation was slowed down due to this stability program. Annual increases consistently decreased to 16% as of December 2004. Growth rates indicated that the Turkish economy recovered rapidly and remarkably. The economy grew by 7.8% in 2002, 5.9% in 2003 and 9.9% in 2004.

The question of how the balance sheets of the banking sector are affected during a period of disinflation has been the subject of various cross country and single country studies. There has been a recent increase in the amount of empirical research on the banking sector using panel regressions on cross-country data sets. (See for example, Demirgüç and Huizinga, 1999; Claessens et al., 1998; and Eichengreen and Rose, 1998 among others). In the literature, it is suggested that there would be a decrease in the income of banks gained from demand deposits due to the fact that inflation lowers the time value of money.⁸ Among the studies, which consider a single country case, Van Rijckeghem (1999) proposes that Turkish banks are widely seen as potential losers with a stabilization program because the exchange risk premium on government domestic currency denominated debt would fall and because banks would lose inflationary revenues from demand deposits. In her paper, Van Rijckeghem shows that contrary to a review of cross-country experience, banks are likely to gain from stabilization, both because of the presence of a large maturity gap and because of increased financial intermediation. Alper et al (2001a, b) claimed that the high rate of public borrowing and inflation in Turkey would decrease if the current stability program was successfully pursued and these two components would narrow the high interest margins and decrease the income earned through open positions. An examination of the implementation of the 2000 program reveals that this expectation was partly realized. According to Inan (1999, 2000), during the disinflation period, earnings from securities and demand deposits income decreased, while total loan demand commission and transaction income increased. Alper et al (2001a, b) suggested that uncertainty in economy would decrease the banking sector earnings.

The principal aim of this study is to econometrically test the effects of the disinflationary environment on the banking sector using the consolidated balance sheet analyses and bank based data. This paper attempts to define the structure of the banking sector through descriptive statistics and panel regressions. The findings of the study carried out by Alper et al (2001a, b) formed the basis of the econometric model used in this paper. Alper et al (2001a, b) conducted an econometric study to measure the performance of the banking sector with the panel data estimation method using the data of 52 banks in the banking sector during

⁶ For criticism of the program, see Yeldan (2001) and Yeldan and Ertugrul (2003).

⁷ See Alper et al (2001a,b), and Neyaptı and Dinçer (2000, 2005), IMF (1999; 2005) country reports for the measures to strengthen and regulate the banking sector.

⁸ See Van Rijckeghem, (1999), IMF (1999) and Inan (1999, 2000).

a period of high inflation (1988-1999). Further research was conducted on Turkey by Yigit (2005), which concentrated mostly on the disinflation environment after the 1988-1999 period. However, our aim is to model the Turkish banking sector after the crises and during the EU integration process.

In this paper, the cross section and time series data of 54 banks were transformed into a panel data set in a way that will cover the disinflation periods of 2001-2004 in order to analyze the performance of the banking sector. Specifically, this study aims to emphasize that crises and inflation changed the balance sheet structure of the banks and Turkish banks began to operate more profitably after the restructuring program of the banking sector. The database is taken from the “Financial Tables Annual – According to Accounting Standards” periodicals provided by the Banks Association of Turkey. Macroeconomic data from the database of the Central Bank of the Republic of Turkey was also utilized.

The effect of the size and the ownership structure, with greater emphasis on ownership structure of the Turkish banking sector, was observed by making use of the dummy variables. In addition, a set of macroeconomic variables such as gross domestic product growth rate, annual consumer price index inflation rates and government security average interest rates were included in the model in an attempt to explain the changes in macroeconomic conditions. These macro variables were multiplied with ownership dummies and included in the panel regression model. Moreover, some specific banking sector indicators are used in a multiplicative form or alone.⁹

The organization of the paper is as follows. In Section 2, the structure of the Turkish banking system is analyzed with regard to the historical development of the Turkish banking. The effect of the new regulatory system after the 2001 crisis and the key changes implemented in the banking sector is summarized. In Section 3, the effects of the banking sector restructuring program on the asset, loan and deposit structure of the Turkish banking sector is analyzed. In Section 4, we attempt to define the structure of the banking sector through descriptive statistics and the estimated panel econometric model for the period of 2001-2004. Finally, in Section 5, the conclusion and some policy implications are discussed.

2. Development of the Turkish Banking Sector

Since the 1980s, the Turkish banking sector has experienced significant expansion and development regarding the number of banks, level of employment, diversification of services and development of technological infrastructure. The number of banks increased from 43 in 1980 to 66 in 1990 and to 79 by the end of 2000. Total employment in the banking sector increased from 125,000 in 1980 to 154,000 in 1990, to 170,000 in 2000 and decreased to 138,666 in the mid of 2006. (see Table 1). As of June 2006, the number of banks operating in the banking sector was 47. The increasing trend in the number of branches and employees continued in the second quarter of 2006. Compared to December 2005, the total number of branches reached 6,473 by increasing 226. The number of branches in state-owned deposit banks, foreign banks, privately-owned deposit banks and in development and investment banks increased by 12, 155, 56 and 3, respectively. The number of branches per bank was 682 in state-owned deposit banks, 233 in privately-owned deposit banks and 35 in foreign banks.

Banking sector legislation and regulations were designed in line with international best practice. In particular, Banking Law No. 4398 (effective as of June 1999) delegates the Banking Regulation and Supervision Agency (BRSA) as the independent authority to

⁹ See Alper et al. (2001a,b) for the similar panel specification.

regulate and supervise the banking sector. The BRSA started to operate in August 2000. Despite all these positive developments, however, the Turkish banking sector has moved away from traditional banking activities. Five banks under the management of the Saving Deposit Insurance Fund (SDIF) were merged as Sümerbank bringing the number of banks to 74 by mid-May of 2001. Of these 74 banks, 56 banks are deposit money banks and 18 are investment and development banks. Of the 56 deposit money banks, 4 are state banks, 26 are private domestic banks, 18 are private foreign banks and 8 are managed by the SDIF. The number of foreign banks increased from 4 in 1980 to 18 in 2000.

The regulation published on the 27th of June 2001 in the Official Gazette determined the essence of the establishment and activities of banks. This regulation covers the organizational structure of banks, lending principles and procedures, definitions of indirect shareholding, indirect credit and indirect participation, and ratios of non-cash credit taken into account in calculation of credit limits [see BRSA, Banking Sector Reform: progress report (2001:8)]. According to the fifth article of the regulation, the founders of a bank, real or legal persons, must prove with a document obtained from the Trade Court that they have not previously gone bankrupt. The same article says that they must prove that they did not have more than a 10% share in a financial institution that was liquidated. This kind of article limits the establishment of a bank. On the other hand, the capital of a newly established bank cannot be less than 50 trillion Turkish Lira, so the founders are required to be financially powerful.

In 2003, the banking sector was composed of 3 public, 18 private, 14 foreign and investment, and 2 SDIF banks in Turkey. Although Ziraat Bankası (Agriculture Bank) and Halk Bankası (Peoples Bank) were established in order to support farmers and tradesmen, these banks do not function differently from private banks. Investment and development banking also exists in the sector. The Turkish banking sector does not include any specialized banks. Commercial deposit banking is the basis of the system. In 2003, the number of banks and branches decreased while the number of personnel remained almost the same. The number of banks operating in the Turkish banking sector decreased from 54 at the end of 2002 to 50 as of the end of November 2003. Thirty-six of these were deposit banks and 14 were development and investment banks. Besides the decrease in the number of banks, the number of branches was also reduced by 139 to 6,077. The reason for this decline was the decrease in the number of private banks. The number of employees did not change much and was realized as 123,929 in November 2003 when compared to the end of 2002. Data show a considerable decrease in the number of employees of state banks and SDIF banks.¹⁰

As of March 31, 2004 there were 48 banks in the banking system. 35 of them were commercial and the remaining 13 were non-depository banks. As of the end of 2004, there were 5,987 branches in the banking system including those abroad; 2,025 of which belonged to state-owned commercial banks. The number of branches of privately owned commercial banks is 3,739. The number of people employed in the banking system is 127,163; 31% of which work for state-owned commercial banks and 60% for privately owned commercial banks.

Among privately owned banks there are large-scale commercial banks, which have nationwide networks of branches and provide all kinds of the banking services. There are also small- and middle-scale commercial banks that concentrated more in the populated cities and engaged more in wholesale banking. Foreign banks are divided into two groups; those that have opened branches in Turkey and those that are founded in Turkey. These banks are

¹⁰ See for the details BRSA-Banking Sector Evaluation Report (2004, p.2) and www.TBA/Statistics/Bank_Branches and Employees/December 2004.

subject to the same regulations as the other commercial banks (see Table 2 for the number of banks and branches classified in terms of the ownership of the banks).

As a result of the restructuring program state banks were reshaped and began to make profits. Similarly, with the requirements of modern banking and international competition, significant steps were taken within the framework of operational restructuring. The number of branches of the state banks was reduced although the Turkish banking sector is still over-branched and downsized when compared to the EU. Although the share of public and SDIF banks continues to decline steadily to 30%, it is still three times more than the average of the European Union. The private Banking System was also restructured as a consequence of the program. The capital structure of private banks was reshaped and their market risk was limited.

Both macroeconomic stability and structural reforms improved Turkey's ability to deal with competitive pressure and market forces within the European Union. Due to improved sovereign creditworthiness, higher economic growth, increasing domestic savings and EU-related institutional reforms during the EU-convergence process within the coming 10 to 15 years, the sector is likely to experience increased consolidation and foreign competition.¹¹

3. Effects of the Restructuring program on the Asset, Loan and Deposit Structure of the Turkish Banking Sector

As can be seen from the Table 3 below, total assets had declined for the year 2001. However just after the recovery from crisis, total assets increased sharply. While loans show such a changing pattern in terms of increases or decreases, non-performing loans increased until 2002 then it had a tendency to decline. Finally securities portfolio and deposits moved together in an upward direction.

The degree of concentration in the banking system was considerably high but has followed a downward trend recently. State-owned banks share a high portion of the market. State banks represent 34.9% of total assets, 42.4% of total deposits and 21.1% of total loans (See Table 4). However, following the restructuring efforts in the sector that reduced the size of the state in the economy, the share of state-owned banks declined in total assets but increased in total deposits.

Although there are only three state banks, one third of the assets of the Turkish banking system are controlled by the state-owned banks. When compared with privately owned banks, net profit-losses of the state owned banks is considerably less than privately owned banks, which means privately owned banks generally do a better job despite the fact that state owned banks are supported by government. State banks' total share in the financial system as of December 2004 was 34.9 %. The two state-owned banks, Ziraat Bank (the Agricultural Bank, which has a public mission to lend to farmers) and Halk Bank (which has a public mission to lend to small and medium-sized enterprises [SMEs]) account together for 27% of the Turkish banking sector (2002 year-end figures, in terms of total assets). If Vakıfbank (a special-status bank owned by foundations) is included, this rises even further to 34.9%. Furthermore, they received 42.4% of total deposits by December 2004. Loans have the highest share in balance

¹¹ To achieve EU accession, substantial amendments were made to the Banking Law in December 2003 (See Alper and Öniş (2003) and Pazarbaşıoğlu (2003) for further discussion on new amendments and revisions to the Banking law). These were primarily intended to accelerate the collection of funds from the shareholders of insolvent banks. To do this, the SDIF was legally and operationally separated from the BRSA. A number of revisions in accounting standards for banks were adopted in December 2003 (See Banks Association of Turkey (BAT) 2005 report, BRSA Working Paper (2005-5 and 2005-7), Jaeger, 2005, Yetim (2005) and Yetim and Gülhan (2005).

sheets of the banks. State and private banks supply 21% and 69% of these loans respectively as of December 2004 (See Table 4).

4. Empirical Analysis

4.1 Data

This paper uses the annual balance sheet, income statement and off-balance sheet data of the commercial banks in Turkey for the period of 2001-2004. The data is obtained from the TBA web site (www.tbb.org.tr) and annual publication of TBA "Banks in Turkey". The macroeconomic data used were obtained from the website of the Central Bank of Republic of Turkey, Electronic Data Delivery System (EDDS). The data base covers a total of 54 Turkish banks. This yields a balanced panel of 205 observations with 54 banks.

Definitions of the variables of this analysis are as follows.

TA_GDP : the proportion of total assets to gross domestic product,

LOAN_TA : the share of loans in total assets,

SEC_TA : the share of securities portfolios in total assets

LA_TA : the share of liquid assets in total assets,

DEPO_TA : the share of deposits in total assets

LOAN_DEPO : the conversion rate of deposits to loans,

FOO_TA : the share of over-due receivables in total assets

TLDEPO_FXDEPO : the proportion of deposits in foreign currency,

IBT_TA : the share of pre-tax profit loss in total assets,

OI_TA : the proportion of off-net interest income to total assets,

NII_TA : the proportion of net interest income to total assets

NP_TA : the proportion of net profit loss for the period to total assets.

In this panel data analysis we also employed three macroeconomic variables which are common for all of the 54 Turkish banks for the period 2001-2004. These are:

Y: the growth rate of the gross domestic product,

INF: the annual inflation rate of consumer price index

DIBS: the government security average interest rate.

Banks are classified according to their size and ownership structure. Banks are grouped in 4 categories by their size in our data set where size is determined by the magnitude of their total assets. The first group includes the banks whose total assets are greater than 1% (Ba) of the GDP. The second group is composed of those banks whose total assets have share of the GDP equal to 1% or greater than 0.5% (Bb). The third group consists of the banks whose assets equal 0.5% or greater than 0.1% (Bc) and the final group comprises the banks whose ratio is equal to 0.1% or less than 0.1% (Bd). The ownership structures of the banks are analyzed in five main categories as state banks (Ga), private banks (Gb), foreign banks (Gc), investment and development banks (Gd) and Fund banks (Ge). In the following section, the performance of the banking sector will be analyzed by using descriptive statistics. Since the asset quality, liquidity, profitability and income-expense structure of the Turkish banking system are useful indicators for the country's growth prospects, the data is analyzed according to these three criteria.

4.2 Descriptive Statistics

Tables 5 and 6 provide the yearly and averaged data for the 2001-2004 period covering the variables of interest related to the banking sector for respective size and ownership structure. For the asset quality of the Turkish banking system, TA_GDP, LOAN_TA, SEC_TA, LOAN_DEPO and FOO_TA are used. LA_TA and TLDEPO_FXDEPO for liquidity, IBT_TA, OI_TA, NII_TA and NP_TA are used for profitability and income-expense structure. All are reported in Tables 5 and 6.

Asset Quality

Both in terms of size and ownership criteria, state banks have the dominant role in the sector with respect to the total asset over GDP (TA_GDP). The share of loans in the total assets (LOAN_TA) has an increasing trend in the second big group of banks. It is also essential to emphasize that this ratio has increased considerably for the smaller sized banks. The structure of the bank balance sheets has changed from security portfolios (SEC_TA) to loan (LOAN_TA) as a result of the disinflation process and increased trust in the macroeconomic indicators of the economy. Furthermore, positive expectations about the economy and long run investment activities after the crisis periods have enabled banks to increase their loans. An increase in the share of loans over total assets (LOAN_TA) also indicates that banks have increased their efficiency in the economy. Due to banking facilities and ability to convert deposits to loans, private banks and foreign banks have greater power when compared with state banks within the 2001-2004 period (see Table 6).

Even though there are no considerable differences in the shares of securities in total assets (SEC_TA) when considering the size of the banks, state banks have the greatest share when ownership is taken into consideration. This is mainly due to the conversion of duty losses into treasury or government securities in the state banks by the Treasury. Table 10 shows that fund banks have an increasing trend in securities share. However, this does not reflect the real world case. The underlying reason is that even though securities portfolios remained unchanged, the total asset of the fund banks has decreased whereas the ratio of securities over total assets has increased. The main point is that the private banks have changed their balance sheet structure from securities to loans, which indicates their power in banking activities.

Liquidity

Table 5 shows that medium sized banks hold more liquid assets (LA_TA) than other banks. After the 2001 crisis and the stabilization program, medium-size banks were less risk averse. The New Banking Law increased the ratio of disponibility amount in the legal reserves. This is the main fact why medium sized banks have revised their liquidity ratios.

Profitability and Income Expense Structure

After the 2001 crisis, all banks revealed losses in their income statements in 2001 due to the inflation accounting practices. According to inflation accounting, monetary loss was a material balance in their income statements. Moreover, provisions for loans were set in 2001 and resulted in an overall loss in the system. Apart from the smallest size banks, the banking system has an increasing net profit over assets. Furthermore, data verifies that medium size banks are more efficient in terms of net profit. As the size of the bank decreases, the share of net interest income increases. The data revealed that the total interest income of the banks has increased as the result of the prominent positive contribution of banking activities and improvement in the economy during the disinflation period.

Even though foreign banks constitute the smallest group, their shares of before-tax profits as well as the net interest income are the largest. Other interest income increased while net interest income had a downward slope during the disinflation period.

4.3 Empirical Model

In this section, we introduce our empirical models. Our aim is to determine three dependent variables [$X = \{NII_TA, LOAN_TA, SEC_TA\}$] by using bank size and ownership intercept dummies, and their interactions with the macroeconomic variables [$Z = \{Y, INF, DIBS\}$]. We also include some banking sector specific variables [$C = \{SEC_TA, LOAN_TA, DEPO_TA, LA_TA, FOO_TA\}$]. The general form of our regression model over the course of the 2001-2004 period is:

$$X_{it} = c_i + \sum_{k=a}^c B_{ik} + \sum_{j=A}^D G_{ij} + \sum_{j=A}^D G_{ij}Z_{it} + \sum_{j=A}^D \sum_{t=2001}^{2004} G_{ij}C_{it} + \sum_{t=2001}^{2004} C_{it} + \varepsilon_{it} \quad (EQ1)$$

Where $k = a, b, c$ indexes size, $j = a, b, c, d$ indexes ownership, $t = 2001, 2002, 2003, 2004$ indexes time. The it subscripts, which indicate i^{th} bank in year t , are shown ($i = 1, 2 \dots 54$; $t = 2001, 2002, 2003, 2004$) for above equation. This model is estimated using E-views 5 results of which will be given in the following sub section.

4.4 Panel Data Estimates

Three panel regressions are estimated according to the three respective dependent variables, the share of net interest income in total assets (NII_TA), the share of loans in total assets (LOAN_TA) and the share of securities portfolio in total assets (SEC_TA). In these regression models, on the right side of the equation, the effects of size and ownership intercept dummies are included as explanatory variables. Our panel regressions contain a common constant value, three sizes and four ownership intercept dummies. In order to measure the effect of macroeconomic variables, Y, INF, and DIBS in gross domestic product are included in the model. These macro variables can enter the panel regressions as ownership interaction dummies. (e.g., ownership multiplied by growth of gross domestic product, inflation, DIBS rate respectively are as follows: GAY, GBY, GCY, GDY, GAINF, GBINF, GCINF, GDINF, GADI, GBDI, GCDI, and GDDI). Some additional banking sector specific explanatory variables are also included: LOAN_TA, SEC_TA, DEPO_TA, FOO_TA and LA_TA and among them only securities are multiplied by the ownership dummies and used in the model as interaction dummies (GASEC, GBSEC, GCSEC and GDSEC). When balance sheet structures are analyzed with respect to ownership, share of loan and deposit in total assets do not vary. However, shares of securities in total assets differ considerably, which is why securities are multiplied by ownership dummies and used as interaction dummies to identify their individual magnitudes over the time period concerned here. The three econometric models that we estimate are given below. The it subscripts, which indicate i^{th} bank in year t , are not shown ($i = 1, 2 \dots 54$; $t = 2001, 2002, 2003, 2004$) for each regression.

$$NII_TA = c + \sum_{k=a}^c B_k + \sum_{j=A}^D G_j + \sum_{j=A}^D G_j Z + \sum_{j=A}^D \sum_{t=2001}^{2004} G_j C_t + \sum_{t=2001}^{2004} C_t + \varepsilon \quad (EQ 2)$$

$$LOAN_TA = c + \sum_{k=a}^c B_k + \sum_{j=A}^D G_j + \sum_{j=a}^d G_j Z + \sum_{j=A}^D \sum_{t=2001}^{2004} G_j C_t + \sum_{t=2001}^{2004} C_t + \varepsilon \quad (EQ 3)$$

$$SEC_TA = c + \sum_{k=a}^c B_k + \sum_{j=A}^D G_j + \sum_{j=a}^d G_j Z + \sum_{j=A}^D \sum_{t=2001}^{2004} G_j C_t + \sum_{t=2001}^{2004} C_t + \varepsilon \quad (EQ 4)$$

The first regression seeks to find the determinants of the share of net interest income in total assets during the period considered here and how ownership and size affect it. The remaining

regressions seek to find the determinants of the share of loan and security in total assets respectively, as shown in equation (3) and (4) above. The results of panel regression are given in Table 7. In each regression equation, coefficient values, the respective t-statistics and the p-values of the coefficients are reported. The standard errors are obtained from White's heteroskedasticity consistent variance covariance matrix.

Note that in this case time dimension is very small relative to the cross-sectional dimension, then, the bias is sizeable. Various panel data estimation methods were developed to eliminate this problem.¹² In future we intend to use better estimation technique to overcome this problem. We estimate all three equations twice: first with a common intercept and second with allowing for fixed effects. Then we tested whether the omitted variables were justified in the respective restricted specifications, which are given in Table 8 (a model estimated without including size and ownership dummies) and the unrestricted specification.(a model estimated with size and ownership dummies). The F ratio used for the test is,

$$F(n-1, nT-n-K) = \frac{(R_u^2 - R_p^2)/(n-1)}{(1 - R_u^2)/(nT-n-K)}$$

Where u indicates the unrestricted model and p indicates the restricted model, n is the number of observations, T is the time period and K is the number of coefficients (Greene, 2000). The F statistics for testing the joint significance of the models for a comparison of Tables 7 and 8 are given in Table 9.

Based on the results of all three equations regarding the size and ownership dummies, the F tests are in favor of the models in Table 7. The evidence for testing the common significance of the fixed effects versus the constant coefficient models favors the fixed effect model in Table 7. Consequently, we only report results for the fixed effect regressions.

4.5 Overall Results

When we examined the regression results given in Table 7, first it is found that size and ownership dummies are all statistically significant in the first,, second and the third panel equations with only one exception in the first panel which is Bc. In the first panel equation, negative contributions of size effect on net interest income are observed. When the size of the bank gets smaller, the positive contribution of size dummies to the share of loan and securities in total asset lessens (see second and third panel equation). When the ownership structure of the Turkish Banks were concerned, in the first panel equation, we found that the contribution of foreign banks to the net interest income margin is much stronger than that of the state banks, investment and development banks. The private banks have the smallest negative impact on net interest income margin and the share of loan. The state banks have the largest positive contribution to the share of loan as it is expected.

When three macroeconomic variables interacting with ownership structure were considered, it is observed that all the coefficients are statistically significant except for the DIBS interacting with foreign banks (see the first panel equation). Almost all have expected signs except for the effect of the GDP growth of private banks, inflation of private banks and DIBS of state banks in the first equation. The negative contribution of the GDP growth rate of private banks on the net interest income is quite anticipated due to the soared non-performing loans immediately after the banking sector crises. This resulted deterioration of the balance sheet of most private banks and inevitably provisions set for follow up loans by the monetary authority immediately after the crisis (see Metin-Özcan and Şimşek, 2005). Regarding the

¹² See Anderson and Hsiao (1981) for an instrumental variable (IV) estimation, Arrelano and Bond (1991) for a generalised method of moments (GMM) estimation.

state banks' interactive dummies, any small change in growth or inflation has a great impact on the net interest income. Regarding the private banks interacting with inflation has negative contribution to net interest margin while the other banks have positive impact. All banks that are interacting with inflation have positive impact on both share of loan and share of securities except the state banks which have negative contribution on loan share. The private and the state banks interacting with DIBS have positive effects on the net interest income margin and the share of the loan respectively. All the other banks interacting with DIBS have negative impact on net interest income margin, the share of loan and the share of securities. This is due to the fact that DIBS rates have reached at their zenith point in 2001. From 2001 to 2004, this impact was gradually eliminated as both inflation and DIBS decreased. Therefore, a reduction in inflation or interest rate had a diminishing impact on net interest margin during this period. This is also confirmed by the data showing that DIBS declined due to a decrease in the high profitability of holding government securities, the structure of bank balance sheets changed and deposits shifted to loans. It is also noteworthy to emphasize that DIBS were lower than interest rates on loans during the period of 2001-2002. However, banks preferred to hold more government securities, a greater share of their total assets than loans in their balance sheets. This can be explained by the following reasons. Firstly, it was very risky for the banks to increase the loan share in their balance sheet because the pay back ratio of loans was very low in 2001. Secondly, a high portion of the loans were under legal follow up. In addition, interest accrual for follow up loans was not allowed due to bank accounting regulations. However, securities portfolios are always subject to interest accrual and there is no risk due to government commitment. As a result, holding securities is much more favorable than lending for the banks' balance sheet structure.

Due to macroeconomic improvements, positive expectations and long run investment activities, the share of securities portfolios in the net interest margin decreased while the share of loans increased starting in 2002 and this trend still continues. In fact our panel estimations conform to these economic and financial developments Where the Turkish banking sector specific variables are concerned, these are confirmed by the data and observed in the first panel equation. It was also observed that securities portfolios of the state and the private banks have a positive return on net interest income while a negative impact on loans over the time period considered here. It can be further observed that the magnitude of the state banks' securities portfolios has the greatest return on the net interest margin, compared with the other banks. The reason behind this finding is that the state banks have the largest securities portfolios among all the banks With respect to years, the greatest return of securities portfolios to net interest margin was observed in 2001 while loans were positive and statistically significant in 2001 and 2003. In fact, during 2001 and 2004, considerable provision was made for follow up loans; hence loans have almost no impact on the net interest income. Deposits have negative impact on the net interest income.

The second panel equation shows that the effects of the follow up loans on the share of loan in total assets have decreasing affect on loans since 2003. In the third panel equation, it is found that the share of securities portfolios and loans in total assets are negatively related, which was expected. Furthermore, even though deposits have a negative impact on the net interest margin in the first panel equation we expect that it is necessary to convert deposits to loans for efficient banking activity.¹³

5. Conclusion

This paper analyzed the structure of the Turkish banking sector, which has been experiencing a disinflation process since the 2000-2001 banking crises. The stabilization program, which

¹³ See Zaim (1995) and Isik and Hassan(2002 for technical efficiency measures for the Turkish Banking system.

had been implemented immediately after the crisis period, eliminated uncertainty in the economic environment. A descriptive analysis of the balance sheets of Turkish banks and an econometric model showed that the 2000 and 2001 crises had an unfavorable impact on the banking system. The panel regression results revealed that the banks in Turkey have been restructuring their asset management and utilizing the advantages of a competitive environment in the sector. In addition, the disinflation process in Turkey positively influenced the profit margin of the banks operating in the 2001-2004 period.

As a result of favorable expectations, macroeconomic conditions have improved since 2001. Our analysis also showed the effects of sustainable economic growth, decreased inflation and DIBS, which eventually necessitate the efficient allocation of resources by the banking sector.

Furthermore, when the banking sector is investigated, one can observe that a large number of loans were under legal follow-up and interest accrual for follow up loans was not allowed by the international accounting standards in the 2001-2002 periods. However, securities portfolios were always subject to interest accrual and therefore, there is no risk attached to them due to the government commitment. As a result of overall macroeconomic improvement positive expectations and long term investment activities, the share of loans increased during the period considered here, while the share of securities portfolios in total assets decreased. With the low inflation environment, the liquidity of the system increased and this allowed banks to expand their loan portfolios along with the deposit resources.

In future, the share of the interest income provided by loans will have a significant role in income statement. Credit risk will become an important issue in the sector. Instead of securitization and maturity mismatch risk, foreign currency and credit risk should be given more consideration. Furthermore, the panel regression results emphasize that DIBS had a decreasing trend during the 2001-2004 period. Therefore, new economic conditions require the existing banks to compete with each other for efficient asset management. Economies of scale will also become an important issue. Competition, on the other hand, will require diversifying banking activities. In addition, the intermediary function of the banks will increase.

We expect structural changes in the banking system such that total asset structures of the banks will probably change towards loans. Consumer and commercial loans will increase as the cost of using loans decreases. Furthermore, traditional banking activities will be modified by more systematic banking activities which require scale activities such as non-interest related activities.

Our empirical findings also suggest that smaller sized banks will suffer due to inefficient asset management. On the other hand, foreign banks should grow in size and in the form of direct investment in order to compete in the retail banking system. Therefore, increasing competition in the sector and diminishing profit margins will force banks to use their resources efficiently.

Considering ownership, foreign banks seem to do better than state and private banks in the non-interest income related activities. The data also shows that only foreign banks had a net profit after 2002 while other banks reveal net non-interest expenses in their income statement. This in fact proves the existence of the non-interest income activities of the foreign banks. In short, heavy competition in the sector necessitates that off-balance sheets and non-interest related activities become more attractive.

To sum up, the European integration process and the interest of foreign investors in the sector together with the appetite of foreign banks to gain power in the sector will lead to mergers and the acquisition of smaller sized banks. The existence of competition in the financial

market creates additional spillover effects, which greatly increase the potential gains from policy coordination, new acquisitions and mergers.

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Table 1: Turkish Banking Sector: Banks, Branches and Employees

	1980	1990	1994	1999	2000	As of June 30, 2006
Number of Banks	43	66	67	81	79	47
Number of Branches	5,954	6,560	6,087	7,691	7,837	6,473
Personnel Employed	125,312	154,089	139,046	173,988	170,401	138.666

Source: Banking Regulation and Supervision Agency (BRSA) and Banks Association of Turkey (BAT)

Table 2: Number of Banks and Branches in the System *

	2004	2004	2005	2005	2006	2006+
	Banks	Branches	Banks	Branches	Banks	Branches
Deposit banks	35	6,088	34	6,228	34	6,451
State-owned banks	3	2,149	3	2,035	3	2,047
Privately-owned banks	18	3,729	17	3,799	17	3,954
Banks in the Fund**	1	1	1	1	1	1
Foreign banks	13	209	13	393	13	449
Development and inv. Banks	13	18	13	19	13	22
Total	48	6,106	47	6,247	47	6,473

Notes: * Branches in foreign countries and Turkish Republic of Northern Cyprus are included.

** Banks under the deposit insurance fund

+June 2006

Source: Banking Regulation and Supervision Agency (BRSA) and Banks Association of Turkey

Table 3: Total Assets, Loans and Non-Performing Loans, Securities Portfolio and Deposits of the Turkish Banks before and After the Restructuring Program

USD Million	Before Program					After Program			
	1997	1998	1999	2000	2001	12.2001**	12.2002**	12.2003**	12.2004**
Total Assets	96.645	117.767	133.535	154.955	119.974	116.661	130.120	178.880	228.332
Loans	40.349	41.997	36.891	47.404	29.090	23.899	29.967	47.442	74.060
Non-performing Loans*	1.014	3.248	4.309	5.895	6.123	9.595	6.381	6.182	4.695
Securities Portfolio	13.333	17.699	26.653	27.485	41.725	41.059	52.680	76.545	92.157
Deposits	52.552	69.630	80.316	87.680	76.686	75.938	84.413	111.268	142.363

Notes: *: Data reflecting gross non-performing loans.

** : Data reflecting three-staged audit and inflation accounting results.

Source: Source: Banking Regulation and Supervision Agency (BRSA) and Banks Association of Turkey (BAT)

Table 4: Asset, Loan and Deposit of the Turkish Banking Sector Balance Sheet with Regard to their Ownership Structure

	Share in Total				Share in Total				Share in Total			
	Assets (%)				Loans (%)				Deposits (%)			
	2001	2002	2003	2004	2001	2002	2003	2004	2001	2002	2003	2004
State-owned Banks	31.7	31.9	33.3	34.9	21.9	15.6	18.3	21.1	33.7	35.1	38.5	42.4
Private Banks	52.9	56.2	57.0	57.4	59.4	69.4	69.1	68.9	54.8	58.4	56.8	55.1
SDIF	7.7	4.4	2.8	0.6	5.2	2.0	1.1	0.0	9.5	4.2	2.0	0.0
Foreign	3.1	3.1	2.9	3.4	3.7	4.4	4.1	4.7	2.0	2.2	2.7	2.5
Inv. & Dev.Banks	4.6	4.4	4.0	3.7	9.8	8.6	7.4	5.3	-	-	-	0.0
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100

Source: Banking Regulation and Supervision Agency (BRSA) and Banks Association of Turkey (BAT)

Table 7: Panel Regression

VARIABLE	NI TA (EQ 1)	LOAN TA (EQ 2)	SEC TA (EQ 3)
CONSTANT	36.24 [139.93] *	0.35 [42.26]*	0.71[70.49]*
SIZE DUMMIES			
Ba	-4.41 [3.04]*	0.19[13.65]*	0.16[6.06]*
Bb	-1.69 [4.32]*	0.16[37.68]*	0.11[8.93]*
Bc	3.09 [1.17]	0.06[4.10]*	0.05[2.38]*
OWNERSHIP DUMMIES			
Ga	-25.29 [16.41]*	0.98 [38.40]*	-0.32 [33.49]*
Gb	-5.82 [2.94] *	-0.03 [2.02]*	-0.52 [74.29] *
Gc	-41.56 [41.93]*	0.20[13.04]*	-0.42[58.91]*
Gd	-34.88 [19.64]*	-0.11 [6.66]*	-0.34[26.89]*
MACRO VARIABLES			
Interactive Dummies			
Y*Ga	255.79 [7.58]*	-5.02 [63.57]*	2.79 [25.93]*
Y*Gb	-233.02 [35.60]*	3.39 [29.10]*	2.23[23.91]*
Y*Gc	218.40 [10.72]*	2.63 [19.80]*	4.78[39.79]*
Y*Gd	314.13 [35.65]*	5.19[26.27]*	0.50[2.25]*
INF*Ga	236.12 [8.25]*	-3.14 [0.07]*	3.23[35.01] *
INF*Gb	-179.80 [50.18]*	1.58 [0.08]*	2.28 [22.39]*
INF*Gc	53.49 [2.71]*	1.92 [0.12]*	4.87[41.13]*
INF*Gd	76.17 [8.11]*	3.27 [0.14]*	1.82 [9.57] *
DIBS*Ga	-130.22 [8.66] *	1.14 [19.50] *	-1.51 [25.74] *
DIBS*Gb	112.98 [52.34] *	-0.65 [16.38] *	-0.83 [12.32] *
DIBS*Gc	14.8 [1.13]	-1.15 [12.75] *	-2.53 [35.35] *
DIBS*Gd	-44.08 [8.95] *	-1.60 [21.63] *	-0.92 [8.52] *
INTERACTION DUMMIES			
SEC_TA*Ga-2001	74.76 [236.73] *	-0.96[83.55] *	
SEC_TA*Ga-2002	49.70 [54.05] *	-1.00 [446.28] *	
SEC_TA*Ga-2003	48.31[24.49] *	-1.53 [84.76] *	
SEC_TA*Ga-2004	11.69 [8.43] *	-1.22 [117.68] *	
SEC_TA*Gb-2001	31.38 [11.49] *	-0.39 [87.75] *	
SEC_TA*Gb-2002	13.91 [2.41] *	-0.74 [24.62] *	
SEC_TA*Gb-2003	-21.67 [6.36] *	-0.56 [24.32] *	
SEC_TA*Gb-2004	18.15 [2.15] *	-0.56 [10.66] *	
SEC_TA*Gc-2001	17.09 [18.49] *	-0.19 [34.73] *	
SEC_TA*Gc-2002	-24.28 [38.48] *	-0.48 [106.00] *	
SEC_TA*Gc-2003	-16.87 [10.97] *	-0.63 [31.00] *	
SEC_TA*Gc-2004	-4.69 [1.29]	-0.46 [18.80] *	
SEC_TA*Gd-2001	138.14 [138.72] *	-0.27 [23.62] *	
SEC_TA*Gd-2002	8.67 [8.26] *	-0.42 [133.97] *	
SEC_TA*Gd-2003	-6.56 [4.35] *	-0.13 [13.39] *	
SEC_TA*Gd-2004	-3.96 [4.32] *	-0.44 [49.96] *	
LOAN_TA-2001	3.52 [11.58] *		-0.54 [32.36] *
LOAN_TA-2002	-0.99 [0.61]		-0.55 [36.46] *
LOAN_TA-2003	6.20 [2.14] *		-0.66 [63.19] *
LOAN_TA-2004	2.46 [1.06]		-0.59 [158.13] *
DEPO_TA-2001	-53.22 [76.06] *	-0.11 [17.44] *	
DEPO_TA-2002	-9.98 [23.65] *	0.01 [2.04] *	
DEPO_TA-2003	-16.96 [13.33] *	-0.08 [12.76] *	
DEPO_TA-2004	2.63 [4.08] *	0.01 [2.18] *	
LA_TA-2001		-0.43 [38.53] *	-0.18 [20.15] *
LA_TA-2002		-0.48 [175.74] *	-0.43 [157.31] *
LA_TA-2003		-0.67 [48.72] *	-0.31 [205.61] *
LA_TA-2004		-0.56 [63.70] *	-0.09 [28.04] *
FOO_TA-2001		0.58[18.15] *	
FOO_TA-2002		0.04 [1.86]	
FOO_TA-2003		-0.21 [19.39] *	
FOO_TA-2004		-0.20 [21.64] *	
Adjusted R-squared	0.65	0.71	0.56
Durbin-Watson stat	1.11	0.61	0.75
Number of Observations	205	205	205

Notes: The absolute value of the t-ratios using standard deviations from the White's heteroskedasticity-consistent variance covariance matrix and their p-value are provided inside square brackets and normal brackets respectively below for each coefficient. Shaded coefficients imply insignificance at the 5% level.

Table 8: Panel Regression without Size and Ownership Dummies

DEPENDENT VARIABLE	NII_TA (EQ 1)	LOAN_TA (EQ 2)	SEC_TA (EQ 3)
EXPLANATORY VARIABLES			
CONSTANT	21.01 [102.06] *	0.60 [118.46] *	0.49 [140.65] *
MACRO VARIABLES			
Y	16.07 [3.22] *	1.25 [9.00] *	2.63 [5.16] *
INF	63.08 [13.43] *	1.54 [10.27] *	2.58 [4.70] *
DIBS	-27.13 [8.56] *	-0.93 [10.02] *	-1.54 [4.55] *
FIXED EFFECT			
SEC_TA-2001	41.79 [974.67] *	-0.33 [201.90] *	
SEC_TA-2002	2.68 [8.96] *	-0.54 [98.20] *	
SEC_TA-2003	-2.72 [15.34] *	-0.35 [154.72] *	
SEC_TA-2004	0.80 [8.80] *	-0.48 [268.67] *	
LOAN_TA -2001	-21.85 [382.34] *		-0.54 [499.76] *
LOAN_TA -2002	-14.96 [108.58] *		-0.59 [59.17] *
LOAN_TA -2003	-4.52 [14.87] *		-0.61 [97.76] *
LOAN_TA -2004	-2.84 [15.85] *		-0.63 [899.24] *
DEPO_TA-2001	-19.73 [317.13] *	-0.01 [28.32] *	0.13 [59.89] *
DEPO_TA -2002	1.39 [50.87] *	0.09 [46.24] *	0.17 [25.39] *
DEPO_TA -2003	-1.30 [13.79] *	0.01 [24.14] *	0.11 [27.96] *
DEPO_TA -2004	0.46 [34.63] *	0.07 [37.59] *	0.10 [75.52] *
LA_TA-2001		-0.47 [100.46] *	-0.25 [61.36] *
LA_TA -2002		-0.48 [147.45] *	-0.43 [61.82] *
LA_TA -2003		-0.54 [129.97] *	-0.23 [21.00] *
LA_TA -2004		-0.53 [209.31] *	-0.13 [12.58] *
FOO_TA-2001		0.41 [387.80] *	
FOO_TA -2002		0.11 [12.57] *	
FOO_TA -2003		-0.42 [31.64] *	
FOO_TA -2004		-0.43 [114.38] *	
Adjusted R-squared	0.21	0.59	0.37
Durbin-Watson stat	1.03	0.43	0.59
Number Of Observations	205	205	205

Notes: The absolute value of the t-ratios using standard deviations from the White's heteroskedasticity-consistent variance covariance matrix and their p-value are provided inside square brackets and normal brackets respectively below for each coefficient. Shaded coefficients imply insignificance at the 5% level.

Table 9. The F statistics for testing the joint significance of the unrestricted model (Table 7) versus the restricted model (Table 8)

Dependent variables	F test	F critical
NII_TA	F(53,119)=2.82	F0.01,53,119=1.66
LOAN_TA	F(53,115)=3.29	F0.01,53,119=1.66
SEC_TA	F(53,135)=1.38	F0.01,53,135=1.28

Table 5: The Descriptive Statistics of Turkish Banks (2001-2004) According to Size

VARIABLES	2001				2002				2003				2004				AVERAGE			
	Ba	Bb	Bc	Bd	Ba	Bb	Bc	Bd	Ba	Bb	Bc	Bd	Ba	Bb	Bc	Bd	Ba	Bb	Bc	Bd
TA_GDP	7.26	1.02	0.25	0.03	4.57	0.68	0.15	0.02	4.23	0.54	0.11	0.02	4.65	0.55	0.10	0.02	5.17	0.69	0.15	0.02
LOAN_TA	28.82	26.76	28.47	15.11	32.10	34.05	22.55	17.17	35.22	39.71	19.88	22.42	42.70	43.09	18.33	29.83	34.71	35.90	22.30	21.13
SEC_TA	29.92	25.29	16.95	20.77	36.64	27.78	19.92	18.77	37.82	25.78	26.68	20.94	31.70	27.19	38.07	20.68	34.02	26.51	25.40	20.29
LOAN_DEPO	32.65	20.05	60.17	42.94	38.26	28.16	54.16	33.14	45.86	37.22	42.92	50.56	58.50	44.89	41.00	75.04	43.81	32.58	49.56	50.42
FOO_TA	6.53	3.76	6.13	2.88	5.32	2.71	2.90	1.78	3.41	2.38	2.36	4.20	2.02	2.02	2.13	7.67	4.32	2.72	3.38	4.13
LA_TA	32.86	48.84	46.57	52.68	35.93	37.83	51.95	52.40	37.86	41.28	54.16	49.78	34.24	42.89	59.33	43.58	35.22	42.71	53.00	49.61
TLDEPO_FXDEPO	73.98	19.81	45.78	28.00	68.49	25.76	34.50	29.70	97.05	38.24	74.60	16.16	110.61	46.54	242.11	30.25	87.53	32.58	99.24	26.02
IBT_TA	-7.02	-2.69	-0.69	-4.53	-0.34	6.08	-3.28	-0.54	2.85	4.96	7.34	-2.89	2.73	4.09	4.38	10.21	-0.45	3.11	1.93	-4.54
OI_TA	-8.88	-11.59	-8.85	-4.73	-2.78	1.40	-0.88	-5.74	0.24	0.95	3.88	7.15	-1.03	-0.42	-1.10	-11.67	-3.11	-2.42	-1.74	-3.75
NIJ_TA	8.52	14.50	25.32	19.21	5.47	9.46	8.57	12.64	3.96	7.54	7.38	9.94	5.80	7.75	5.54	8.42	5.94	9.81	11.70	12.55
NP_TA	-7.27	-4.67	-5.05	-9.07	-0.67	5.22	0.68	-2.32	2.14	3.86	4.04	-4.46	2.04	3.70	3.26	-10.25	-0.94	2.03	0.73	-6.50

Notes: *The first group includes the banks whose total assets are greater than 1% (Ba) of the GDP. The second group is composed of those banks whose total assets have share of the GDP equal to 1% or greater than 0.5% (Bb). The third group consists of the banks whose assets equal 0.5% or greater than 0.1% (Bc) and the final group comprises the banks whose ratio is equal to 0.1% or less than 0.1% (Bd).

**Data Source: Our calculations are based on the Banking Regulation and Supervision Agency (BRSA) and the Bank Association of Turkey (TBA) data.

Table 6: The Descriptive Statistics of the Turkish Bank (2001-2004) According to Ownership

VARIABLES	2001					2002					2003				
	Ga	Gb	Gc	Gd	Ge	Ga	Gb	Gc	Gd	Ge	Ga	Gb	Gc	Gd	Ge
TA_GDP	13.23	3.31	0.26	0.42	3.03	8.15	2.15	0.15	0.26	1.68	7.70	2.20	0.14	0.22	0.99
LOAN_TA	19.93	22.65	21.46	32.51	21.38	15.39	30.21	17.06	31.39	17.85	17.45	33.54	19.92	35.47	9.81
SEC_TA	49.97	26.15	21.69	13.13	23.98	57.53	26.92	24.57	12.72	50.80	55.37	28.01	23.90	21.10	70.00
LOAN_DEPO	27.30	34.14	99.05	0.00	22.63	21.13	44.62	80.71	0.00	28.08	23.86	52.41	91.71	0.00	18.31
FOO_TA	8.90	5.70	2.16	5.37	10.13	6.81	2.31	1.38	3.24	21.27	5.18	3.02	1.47	3.64	10.02
LA_TA	25.61	45.70	55.33	34.86	49.15	24.51	42.03	55.95	41.12	57.61	34.61	41.54	56.87	38.32	78.76
TLDEPO_FXDEPO	171.31	58.15	20.68	0.00	25.63	173.67	55.90	33.04	0.00	57.24	234.57	71.47	69.32	0.00	62.30
IBT_TA	-3.86	-8.27	8.14	-4.55	-35.25	2.77	0.55	2.69	3.56	-12.3	3.16	1.27	5.22	2.28	6.34
OI_TA	-7.31	-16.39	3.18	-8.21	-10.41	-0.44	-2.40	-2.23	-0.88	-6.35	0.31	-1.33	1.25	-2.66	6.26
NIJ_TA	13.09	15.46	18.29	23.49	-8.22	6.28	5.40	11.79	12.62	4.56	5.48	4.67	6.58	11.82	2.90
NP_TA	-4.26	-8.53	0.76	-8.91	-35.15	2.08	0.76	-0.75	1.52	-12.27	2.05	0.65	2.22	-0.01	6.34

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Table 6: Cont.

VARIABLES	2004					AVERAGE				
	Ga	Gb	Gc	Gd	Ge	Ga	Gb	Gc	Gd	Ge
TA_GDP	8.28	2.27	0.18	0.20	0.45	9.34	2.48	0.18	0.27	1.54
LOAN_TA	22.08	39.37	23.77	36.30	1.37	18.71	31.44	20.55	33.92	12.60
SEC_TA	55.21	23.75	39.90	19.42	78.04	54.52	26.21	27.51	16.59	55.71
LOAN_DEPO	29.43	64.99	105.94	0.00	17.18	25.43	49.04	94.35	0.00	21.55
FOO_TA	2.90	4.41	1.90	3.63	6.27	5.95	3.86	1.73	3.97	11.92
LA_TA	32.68	41.77	57.14	38.08	88.19	29.35	42.76	56.32	38.10	68.43
TLDEPO_FXDEPO	255.62	76.58	2423.97	0.00	16.63	208.79	65.53	636.75	0.00	40.45
IBT_TA	3.28	-1.75	3.43	-2.55	19.93	1.34	-2.05	4.87	-0.31	-5.30
OI_TA	-0.64	-2.75	0.57	-8.27	8.89	-2.02	-5.72	0.69	-5.00	-0.40
NIJ_TA	5.46	5.68	4.60	9.84	15.34	7.58	7.80	10.32	14.44	3.64
NP_TA	2.44	-2.21	2.66	-3.18	19.93	0.58	-2.33	1.22	-2.65	-5.29

Notes: *Ga denotes the state banks; Gb private banks; Gc foreign; Gd investment and development banks and Ge fund banks.

**Data Source: Our calculations are based on the Banking Regulation and Supervision Agency (BRSA) and Bank Association of Turkey (TBA) data.