LIQUIDITY RISK IN BANKING SECTOR: A RATIO ANALYSIS APPLIED TO TURKISH COMMERCIAL BANKS

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ABSTRACT

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The financial crises and bank runs in the past decade increased attention to the financial systems. In Turkey as in Europe banks are main financial intermediaries and financial crises occur mostly due to realization of risks in banks. Although liquidity risk is embedded into daily operations of banks unless controlled it may take banks into insolvency and even bankruptcy. This thesis aims to examine liquidity risk structure of Turkish banking sector. As a sample the domestic commercial banks in Turkey is chosen. The risk profile of the sector is examined by using a ratio analysis. The accounting figures in balance sheets and income statements of banks are employed for statistical analysis about liquidity risk of the sector. The means of liquidity ratios among different groups of banks are compared via analysis of variance. Moreover relation between liquidity risk and return in the sector is analysed by using panel data regressions.

Keywords**:** Bank, liquidity risk, ratio analysis

ÖZ

BANKACILIK SEKTÖRÜNDE LİKİDİTE RİSKİ: TÜRK TİCARET BANKALARINDA RASYO ANALİZİ UYGULAMASI

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Geçen on yıldaki finansal krizler ve bankalara hücümlar finansal sistemlere ilgiyi arttırmıştır. Avrupada olduğu gibi Türkiye'de de bankalar en önemli finansal aracılardır ve finansal krizler çoğunlukla bankalardaki risklerin gerçekleşmesi sonucu oluşmaktadır. Likidite riski bankaların günlük işlemlerinin içinde olmasına rağmen kontrol edilmezse bankaların batmalarına bile sebep olabilir. Bu tezde Türk bankacılık sisteminin likidite riskinin incelenmesi amaçlanmaktadır. Örneklem olarak Türk ticaret bankaları seçilmiştir. Sektörün risk profili rasyo analizi kullanılarak incelenmiştir. Sektördeki likidite riski ile ilgili olarak yapılan istatistiksel analiz için bankaların bilançolarındaki ve kar-zarar tablolarındaki değerler kullanılmıştır. Değişik guruplara ayrılmış bankaların likidite rasyolarının ortalamaları varyans analizi ile karşılaştırılmıştır. Ayrıca sektördeki likidite riski ile getiri arasındaki ilişki panel veri regresyonları kullanılarak incelenmiştir.

Anahtar Kelimeler: Banka, likidite riski, rasyo analizi

To my grandmother *Müzeyyen,*

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CHAPTER 1

INTRODUCTION

Financial systems observed in world economies can be grouped according to two categories: First category involves systems which rely on strong stock markets as means of financial intermediation and second category is characterized by systems which greatly depend on banks as financial intermediaries. (Allen and Gale, 2000). The financial crises of 1990s and bank runs directed the attention to the financial systems. Especially Asian crisis emphasized the importance of domestic financial systems in developing markets. Although higher interest rates attracted foreign investors, unstable economies caused loss of confidence of investors and they started to withdraw their investments from the financial markets, so financial crises, like the case in Asia in 1998, began. Then the crisis spilled over to Russia and developing countries including Turkey (Coeure and Pisani-Ferry, 2000; Erdoğan, 2002; Keskin, 2001).

Financial problems in the banking sector of Turkey initiated after 1980s. In 1985 the government started to issue debt instruments to finance its deficit. Since there was full convertibility of Turkish lira, banks have borrowed from abroad with lower interest rates and financed Turkish government with very high interest rates in 1990s (Aydın, 2002; Erdoğan, 2002; Öniş, 1996; Özatay and Sak, 2002a). In 1994, following the Gulf War, the financial sector underwent a liquidity crisis. Deposit withdrawals by foreign and resident investors resulted in bankruptcies. The crisis affected whole banking system in a short period of time, and the government decided to provide deposit insurance for all the deposits in the banks to stop the crisis.

Banks in Turkey continued to finance budget deficit by borrowing from abroad till the end of 1990s. In 2000 the government announced a fixed exchange rate regime. The certain and favourable political and economic environment with a fixed-exchange rate regime caused an increase in the foreign exchange borrowing of banks. In the second half of 2000, the delay in the privatization program and the growing fund demand of the banks in the Savings Deposit Insurance Fund (SDIF), were added to the increasing political uncertainty, so foreign investors started to withdraw from the financial markets, and lead to another financial crisis at the end of 2000 (Erdoğan, 2002; Keskin, 2001). These crises have adversely affected the economy and resulted in economic contraction. That situation highlighted the importance of liquidity risk management in the banks.

This thesis aims to examine the liquidity risk structure of Turkish banking sector through 1990-2000 periods. A sample, the domestic commercial banks which have constituted almost 70 percent of the whole sector in Turkey during the same period has been chosen. The risk profile of the sector is examined by using ratio analysis. Also the means of liquidity ratios among different groups of banks are compared and the differences of the means are tested statistically via analysis of variance. Moreover the relation between liquidity risk and return in the sector is analysed by using panel data regressions.

In Turkey banks have to disclose only their yearly balance sheets and income statements to third parties. The maturities of securities held by banks, and deposits are not displayed in the balance sheets. Furthermore details about assets' and deposits' portfolios, and their current market values are not known. Since data except the ones in balance sheets and income statements are not attainable, ratio analysis is the only method that can be applied to examine the liquidity risk structure of Turkish banking sector.

The outline of the thesis is as follows: In chapter 2 the literature on the liquidity risk is reviewed. The definition and reasons of liquidity risk are detailed in this chapter. Moreover the ways to manage and measure this risk are analysed. In chapter 3 the

banking sector in Turkey is examined. The first part of the chapter includes the history of the sector while the second part consists of the crises after 1980's that affected the sector. Chapter 4 consists of three main sections. In the first section the data used is presented, in the second section how the liquidity ratios are calculated are explained, and the ratios are used to analyse liquidity risk structure of Turkish banking sector. In the last section how the banks in the sample are grouped according to four different criteria, ownership, size, crisis in 1994 and listed in İstanbul Stock Exchange or not, are detailed, the differences of the means of liquidity ratios of the groups are compared statistically, and the results are interpreted. In chapter 5 relation between liquidity risk and return in the banks is examined, and lastly chapter 6 concludes.

CHAPTER 2

LITERATURE REVIEW

In this chapter liquidity risk of banks are defined. The reasons of liquidity risk are examined. Moreover the management techniques employed by banks to control their liquidity risk profiles are analysed. Lastly the methods used to measure liquidity risk are discussed. As mentioned in the introduction chapter due to data insufficiency ratio analysis is the only method that can be applied to measure the liquidity risk in Turkish banking sector so this method is emphasized in the last section of the chapter.

2.1. Risks in Banking Sector

The highly growing capital flows to Asia in 1997 with an unstable economy grounded a crisis across global financial markets. Higher interest rates attracted foreign investors, but unsteady economies caused loss of confidence of the investors and they started to withdraw from the financial markets. In the first half of 1998, the crisis worsened in Indonesia. Their currency depreciated and inflation increased. The local banks and enterprises could not repay foreign currency debt. Bank runs started and the crisis spilled over to Russian banking sector, after that foreign investors have started to withdraw their deposits from banks of other developing countries including Turkey. (Coeure and Pisani-Ferry, 2000; Erdoğan, 2002; Keskin, 2001).

In the world, financial systems can be separated into two categories. First category involves systems in which stock markets are used as means of financial

intermediations and second category involves systems in which banks are used as financial intermediaries. If the developed countries are considered United States of America and United Kingdom are the countries which belong to the first category and Germany, France, and Japan are the ones which are observed in the second category (Allen and Gale, 2000). Since stock markets of developing countries are not strong, banks are the main financial intermediaries, like in Turkey.

Banks try to stabilize the consumption and investment patterns of individuals by transforming short-term liabilities into long-term assets. They collect deposits and give credits to economic agents (Allen and Gale, 2000; Allen and Santomero, 1998; Rogers and Sinkey Jr., 1999). They satisfy the capital need of private investors, cause an increase in the investment and affect the economic growth. As is relevant, the problems in the banking sector can create very adverse effects in economies.

In order to prevent the problems and bank runs in the banking sector, the risks of the banks should be understood very well. The risks of the banks can be categorized as follows: systematic risk, credit risk, counterparty risk, operational risk, legal risk and liquidity risk (Oldfield and Santomero, 1997; Santomero, 1997).

Systematic risk is the risk of changes in the value of assets of banks due to the variations in interest rates and exchange rates. Credit risk is defined as the non-performance of the borrower while counterparty risk is defined as the non-performance of the trading partner. Operational risk is the risk of having problems in processing, settling, taking and delivering trades for cash or in the daily operations of the banks such as system failures. Lastly legal risks result from the changes in laws and legislations that put the both parties in a disputation (Oldfield and Santomero, 1997; Santomero, 1997).

The liquidity risk is different than other kinds of risks that a bank faces. A bank always faces with a liquidity risk in its daily operations. There is an expected amount of cash outflow during the day due to the withdrawal of some of the deposits or increase in the demand for loans.

2.2. Definition of the Liquidity Risk

The liquidity risk is defined by many authors. Some of the definitions are given below.

> Liquidity risk can best be described as the risk of a funding crisis….Such a situation would inevitably be associated with an unexpected event, such as a large charge off, loss of confidence, or a crisis of national proportion such as a currency crisis (Santomero, 1997, pp. 89).

> Liquidity is a matter of cash flows as they pass through the balance sheet and income statement on a continuous basis...Liquidity risk is present when, for whatever reason, this flow is endangered (Taylor, 2001, pp. 1).

> Liquidity risk is the current and potential risk to earnings and the market value of the stockholders' equity that a bank cannot meet payment or clearing obligations in a timely and cost effective manner (Koch and MacDonald, 2000, pp. 124).

> Another dimension of the risk set is liquidity risk. This is the risk of not having sufficient cash or borrowing capacity to meet deposit withdrawals or new loan demand, thereby forcing banks to borrow emergency funds at excessive cost (Angbazo, 1997, pp. 65).

> Liquidity risk is the possibility that an insufficient quantity of liquidity will have an undesirable consequence. In the extreme, the most undesirable consequence is bank failure (Matz , 2002b, pp. 11).

As can be understood from the definitions, liquidity risk is composed of two main parts. First one includes the liquidity need of banks in their daily operations. Banks need liquidity every day in order to give credits or meet the demand of the depositors in case they want to withdraw their deposits. Normally banks are well-prepared for this kind of liquidity need. Second one includes the liquidity need of banks due to sudden withdrawals of deposits. The sudden and high demand for the deposit withdrawals can drag the banks into insolvency and cause bankruptcies.

Banks should be ready to provide liquidity to the depositors if they demand to withdraw and to the borrowers if they demand credit, so they hold liquid assets as a

buffer against this risk (Cebenoyan and Strahan, 2004; Sinkey, Jr., 1998; Roger and Sinkey Jr., 1999). An asset can be classified as a liquid asset if can be sold off immediately and without loosing its fair market value. Liquid assets held by banks mostly cover cash, receivables from other banks, interbank deposits, treasury securities, and loans that can be securitized (Cebenoyan and Strahan, 2004; Saayman, 2003; Saayman, 2002; Sinkey Jr., 1998; Koch and MacDonald, 2000). The required reserves are not accepted as liquid assets since the outflow of deposits can be met by using required reserves if and only if this reduction in outflow decreases the amount of required reserves. Else they should be met by the liquid assets in excess of required reserves (Valentine, 1986; Saunders, 1997).

Besides causing insolvency or even a bankruptcy of a bank, there are two more vital concerns about liquidity risk. First one is about the deposits of the banks on other banks or given credits to the others. By this way a liquidity crisis can spill over to the other banks easily (Tripe, 1999). Second one comes from the famous trade-off between risk and return in finance (Ross, Westerfield and Jordan, 1998; Brigham and Ehrhardt, 2002). If a bank has more liquid assets in its assets portfolio this means that it invests on assets with lower returns (Sinkey, Jr., 1998; Saayman, 2002; Koch and MacDonald, 2000; Saunders, 1997; ECB, 2002; Tripe 1999).

2.3. Reasons of Liquidity Risk

The liquidity risk can be materialized due to changes in the asset or liability side of a bank's balance sheet (Saunders, 1997; Sinkey Jr., 1998; Koch and MacDonald, 2000; Saayman, 2002; ECB, 2002).

2.3.1. Liability Side Reason

The liability side liquidity risk is formed because of the depositors who want to withdraw their money from the bank. If the depositors want to withdraw their money immediately, the bank should meet this claim.

One of the missions of the banks is to fund long-term assets by using short-term liabilities such as demand deposits. In this way banks are taking the risk to supply funds for the investors. Demand deposits or other transaction accounts give the depositors the right to put their demands back to the bank on any given day and demand immediate repayment of the face value of their deposit claims in cash. In normal times only small portion of depositors withdraw their money back, so the depositors provide an almost stable, long-term source of funds to the banks.

Deposit withdrawals in a given day may in part be offset by the receipt of new deposits, income generated on bank assets and off-balance sheet activities. These withdrawals can also be met either by selling off assets or borrowing additional funds from the market. Under these circumstances some assets can be sold only for prices, which are lower than their fair market values, thus can cause the insolvency of the bank. Moreover the high need for borrowing can affect the borrowing rates of these banks adversely by pushing them upwards. This makes taking debt harder and more expensive for a bank which is in liquidity need.

2.3.2. Asset Side Reason

This side is due to loan commitments. A loan commitment allows the borrower to take down funds from the bank over a commitment period. When a borrower demands a loan, a bank should finance it immediately. Depositors who withdraw their money from the banks on a given day and loans that are not paid back on their maturity may cause a liquidity problem. The banks should find the needed money by selling liquid assets, using cash assets or borrowing additional funds.

2.4. Management of Liquidity Risk

There are four main theories that explain the liquidity management in the history. The first three of them can be called as the theories of asset management while the last theory is about liability management (Koch and MacDonald, 2000; Saayman,

2002; Matz , 2002b; Tripe, 1999; Taylor, 2001; Sinkey Jr., 1998; Saunders, 1997; Saayman, 2002; ECB, 2002).

i) Commercial Loan Theory: Before 1930s banks in the United States of America are encouraged to make short-term, self-liquidating loans. The maturities of these loans match with the maturities of the deposits. By this way banks can meet the deposit needs by the matured loans. A bank considered liquid if it has short-term loans in its loan portfolio.

ii) Shiftability Theory: The liquid assets can also be used to meet deposit withdrawals. Banks started to hold longer-term loans instead of short term ones and they include marketable securities in their portfolios. Some loans and securities can be sold in the secondary market.

iii) Anticipated Income Theory: According to this theory liquidity requirements and loan payments should be tied to the borrowers' expected income. The contribution of this theory is the emphasis on cash flow characteristics of different instruments because the borrowers' cash flows vary with their income. Banks were still encouraged to invest in marketable securities but now structured loans so that the timing of principal and interest payments matched the borrowers' ability to repay from income. This theory caused growth in amortized loans with periodic interest payments and staggered maturities in a bank's bond portfolio.

iv) Liability Management Theory: This theory focuses on the liability side of the balance sheet. Banks can meet their liquidity needs by borrowing in money and capital markets. After this theory both sides of the balance sheet is seen as the source of the liquidity.

2.4.1. Asset Management

When the banks face with a liquidity problem, they may use their required reserves, excess cash holdings or sell other liquid assets to meet the demand. The asset

management can be summed up as having enough assets to sell in case of liquidity need. Although keeping above average liquid asset is seen as a proper way to cope with liquidity risk, the main problem lies in the opportunity cost. Holding excess cash reserves means foregone interest income for a bank. Also short-term liquid assets earn less interest than long-term assets, so it can be said that in order not to face with liquidity problems a bank is loosing money. Here the important point is to decide on how much liquid asset or cash should a bank has on its portfolio. Unfortunately there is no clear-cut answer to this question.

2.4.2. Liability Management

This is the ability to raise funds to meet any liquidity pressure. When a bank faces with an unexpected deposit withdrawal, it can turn to the market and borrow some money to meet this sudden liquidity need. The bank can use repurchase agreements, securities it sold and promised to buy back after certain period in the interbank market, and/or borrow from other banks.

Liability management has started to gain importance with the development of the financial markets. However this is also a costly approach since the banks can end up borrowing money from higher interest rates to pay low interest bearing deposits.

2.5. Measurement of Liquidity Risk

Normally banks expect some amount of cash outflows during the day. However when depositors suspect about the liquidity of a bank, bank runs may start. In order to prevent this situation that can lead to big financial crises, Turkish government has started to provide full deposit insurance since 1994. The involvement of government and to have deposit insurance is needed because banks have some accounts on the other banks, and if a bank starts to have liquidity problems this can spill over to others via these accounts. There has been full deposit insurance in Turkey since 1994 however this situation can not prevent bank runs when there is a suspicion about the liquidity of banks as in 2001.

Although theoretically it is easier to explain the liquidity risk of a bank, it is harder to measure it. The methods can be divided into three main headings: ratio analysis, liquidity value at risk, and other methods. The first method can be applied by using the accounting figures, the data in the balance sheets and income statements of the banks while the second method can be applied by using current values of assets and liabilities of banks, and the last category involves the methods that try to combine the market data and accounting figures.

2.5.1. Ratio Analysis

Most banks today are using well-known ratios to know the sources and uses of funds and to understand their liquidity positions. The main advantage of using these ratios is that they are easy to compute. However it is not so easy to interpret them. They do not have any cut off value, which can be named as minimum or maximum level. The best way to interpret them is to do peer group comparisons of the ratios among banks which have approximately similar characteristics (Koch and MacDonald, 2000; Saunders, 1997; Tripe, 1999, Matz, 2002b).

The liquidity risk arises due to mismatches of the asset and liability side of balance sheets of banks. In order to control these two sides some ratios are suggested below.

1) Growth of Loans

Loans are the least liquid assets in balance sheets of banks. Their more than average growth may signal a problem in the liquidity of a bank.

One of the uses of funds for banks is giving credits to borrowers. If some banks give more than the sector average, this means that they invest heavily on their loan portfolios. Unfortunately they can not liquidate their loans in case of a sudden liquidity need, especially in countries like Turkey where there is not any active secondary market for loans. Moreover too many credits may indicate a problem in their credit policy . Some amount of these loans may not be paid back and having

problematic loans increase their risk profiles. In order to decrease the risk, banks should be careful about not concentrating on a single industry or customer and diversify risk (Santomero, 1997).

2) Growth of Total Assets

Banks with higher asset growth can be accepted as more powerful and express less liquidity risk. However there is an important point that should be mentioned. The growth of assets can be due to two main reasons. First one is the growth of liquid asset portfolios and the second one is the growth of loans portfolio. While the growth of liquid assets portfolio decreases the liquidity risk of banks, the growth of loan portfolios increases that risk. In order to understand liquidity risk positions of banks the reasons of this asset growth should be examined.

3) Growth of Total Deposits

The main source of funds for banks is deposits. Deposit portfolios of banks can cause liquidity problems, since the depositors can withdraw their deposits at any time and increase the liquidity need of banks. The more than sector average growth of the deposit portfolios may signal a liquidity risk.

The deposit portfolios of the banks composed of two main groups: volatile and non-volatile deposits. The non-volatile deposits are named as core deposits while the volatile ones are named as non-core deposits. Increase in the volatile deposits raise the liquidity risk of banks; since they have the high probability of sudden withdrawal, while the growth of core deposits does not affect the liquidity position of the banks adversely (Tripe, 1999; Koch and MacDonald, 2000).

4) Loans to Total Deposits Ratio

This ratio can be used to see if the deposits can meet the demand for the loans. Loans are the most illiquid assets while the deposits are accepted as the most primary

source of funds (Tripe, 1999; Koch and MacDonald, 2000; Saayman, 2003; Saayman, 2004, Matz, 2002b). A high ratio implies illiquidity and shows that the bank gives too much loan relative to its stable funding source of deposits. The main disadvantage of this ratio is that it ignores the types and cash flows of both loans and deposits. Some loans are more liquid or may have more certain cash flows and principal payments sooner than the others.

5) Loans to Total Assets Ratio

The higher the loans to total assets ratio is, the higher the liquidity risk of the bank is. The loans can not be liquidated as easily as the marketable securities. However they have higher interest returns when compared to liquid assets. Therefore the banks have to make a choice between return and risk (Sinkey, Jr., 1998; Saayman, 2002; Koch and MacDonald, 2000; Saunders, 1997; ECB, 2002; Tripe 1999).

6) Loan Losses to Net Loans Ratio

7) Reserve for Loan Losses to Net Loans Ratio

The bank can borrow at a lower interest rate if its assets are perceived as high quality. Also, banks with high quality assets and large capital base can issue debt at a lower cost. Because of these the asset quality and the capital base tried to be found by the analysts with these ratios (Koch and MacDonald, 2000; Saayman, 2002). In these two ratios mentioned above net refers to the total loans minus the amount of loan losses. Actually loan losses to net loans and reserve for loan losses to net loans ratios are more related to the credit risk of the bank. However the banks mostly use their maturing loans to satisfy their depositors. Under this situation a borrower who does not pay their loans back may cause a liquidity problem in the bank. For that reason the banks should follow their customers and know approximately how much money they may loose to be prepared accordingly.

8) Loans and Leases to Total Assets Ratio

The loans and leases to total assets ratio is used to see the amount of assets that are generally illiquid (Sinkey Jr., 1998). Like the loans, leasing payments of the borrowers can also be used to satisfy depositors. The higher the loan and leases to total assets ratio the higher the liquidity risk of the banks. The higher ratio indicates that banks invest their funds to the least liquid assets.

9) Loan Commitments to Total Assets Ratio

The loan commitments are the obligations of the banks. If a bank has loan commitments, it should meet them as soon as the borrowers demand, so this possesses an asset side liquidity risk on the bank (Tripe, 1999, Matz, 2002b). High loan commitments to total assets ratio indicates higher liquidity risk, as the obligations of the banks increase.

The six ratios above are used to see the effectiveness and the share of the loan portfolios of the banks on their balance sheets. The next two ratios are used to indicate the share of the liquid assets portfolios on the balance sheets of the banks. Using these ratios banks can track the size of their stock of liquid assets (Matz, 2002b).

10) Liquid Assets to Total Assets Ratio

The liquid assets are the most liquid group of the balance sheets of the banks as their name suggests. As the liquid assets in the portfolios of the banks increase their liquidity risks decrease since the banks can sell these assets in a timely and cost-effective way in any deposit withdrawal to satisfy depositors (Davidson III and Dutia, 1991; Tripe, 1999; Cebenoyan and Strahan, 2004; Kwan, 2003; Rodgers and Sinkey Jr., 1999; Taylor, 2001; ECB, 2002).

11) Liquid Assets to Total Deposits Ratio

The demand of depositors to withdraw their investments can be met by liquidating the liquid assets by the banks. So the liquid assets to total deposits ratio is used to see how much of the deposits can be covered by the liquid assets. The higher the liquid assets to total deposits ratio is the lower the liquidity risk of banks is (Önder and Özyıldırım, 2003; ECB, 2002).

The four ratios mentioned below are about the liability sides of the banks' balance sheets. First two ratios are used to have an insight about the liquidity risk of the banks that can be realized because of the demands of the depositors.

12) Total Deposits to Total Assets Ratio

The depositors can withdraw their deposits and cause a liquidity problem in the banks. The higher the total deposits to total assets ratio the higher the liquidity risk of the bank is (Koch and MacDonald, 2000; Saayman, 2002). The deposits can be separated into two main groups: the core and the non-core deposits.

13) Core Deposits to Total Assets Ratio

Banks with more stable deposits can borrow at a lower rate since these stable deposits are seen as funds in the portfolio of the bank, and decrease the liquidity risk of the banks.

The core deposits can be defined as demand deposits, NOW (negotiable orders of withdrawal) and ATS (automatic transfers from savings) accounts, MMDAs (money market deposit accounts), savings, other savings and time deposits less than $100,000; the NOW, and ATS accounts and MMDAs are the interest bearing transaction accounts. Moreover core deposits are the deposits that are not sensitive to the interest rate changes, so the banks do not expect these deposits to be withdrawn

and cause liquidity risk (Koch and MacDonald, 2000; Saayman, 2002; Saunders; 1997; Matz, 2002a).

14) Total Equity to Total Assets Ratio

The more equity based a financial institution is, the more powerful it is. This statement holds for banks, too. Debt holders have the privilege of asking for the bankruptcy of the institution if it can not meet its obligations. Thus institutions with less debt face with less risk. Banks, however, work with less equity since their job is to convert liabilities into assets. The higher the total equity to total assets ratio is, the less liquidity risk a bank faces (Koch and MacDonald, 2000; Saayman, 2002; Saayman, 2003; Cebenoyan and Strahan; 2004; Kwan, 2003).

15) Large Liability Dependence (LLD)

LLD = (Large Liabilities-Temporary Investments)/(Earning Assets- Temporary Investments)

Temporary investments are the funds that can be converted into cash easily, quickly and safely like the liquid assets, and earning assets refer to the interest earning assets (Sinkey Jr., 1998). The banks that engage aggressively in liability management can be described as having large liability dependence. Numerator of the ratio expresses short-term, and interest sensitive funds supplied largely by institutions. A high ratio shows that a bank's basic earning assets are supported by interest sensitive investors so indicates a high risk of liquidity (Sinkey Jr., 1998).

16) Adjusted Non-Interest Income to Total Bank Income Ratio

The level of non-traditional activities may affect the liability structure of banks (Sinkey Jr. and Rodgers, 1999; Tripe, 1999). The non-traditional activities are described as activities that banks earn fee income instead of interest income.

Besides the asset and deposit portfolios of the commercial banks their non-traditional activities also grow (Rogers and Sinkey. Jr., 1999). The growth in off balance sheet activities of the banks in United States of America in late 1970s and 1980s have been due to the demand of customers for credit guarantees and the interest rate insurance, so the banks have started to generate fee income. These activities mainly include letters of credit and derivative products including futures, options and swaps (Angbazo, 1997). In this ratio the adjustment refers to the deduction of service charges and fees on deposits that can be perceived as more traditional than others (Sinkey, Jr. and Rogers, 1999).

The banks with higher level of non-traditional activities tend to have smaller net interest margins and have relatively fewer deposits and exhibit less risk (Sinkey, Jr. and Rogers, 1999).

The main disadvantage of these ratios is that they depend on accounting figures. They do not incorporate the market data into the calculations.

2.5.2. Other Methods

In addition to the ratio analysis discussed in the section 2.5.1, there are some other methods that can be used to calculate the liquidity risk of the banks. These methods can be categorized under three main headings:

1) Scenario Analysis (Santomero, 2004; ECB, 2002)
2) Liquidity Gap (Koch and MacDonald, 2000; Tripe, 1999; Saunders, 1997; Saayman, 2002)
3) Liquidity Index (Saunders, 1997; Tripe, 1999)

1) Scenario Analysis

Liquidity risk can be defined as the risk that a bank can not meet payment or clearing obligations in a timely and cost- effective manner. The liquidity problem can arise

due to two reasons: continued funding needs and the need for funding when and if sudden crisis arises. Due to first reason banks should have standard reports on liquid assets and open lines of credit (Santomero, 1997). However the second reason is more important, so banks require *"funding plans"* that show where they can find money as soon as they need. Banks would like to calculate a measure of vulnerability to liquidity risk by considering a range of possible outcomes and their probabilities.

The banks should also know what would happen when all the deposits are withdrawn in case of a bank run, which can be named as worst case scenario, and have contingency funding plans. These plans should specify under which scenario which action must be taken (Santomero, 1997; ECB, 2002). Moreover by using worst case scenarios the banks can see the effects of bank-specific or economy wide shocks on their portfolios, to what extend they can be self-supporting or how long the shock will take to result in a funding crisis (Santomero, 1997).

2) Liquidity Gap

In this method the difference between the amount of assets and the liabilities of the banks is tried to be calculated. In order to decrease the liquidity risk of a bank, its assets and liabilities should match. The bank should cover its liabilities with its assets.

The most important part of the liability side of the bank's balance sheet is the deposits while the most important part of its asset side is the loans, especially in developed countries. The general idea is that banks use their deposits to finance their loans (Saunders, 1998; Tripe, 1999). Moreover the same idea can be defined as the difference between potential uses of funds and anticipated sources of funds, over monthly intervals (Koch and MacDonald, 2000). This difference measure can be called *Financing Gap* (Saunders, 1997) or *Liquidity Gap* (Koch and MacDonald, 2000).

Financing Gap= Average Loans –Average Deposits (Saunders, 1997)

If average loans are less than average deposits a bank may face a liquidity problem. As a result the bank should either sell some of its liquid assets or borrow funds so financing gap may also be written as the difference between liquid assets and borrowed funds (Saunders, 1997).

Financing Gap= -liquid assets + borrowed funds

A rising financing gap may indicate future liquidity problems. It may be due to increased deposit withdrawals or loans. Under both cases banks financing requirements will increase. In the market, lenders may see this condition and demand higher interest rates, which may cause at the extreme an insolvency problem. Due to these reasons banks should monitor their deposit and loan conditions periodically and calculate their financing gaps (Saunders, 1997).

3) Liquidity Index

In case of a need for liquidity due to asset or liability side reason a bank can either borrow from the market or sell its assets. This index is used to see how easily and fast the bank can liquidate its assets. If the bank can not manage to liquidate its assets in a timely and cost effective way then it will find itself trapped by a liquidity crisis. This index is used to measure the potential losses suffered by the bank from a sudden sale of assets compared to a fair market value established under normal conditions. The greater the difference between the immediate sale price (P_i) and fair market price (P_{i^*}) of the asset, the less liquid the bank's portfolio of assets will be (Saunders, 1997).

The liquidity index can be computed by the given formula:

$$I = \sum_{i=1}^{N} \left[(w_i)(P_i / P_{i^*}) \right]$$

where *w* is the percentage of each asset in the bank's portfolio. It always lies between 0 and 1. As the liquidity index increase the liquidity risk of the bank increases, too.

2.5.3. Liquidity Value at Risk

The financial crises of the 1990s underlined the importance of the liquidity risk in the financial sector so the researches started to incorporate the liquidity risk into market risk measurement tools. As mentioned above the liquidity risk can be separated into two main categories. The first one includes the balance sheet liquidity while the second category includes the market liquidity.

The market liquidity risk can be analysed in two parts. First part is the liquidity risk that an institution faces due to transaction costs, bid-ask spread, and the second part is the risk of decrease in the market prices of the assets while selling in huge amounts and immediately (Malz, 2003).

The market liquidity risk can be defined as follows:

> Liquidity risk is the uncertain change in portfolio value caused by liquidating assets to meet future cash requirements, above and beyond exogenous changes in factor prices (Berkowitz, 2000, pp.5).

> …liquidity risk can be grouped into asset liquidity and funding liquidity risk. The former relates to the risk that the liquidation value of the assets differs significantly from the current mark-to-market value. The latter refers to the risk that an institution could run out of cash and is unable to raise new funds to meet its payment obligations, which could lead to formal default (Jorion, 2000, pp.339).

The liquidity risk formed because of the changes in the market prices of the assets divided into two as exogenous and endogenous liquidity risk. Exogenous liquidity is not affected by the behaviours of the single players, it is common to all market participants like bid-ask spread. On the other hand the endogenous liquidity risk is specific to one market participant (Bangia et al., 1999; Malz, 2003; Mahadevan, 2001).

By these definitions of liquidity risk given above, it can be incorporated into value at risk methodology (Berkowitz, 2000; François-Heude and Van Wynendaele, 2002; Le Saout, 2002). The point that should be mentioned here is that by using data the researchers measure the exogenous liquidity risk, not the endogenous one.

By a definition:

> Value at Risk measures the worst expected loss that an institution can suffer over a given time interval under normal conditions at a given confidence level. It assesses this risk by using statistical and simulation models designed to capture the volatility of assets in a bank's portfolio (Butler, 1998, pp.5).

The maximum loss of the banks are tried to be formulated when the prices of assets are changed in case of a liquidity crisis under this methodology. Although using value at risk methodology led to incorporate market data into risk measurement it has some disadvantages depending on the distribution of the data. Under value at risk (VaR) methodology, the underlying assumption is the normal distribution of the data. however bank data mostly are fat tailed. As a result other methods like extreme value and conditional VaR are incorporated into risk analysis (Danielsson, 2002; Szegö, 2002, Embrechts, 2002; Pearson and Smithson, 2002).

Conclusion:

Definitions of liquidity risk, causes of it, management techniques of this risk and methods to measure it are described in this chapter. Ratio analysis is emphasized, since it is the method that is used in this thesis to analyse liquidity risk structure of Turkish banking sector. The other methods mentioned in this chapter can not be applied in this case. The yearly income statements and balance sheets are the only data that can be reached for whole sector from 1990 to 2000. Unfortunately the details about assets' and deposits' portfolios, like their maturity structures, are not known, so current values of these portfolios can not be calculated. Before explaining source of the data used in this thesis and empirical analyses that are employed by

using ratios in chapter 4, in the next chapter Turkish banking sector in the last century, emphasizing the last decade, is examined

CHAPTER 3

BANKING SECTOR IN TURKEY

This chapter aims to give an idea about the development of banking sector in Turkey starting from the Ottoman Empire until today, and the financial crises in 1990s that affected Turkish banking system. In order to analyse liquidity risk of Turkish banking sector through 1990-2000 periods, characteristics of the sector, and the economic environment before and during the same period are described. The chapter has two main parts. In the first part the changes in Turkish banking sector from late 1890s to 2000 is detailed by emphasizing the period after 1980. In the second part the reasons and the effects of 1994 and 2000 financial crises, which were deepened due to high liquidity needs of banks, on the banking sector of Turkey are presented.

3.1. The Development of Banking Sector in Turkey

The history of Turkish banking sector can be analysed in six periods (Akgüç, 1992). The periods are separated due to the different economic and social characteristics of the included years.

i) The Ottoman Empire
ii) Development of national banks (1923-1932)
iii) Foundation of state-owned banks for special purposes (1933-1944)
iv) Development of private-owned banks (1945-1959)
v) Planned period (1960-1980)
vi) Liberalization of the banking sector (1980-)

Next each period is examined in detail, but the emphasis is on the last period.

3.1.1. The Ottoman Empire

The banking sector started to develop at the end of 19th century in the Ottoman Empire. Although the main aim of the banks in Europe was to give credits to the industry sector, the banks in the Ottoman Empire were founded to meet the increasing debt demand of the treasury (Akgüç, 1992; Ertuğrul and Zaim, 1999). Since the economic and social life and the laws of the Ottoman Empire were not suitable for financial intermediaries such as banks, the first banks were set up by foreign investors (Akgüç, 1992; Ertuğrul and Zaim, 1999), İstanbul Bankası (1847-1852) and Osmanlı Bankası (1856) (Akgüç, 1992).

During 1856-1923 periods the banking sector was controlled by the foreign-owned banks, which aimed to make speculative profits from the debts of the Ottoman Empire and the exchange rate movements. Besides they gave credits to foreign investor to invest in the empire. The first national bank, Ziraat Bankası, was founded in 1863. After the declaration of second constitutional monarchy in 1908, the number of private-owned national banks increased in order to give credit to Turkish investors (Akgüç, 1992).

3.1.2. Development of National Banks (1923-1932)

Throughout the first years of the Turkish Republic still foreigners controlled the banking sector in Turkey. Since the banking sector was very important for newly founded Turkish Republic's economic growth, the government took some decisions in İzmir Economics Conference in 1923 (Akgüç, 1992; Artun, 1983). Some of the important decisions were:

i) to increase the capital of Ziraat Bankası,
ii) to set up Türkiye İş Bankası (1924) as a commercial bank,
iii) to set up a development bank which was transferred to Sümerbank in 1933,

As is evident, in that period the government emphasized the importance of the national banking for the economy. The credits for the agriculture sector were reorganized and the new banks were set up to develop the industry and trade (Artun, 1983).

Also the central bank of Turkish Republic was founded in 1930 in order to issue money, save the value of the money, adjust the liquidity of the economy and give credits to the banks (Akgüç, 1992; Artun, 1983).

3.1.3. Foundation of State-owned Banks for Special Purposes (1933-1944)

At the beginning of 1930s Turkey changed its economic policy. The growth of the economy could not be supported by encouraging the private sector due to lack of private capital, therefore the government decided to accelerate the economic growth by the help of state economic enterprises. In order to achieve this aim many state-owned banks with special purposes were set up (Akgüç, 1992). The biggest ones were:

i) Sümerbank (1933),
ii) Etibank (1935),
iii) Denizbank (1937),
iv) Türkiye Halk Bankası (1938),

The purposes of these banks were to give credits and support the growth in different sectors. For example, Sümerbank was founded to give credits to the industrial sector, while Etibank was set up to encourage the investment in mining and energy sectors. Denizbank was aimed to finance maritime line enterprises and T. Halk Bankası supported the small enterprises in the 1930s.

3.1.4. Development of Private-owned Banks (1945-1959)

The economic and political systems of the Turkish Republic started to change after the Second World War. The growth of the private sector, the increase in the capital accumulation, closer relations with the European countries both economically and politically, and more liberalized economy policies were the main characteristics of the period (Akgüç, 1992). The number of private-owned commercial banks was expanded to 30 by the support of the government (Akgüç, 1992; Erdoğan, 2002, Artun, 1983). The biggest ones can be listed as (Akgüç, 1992):

1) State-owned Banks:
    i) Denizcilik Bankası (1951),
    ii) Türkiye Vakıflar Bankası (1954),
    iii) Türkiye Öğretmenler Bankası (1959),
2) Private-owned Banks:
    i) Yapı ve Kredi Bankası (1944),
    ii) Türkiye Garanti Bankası (1946),
    iii) Akbank (1948),
    iv) Pamukbank (1955),
    v) Türkiye Sınai Kalkınma Bankası (1950),

After 1953, the macroeconomic indicators started to point out problems in the economy: rise in inflation, current account deficit and external debt. Unsuccessful attempts to decrease government expenditures and usage of central bank resources caused an increase in inflation and a devaluation of the Turkish lira. As a result many of the commercial banks, opened in these years, went bankrupt (Erdoğan, 2002).

3.1.5. Planned Period (1960-1980)

In the planned period, the specialized banks, development and investment banks and the group banking were developed. Moreover the establishment of new commercial banks were limited (Akgüç, 1992). Since many commercial banks bankrupt at the

end of 1950s, a deposit insurance fund was established in 1960 as a part of the central bank (Erdoğan, 2002; Akgüç, 1992).

This period includes four development plans for the economy. The banking sector aspects of these plans are emphasized here. These plans specified the credit policies of the banks.

i) First five year development plan (1963-1967): The problems about the credit policies of the banks and the importance of the distribution of credits to different sectors in the economy were emphasized. The demand for a bank that could meet the mid-term credit need of the banks was stated (Artun, 1983).

ii) Second five year development plan (1968-1972): Again the emphasis was on the credit policies of the banks for the economic growth since credits were the source of capital for private sector investments. In order to increase the demand and supply of credits the establishment of a new investment bank and the deposit and credit insurance were provided. Furthermore, interest rate differentiation was offered to direct credits in different sectors (Artun, 1983).

iii) Third five year development plan (1973-1978): The savings were not directed to the productive sectors efficiently. Not to have an organized stock exchange was also negatively affected the transformation of funds to industry investments (Artun, 1983).

iv) Fourth five year development plan (1979-1983): The two points underlined in this planning period was the insufficiency of Turkish banking sector in improving the savings and distributing the credits to some sectors (Artun, 1983).

3.1.6. Liberalization of the Banking Sector (1980-)

After 1980 the banking sector in Turkey developed very quickly (Türkiye Bankalar Birliği (TBB), 1998). The liberalization of Turkish economy started during the late

1980s and the foreign investors were attracted to Turkey. In 1985 the restrictions on foreign exchange operations of the residents of Turkey and the foreigners were removed. In 1989 the convertibility of Turkish lira was set and the full convertibility was announced in 1990 (Erdoğan, 2002; TBB, 1998). At the beginning of this liberalization period the characteristics of the banking sector can be listed as (Akgüç, 1992):

i) the liberalization of the interest rates and offering interest rates above the inflation rate,
ii) the easiness of the establishing new banks or opening new branches by foreigners,
iii) the founding of new commercial banks,
iv) the opening of Turkish banks abroad,
v) the increase of the loan losses in the sector,
vi) the change in the portfolios of the banks: the increase in foreign exchange credits, interbank operations, repos, and government debt instruments,
vii) the technological enhancement and electronic banking,

All these changes affected the competition in the banking sector. Before 1980s the banking sector was closed and there was little competition in the sector. After the restrictions on interest rates of both deposit and credit accounts were removed and the full convertibility of the Turkish lira was set, the competition in the sector improved (Erdoğan, 2002; Ertuğrul and Zaim, 1999, TBB, 1999).

After 1990s the banks started to borrow from foreign creditors and finance the government budget deficit. As the government could not close its budget deficit, the need for the credit grew. The interest rates on the government debt instruments raise and their maturities declined. Banks continued to take on debt in foreign exchange and invest them into government debt securities. (TBB, 1998). This led the economy into financial crises in 1994. The government could not borrow from the banks by using government debt instruments till mid 1994. In 1995 the banking sector began to improve and the asset bases got better. Borrowing channels opened again but this

time lenders started to demand higher interest rates. The credit from abroad was taxed, and the cost of foreign exchange credits was increased. This situation accelerated the repo operations and interest bearing foreign exchange accounts in the banks. The deposits accounts in the sector transferred into one day maturity, high interest bearing repos (TBB, 1998).

In 1997 the economic programme, targeted to obtain price stability, of the government caused a reduction in the interest rates which moved the investments in repos back to the deposit accounts. In 1998 the interest bearing operations and the open positions of the banks were limited due to the agreement with International Monetary Fund. Since the central bank decreased interest rates to struggle with inflation, the banks demanded foreign exchange to close the gap between their foreign exchange denominated liabilities and foreign exchange denominated assets. Moreover the taxation of capital incomes, and interbank operations increased the pressures on the market which was tensed by the foreigners who declared that limitations on the interest bearing operations decreased the liquidity (TBB, 1998).

During the second half of the year 2000, new regulations about the banking sector were made. The banking legislation was changed to comply with the European Union standards. Effective auditing methods were incorporated. Furthermore the foundation of new banks or new branches was made harder. The regulations that caused unfair competition between private-owned and state-owned banks were ceased. The definition of credits has broadened, and risk management and consolidated balance sheets were made compulsory. The actions that were taken when there is a financial problem about a bank were based on more objective criteria. The liabilities of stockholders and the managers of the banks were extended. Besides Banking Regulation and Supervision Agency was set up to supervise the operations and decide on the ceasing of operations of the banks (Keskin, 2001).

In the next section the economic environment of Turkey in 1990s is detailed. The effects of the changes in macroeconomic indicators on the banking sector of Turkey and how these effects caused liquidity crises in 1994 and 2001 are examined.

3.2. Financial Crises after 1980 and Turkish Banking Sector

The financial liberalization actions in Turkey started in 1980 with the aim to increase savings, encourage foreign capital inflow, effectively allocate resources and promote economic growth. The role of government was limited in the markets while the role of economic agents expanded (Özatay and Sak , 2002b; Aydın, 2002; Binay and Kunter, 1998). In order to have a successful financial liberalization, there should be stable macroeconomic indicators and regulated banking sector (Binay and Kunter, 1998; Erdoğan, 2002; Coşkun, 2001). However this is not the situation in the 1980s in Turkey, so the system became highly sensitive to the financial crises.

The main reason of the banking crises in 2001 was the liquidity need. The depositors, foreigners and residents, could not differentiate the banks which were in trouble and not, and they withdrew their funds; the banks sold their assets to meet the demand of depositors and called their credits back (Erdoğan, 2002). However they could not prevent bank runs and liquidity crises.

The biggest banking crisis after 1980s was in 1994. Due to this reason the banking sector and economic conditions is discussed below in two sub-periods, before and after 1994.

3.2.1. 1980-1994 Period

Until 1980's there were no financial crises that affected the economy as a whole rather there were bankruptcies of single banks due to various economic reasons. In 1980 the financial liberalization was initiated with the liberalization of interest rates on saving deposits and credits. Foreign exchange operations were liberalized in 1984 and full convertibility of the Turkish Lira (TL) was set in 1989. In 1985 the government started to issue debt instruments to finance its deficit (Binay and Kunter, 1998) and banks became the biggest creditors. After 1989 the banks started to borrow foreign exchange from abroad with low interest rates and used them to finance the government budget deficit (Aydın, 2002; Erdoğan, 2002, Öniş, 1996;

Özatay and Sak, 2002a). This operation was so profitable that banks decreased their credit lines and negatively affected the economic growth (Aydın, 2002).

The reform process affected the liability sides of the banks more than their asset sides. The amount of credits did not increase as much as the deposits. Especially after 1990s, when the macroeconomic indicators got worse, the banks preferred to allocate their funds to government debt instruments instead of riskier credits. Furthermore the high interest rates and the full convertibility of the TL increased the capital flows after 1980s, especially in 1990s. Due to increase in capital inflows the number of commercial banks increased and they started to distribute this excess capital inflow to the creditors without carefully analysing them (Erdoğan, 2002). As a result the risk of the sector increased.

The Gulf War in 1990 caused an increase in the oil prices, which were reflected in Turkey as a high inflation. In 1994 the government tried to decrease the interest rates in order to continue to debt financing with a lower cost, passed new laws and cancelled the accumulated debt of Treasury in Central Bank, till that time Treasury had borrowed from Central Bank (Özatay, 2000; Erdoğan, 2002).

At the same time liquidity crisis started in the financial sector, because of uncertainties in the economy. The foreign and resident depositors withdrew their foreign exchange and TL deposits. In order to meet the foreign exchange demand central bank brought foreign currencies to Turkey, the interest rates were increased and the maturities of the government debt instruments were shortened to increase the demand to TL instead of foreign exchange. However injection of liquidity to the market increased the demand for foreign exchange and TL was devaluated (Özatay, 2000; Erdoğan, 2002).

The depositors continued to withdraw their accounts, since they were afraid of bankruptcies. First they deposited to bigger banks and government securities and then to the foreign exchange and the system collapsed. This contagion stopped when all the banks were taken into saving deposits insurance fund (Erdoğan, 2002). The

government debt instruments market was failed and the government could not borrow till May 1994. Even at that time it could borrow with very high interest rates (Özatay, 2000).

3.2.2. 1995-2001 Period

Unfortunately the credit structures of the banks did not change after the crisis. The group banks, which are almost all of the commercial banks in Turkey, except the state-owned banks, have continued to fund the institutions of the same group, and take on risks. Furthermore the banks did not decrease the amount of their foreign liabilities (Özatay, 2000).

The maturity structure of the asset and liability sides of the banks' balance sheets got worse. After 1996, the government started to issue new debt instruments in order to pay the interest on the others. The interest rates of government debt instruments were increased while their maturities got shorter. However their maturities were still longer than the maturity of deposits and banks became highly vulnerable to liquidity crises (Aydın, 2002).

In 1997 and 1998 following the Asian and Russian crises foreign investors withdrew their investments in the financial sectors of these countries. Then this behaviour spilled over to the other developing countries. In addition to this Turkish economy was in recession, so the loan losses grew and the banks increased the interest rates on saving deposits to keep the investors in the system (Erdoğan, 2002).

In 1999 the government signed an agreement with International Monetary Fund in order to struggle with the inflation. The new laws and regulations have shown the eagerness of the government and decreased the uncertainty in the economic environment. Interest rates declined, consumption credits grew because of a decrease in their interest rates, and economy started to grow. The credit rating of Turkey has increased and the foreign investors started to come to Turkey, and the repo volume was expanded (Keskin, 2001).

In 2000 the government announced its fiscal and monetary policy and used a fixed exchange rate regime to decrease the interest rate and cost of borrowing (Erdoğan, 2002). Due to the certain and favourable environment interest rates on the government debt instruments declined, and the banks started to increase their credit supply. In the second half of the year delay in the privatization program and growing fund demand of the banks in saving deposit insurance fund were realized.

In addition to these problems a political uncertainty occurred and foreign investors started to withdraw from the market. By this way second liquidity crises after 1980s began. Foreign and resident depositors started to withdraw their deposits from banks. Banks demanded foreign exchange and TL to meet their liabilities. The pressure on TL affected the interest rates positively. The prices of the government debt instruments declined. The central bank refused to impose liquidity to the market because of the program. The banks that hold government debt instruments started to sell them in order to meet their liquidity needs and to decrease their losses. Besides foreign investors that hold government debt instruments as mortgages ceased the agreements and demand for foreign exchange increased. At the beginning of 2001 Turkish banking sector was in need of both foreign exchange and TL and the interest rates were over 200 percent (Erdoğan, 2002; Keskin, 2001)

As a result the system collapsed and the central bank turned into a flexible exchange rate regime. The taxes were increased, the government expenditures were decreased, the cost of borrowing was increased and the economy got smaller (Erdoğan, 2002).

In both of these crises it is seen that banks could not manage their liquidity risks. They have heavily invested to government debt instruments. Although these instruments are perceived as liquid, in case of a political or an economical uncertainty the instruments have lost their fair market values. Banks can not liquidate these assets as quickly as needed so they can not meet the demand of foreign and resident depositors immediately and prevent bank runs.

Conclusion:

In this chapter history of Turkish banking sector is reviewed. Also how macroeconomic problems turned into financial crises because of the sector is examined. Moreover how interest rate and foreign exchange rate risks caused liquidity risk is detailed. In the next chapter the data used in this thesis are presented. Then ratios used to examine liquidity risk structure of Turkish banking sector are provided and the findings are interpreted. Lastly the means of liquidity ratios among different groups of banks are compared.

CHAPTER 4

DATA, RATIO ANALYSES, AND COMPARISON OF MEANS OF LIQUIDITY RATIOS AMONG DIFFERENT GROUPS OF BANKS

This chapter is composed of three main sections. In the first section the sample chosen for the thesis, and source of the data, which are used to compute liquidity ratios are explained. In the second section liquidity ratios used in the thesis to analyse liquidity risk of Turkish banking sector are examined. The formulations of all the ratios are explained first in every subsection and then the findings are analysed. In the last section the means of ratios among different groups of banks are compared. The differences among the means are statistically tested by using analysis o variance. After explaining how banks are grouped and the differences are tested, each sub-section is concluded by the interpretation of the differences in the means.

4.1. Data

The data in balance sheets and income statements of Turkish commercial banks are used in this thesis for analysis of liquidity risk of the sector. The data are found from the web page of Turkish Banking Association (TBB, 2003).

There are three state-owned and twenty private-owned commercial banks operating and two private-owned ones in the savings deposit insurance fund as of 31 December, 2002 (TBB, 2004a). These banks can be listed as:

Table 4.1- Domestic Commercial Banks

State-Owned Commercial Banks	Türkiye Cumhuriyeti Ziraat Bankası A.Ş.
	Türkiye Halk Bankası A.Ş.
	Türkiye Vakıflar Bankası T.A.O.
Private-Owned Commercial Banks	Adabank A.Ş.
	Akbank T.A.Ş.
	Alternatif Bank A.Ş.
	Anadolubank A.Ş.
	Denizbank A.Ş.
	Fiba Bank A.Ş.
	Finans Bank A.Ş.
	Koçbank A.Ş.
	MNG Bank A.Ş.
	Oyak Bank A.Ş.
	Şekerbank T.A.Ş.
	Tekfenbank A.Ş.
	Tekstil Bankası A.Ş
	Turkish Bank A.Ş.
	Türk Dış Ticaret Bankası A.Ş.
	Türk Ekonomi Bankası A.Ş.
	Türkiye Garanti Bankası A.Ş.
	Türkiye İmar Bankası T.A.Ş.
	Türkiye İş Bankası A.Ş.
	Yapı ve Kredi Bankası A.Ş.
Banks in Savings Deposit Insurance Fund	Bayındırbank A.Ş.
	Pamukbank T. A. Ş.

The balance sheets and the income statements of twenty-one of these banks are available for the period between 1990 and 2000. However there are four exceptions. The data for Fiba Bank are just for the years 1999 and 2000. Denizbank's and Anadolubank's data start from 1997 and lastly for Alternatifbank the data start from 1992.

The liquidity risk of Turkish banking sector for 1990-2000 periods is examined by calculating the liquidity ratios of Turkish commercial banks for each year. This eleven year period is important since it also includes one of the most important financial crises of Turkey after 1980's, at the beginning of 1994.

Moreover Bayındırbank and Pamukbank are included in the sample since they have been operating during the 1990-2000 periods. They were taken into deposit insurance fund in 2001 and 2002 respectively.

The balance sheets of Turkish commercial banks are composed of two main parts, assets and liabilities. The assets side includes four major components: liquid assets, loans, permanent assets, and other assets. On the other hand liabilities side includes five major components: deposits, non-deposit funds, other liabilities, shareholders' equity and total income (TBB, 2004b) (Table 4.2).

Table 4.2- Balance Sheet

ASSETS	LIABILITIES
Liquid Assets	Deposits
Loans	Non-deposit Funds
Permanent Assets	Other Liabilities
Other Assets	Shareholders' Equity
	Total Income

The income statements of Turkish commercial banks in the data is composed of four main parts, which are interest income, interest expenses, non-interest income and non-interest expenses (TBB, 2004b). The details of the balance sheets and the income statements of the banks are given in Appendix A.

For this thesis, the state-owned and private-owned commercial banks of Turkey are used as a sample. Through the whole examined period the state-owned and private-owned commercial banks' assets have constituted more than 60 percent of the assets of the whole banking sector of Turkey. Furthermore, their portions in the total assets of the banking sector have increased since 1993 and became almost 74 percent (Table 1-Appendix B).

The data section is used to describe the sample and the data used in the thesis. In the next section liquidity ratios used to measure liquidity risk structure of the sector in

Turkey are detailed. How the ratios are calculated is explained at the beginning of each subsection. Then the findings are analysed in order to reach a conclusion about liquidity risk structure of Turkish banking sector. From the ratios provided total deposits to total assets, and total equity to total assets ratios are used to see liquidity risk that can be materialized due to changes in liabilities of banks while loans to total deposits, loans to total assets, liquid assets to total assets and liquid assets to total deposits ratios are used to see liquidity risk that can be materialized due to changes in the assets of banks.

4.2. Ratio Analyses

The ratios that are used to measure liquidity risk of banks are listed in section 2.5.1. Unfortunately because the data that are disclosed to the third parties is limited, it is not possible to compute all of the ratios. Neither balance sheets nor income statements of banks in Turkey include loan commitments, maturity structure of deposits, or type of deposits as core and non-core. Moreover there is not any section that shows lease payments or temporary investments. Furthermore loan losses to net loans ratio is accepted as more explanatory for credit risk.

The ratios which are mentioned in detail below are computed for each year from 1990 to 2000 for every bank. The exceptions are Fiba Bank, Denizbank, Anadolubank and Alternatifbank. Their ratios are calculated for the periods they have been operating, the other years are kept empty. Then the averages of the ratios for the years they have been operating are taken for every bank, and compared. Moreover the averages of the state-owned and private-owned commercial banks and the averages of the whole domestic commercial banks are also calculated and shown in the tables. The banks are divided into two groups in the tables as state-owned and private-owned. In these groups they have sorted according to their asset bases as of 2000, in a descending order (Table2- Appendix B).

While analysing liquidity risk structure of Turkish banking sector the averages of the state-owned banks, the private-owned banks and the five big private-owned banks

are also presented in figures. The five big private-owned banks include T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti Bankası, and Koçbank.

4.2.1. Loans to Total Deposits Ratio

In order to calculate this ratio loan total in asset side of balance sheet is divided by deposit total in liability side of balance sheet. The computations are shown in table 1 in appendix C. The row for Tekfenbank is empty for this ratio since this bank has not had any deposits for the examined period.

In the literature the value of 1 is considered ideal for this ratio. If the ratio of loans to total deposits is equal to 1 then a bank can pay all of its deposits by using its paid back loans. The loans to deposits ratio greater than 1 indicates illiquidity.

Only three of the twenty-five banks, Türk Dış Ticaret Bankası, Oyak Bank and MNG Bank, have the loans to deposit ratios greater than 1 on the average. These banks have given loans more than they can cover with their deposit bases. However except five of the twenty-four banks, Tekfenbank is excluded since it has not taken deposits through the period, have still had ratios greater than 0.5 that indicate higher risk and vulnerability to bank runs (Table 1- Appendix C).

The state owned commercial banks have always had ratios less than 1 and their ratios have been below averages of all domestic commercial banks. Moreover the averages of state-owned banks have been lower than the averages of private-owned banks (Figure 4.1). The state-owned banks have given fewer loans compared to their private-owned peers and this may indicate that they have had more strict credit policies and have been exposed to less risk.

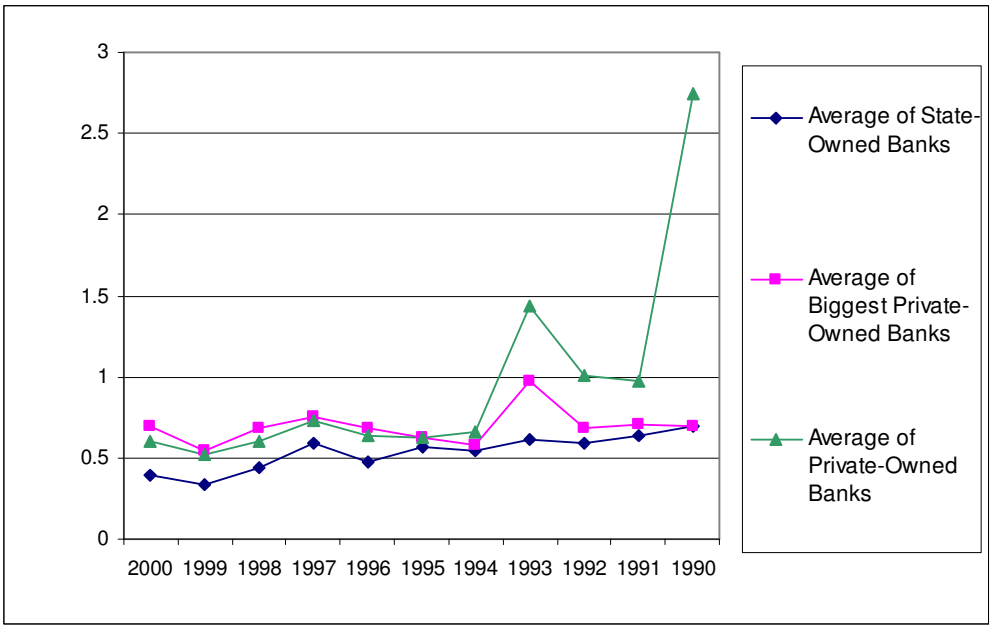

Figure 4.1- Loans to Total Assets Ratio

In order to determine the liquidity risk of the banks their loan portfolios should also be analysed. In Turkey loans are separated into two general parts as specialized loans and non-specialized loans (TBB, 2003). When the loan portfolios of the banks in Turkey are examined for the period 1997-2000, it can be seen that domestic commercial banks have formed 96% of the specialized loans and 90% of the non-specialized loans (Table 2- Appendix C). State-owned banks have given specialized loans while private-owned banks have given non-specialized loans (Table 3- Appendix C).

The state-owned banks have been founded to support special sectors and their loan portfolios reflect this aim. T.C. Ziraat Bankası has given loans to agriculture sector while T. Halk Bankası has given vocational credits and lastly T. Vakıflar Bankası has given credit to tourism and real estate sectors (Table 4- Appendix C). All these banks have different customer profiles.

In the non-specialized loans section the largest amount given as credit is shown under the heading *other* (Table 5- Appendix C). Pamukbank, Yapı ve Kredi Bankası, T. İş Bankası, Akbank and T. Garanti Bankası have had the largest share in credits given to other sectors, almost 80%. Through the period 1997-2000, the credits for export have been supplied by six banks mainly. These banks were the biggest five banks of Turkey according to their assets, T. İş Bankası, Yapı ve Kredi Bankası, T. Garanti Bankası, Akbank and Koçbank, plus Pamukbank. T. İş Bankası and Akbank have given 74% of total investment credits through the same period. When the credits given to domestic development banks have been examined it can be seen that Akbank, T. Garanti Bankası and T. İş Bankası have been dominant banks in domestic deposit banks' credits. They have formed 93 percent of the total. T. Garanti Bankası and Yapı ve Kredi Bankası have represented 65 percent of the credits given to banks abroad. Akbank, T. Garanti Bankası and T. İş Bankası formed 89 percent of credits given to other financial sectors. Koçbank has been the only dominant bank in gold loans through 1997-2000. And lastly Şekerbank and Yapı ve Kredi Bankası have been the leading banks in import credits (Table 6- Appendix C).

It can be concluded that the five big private-owned commercial banks of Turkey, T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti Bankası, Koçbank, have been the dominant creditors in the banking sector. The problem in one of these big banks can easily spill over to the whole economy by using these credit channels.

4.2.2. Total Deposits to Total Assets Ratio

Total deposits to total assets ratio is derived by dividing the total deposits in liabilities side of balance sheet to grand total of the assets. The zeros in table 7 in appendix C show the periods in which no money has been deposited to these banks during that year or there has not been any deposit in the banks' accounts at the end of the year since balance sheets show the positions of banks at the end of each year.

In the literature increasing total deposits to total assets ratio indicates an increase in liquidity risk of a bank. If the amount of total deposits is higher than the amount of total assets then banks are perceived as more vulnerable to bank runs.

Through the 1990-2000 periods, the averages of the state-owned banks in total deposits to total assets ratio have been greater than the averages of the private-owned banks (Table 7- Appendix C, Figure 4.2). These three banks, T.C. Ziraat Bankası, T. Halk Bankası and T. Vakıflar Bankası all have had values greater than 0.5 for this ratio. Although this situation indicates a higher liquidity problem for the state-owned banks in case of a liquidity crisis, depositors still continue to deposit their savings to these banks. One explanation for this can be the belief that the state-owned banks are too big to fail; the government can not let them go bankrupt, since their bankruptcies adversely affect the economy. Moreover all of the state-owned banks have shown the same movement in this ratio, especially after 1994. Depositors perceive them as in the same risk level, since they are owned by the state.

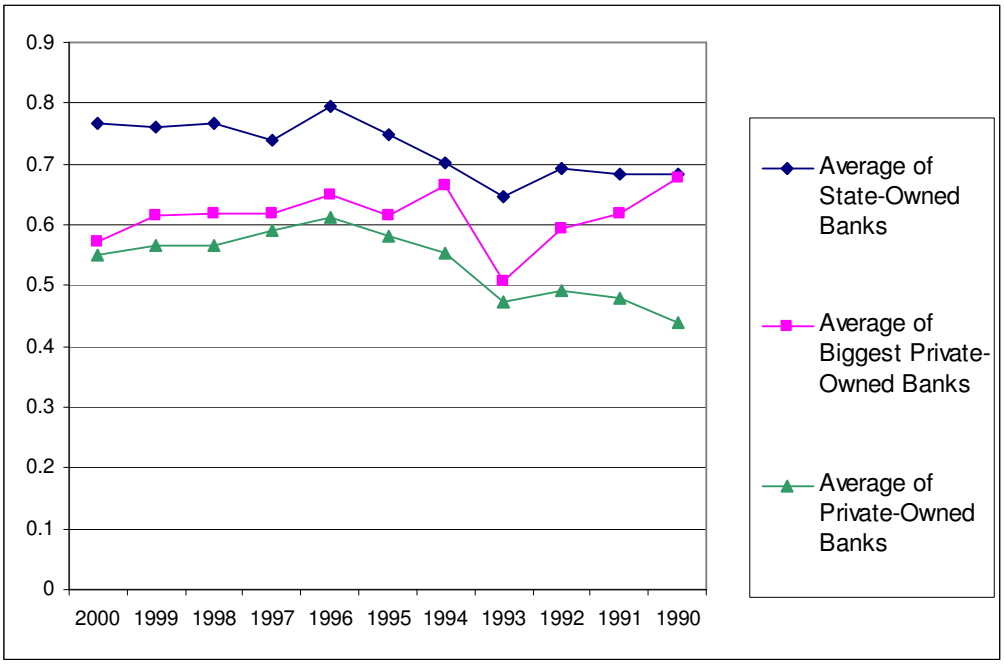

Figure 4.2- Total Deposits to Total Assets Ratio

On the average 15 of the 21 private-owned banks, excluding Tekfenbank, have had total deposits to total assets ratios greater than 0.5 which indicate a high liquidity risk (Table 7- Appendix C). These banks are T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti Bankası, Koçbank, Türkiye Ekonomi Bankası, Şekerbank, T. İmar Bankası, Denizbank, Tekstil Bankası, Anadolubank, Turkish Bank, Adabank, Pamukbank and Bayındırbank. The first five banks are the biggest private-owned commercial banks of Turkey and the preference of depositors can be understood since they are perceived more reliable compared to other banks (Figure 4.2). However the rest of the private-owned banks have accepted deposits that they can not pay with their assets in case of bank runs and exposed to high liquidity risk.

4.2.3. Total Equity to Total Assets Ratio

This ratio is calculated by dividing total value of shareholders' equity in the liabilities side to the total value of the assets. The values are shown in table 8 in appendix C.

Banks usually work with more debt when compared with other non-financial institutions since their main duty is to turn debts into assets by taking deposits and giving loans to investors. However banks with higher equity are less risky as compared to banks with less equity. In case of insolvency, banks with higher equity can meet the claims of the creditors with the equities. Due to the reasons explained as total equity to total assets ratio increases the risks of banks decrease, since an institution with the higher equity base is accepted as more powerful.

The averages of total equity to total assets ratios of the state-owned commercial banks have been below the averages of the private-owned peers through the period (Table 8- Appendix C, Figure 4.3). Despite their lower values in total equity to total assets ratio, the state-owned commercial banks have had higher average values in total deposits to total assets ratios (Table 7- Appendix C). Although state-owned commercial banks expressed higher liquidity risk with lower total equity amounts compared to their total assets, still preferred by the depositors. The main reason

behind this is probably the trust in the state. However this trust causes the state-owned commercial banks to take on more risk than they can handle.

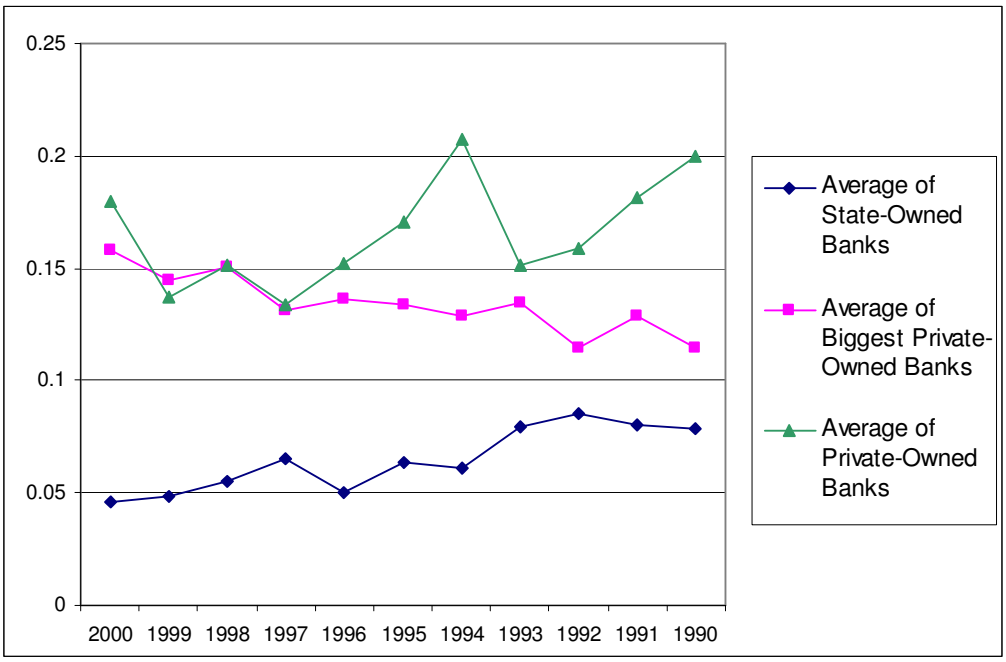

Figure 4.3- Total Equity to Total Assets Ratio

Only five of the twenty-two private-owned commercial banks, Oyak Bank, MNG Bank, Adabank, Fiba Bank, Tekfenbank and Bayındırbank, have had higher average total equity to total assets ratios compared to averages of their peers (Table 8-Appendix C). This state implies that 76% of the banks examined have had at most 20% of their assets as equity. Moreover the banks with higher total equity to total assets ratios have been the smaller banks when compared with the others (Figure 4.3). Also Pamukbank and T. İmar Bankası have had an average total equity to total assets ratio below 10% and this indicated a high vulnerability to bank runs for these banks. Thus Turkish commercial banks express high liquidity risk.

4.2.4. Loans to Total Assets Ratio

Again in this ratio loan total of asset side is divided by total assets of each bank for every year, and the results are indicated in table 9 in appendix C.

Loans are least liquid assets in asset portfolios of banks. The literature suggests that higher the amount of the loans in the asset portfolio higher the liquidity risk of a bank.

In 1990 and from 1994 to 1998 the average values for loans to total assets ratios of the state-owned commercial banks have been greater than the average values of the same ratio of private-owned commercial banks (Figure 4.4). Except 1991-1993 and 1999-2000 periods, the state-owned commercial banks have implied more liquidity risk on the average since the loans are the most illiquid assets in the balance sheet.

The state-owned commercial banks have declined the amount of credit they have given just before the crises periods. Other than that they have continued to give the specialised loans. Although their risk structure got worse, they kept on supporting the economic growth via the credits.

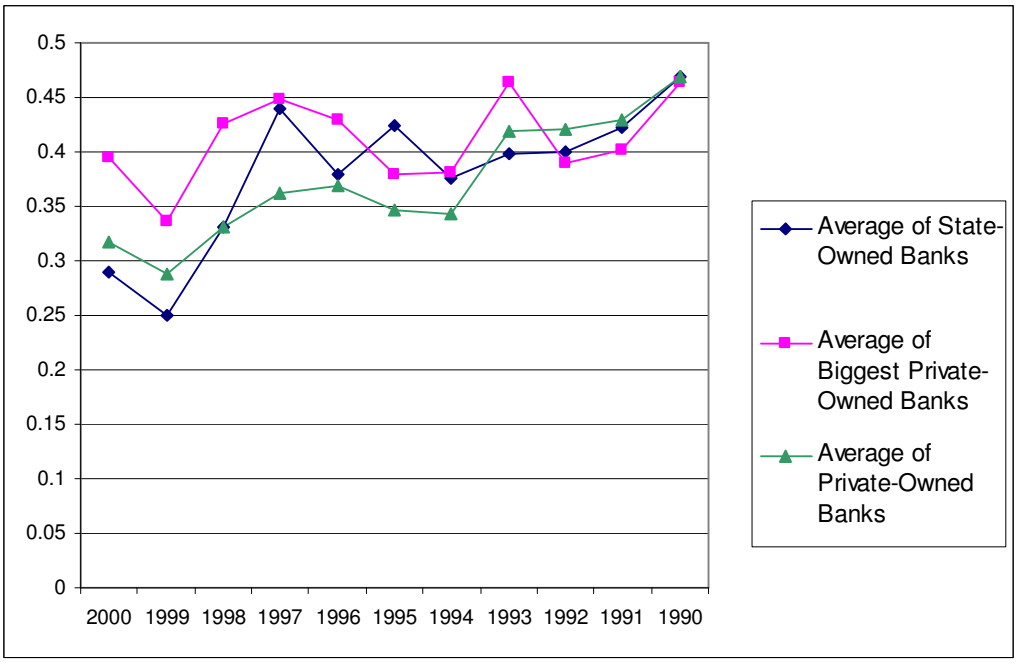

Figure 4.4- Loans to Total Assets Ratio

Eleven of the private-owned commercial banks, T. İş Bankası, Yapı ve Kredi Bankası, T. Garanti Bankası, Koçbank, T. Dış Ticaret Bankası, T. Ekonomi Bankası, Şekerbank, T. İmar Bankası, Tekstil Bankası, Oyak Bank and Pamukbank, have had average loans to total assets ratios above the average of averages, which was 35%, and expressed high risk (Table 9- Appendix C).

Moreover after 1996, Pamukbank, which has been in the savings deposit insurance fund as of December 2002, have had the greatest loans to total assets ratio which has been on average 54 percent and implied a high vulnerability to bank runs.

The biggest banks of Turkey have tied almost 40 percent of their assets up to credits and expressed very high liquidity risk (Figure 4.4). In case of a bank run due to a financial crisis, it is almost impossible to collect all the loans back and meet the demand of the depositors.

4.2.5. Liquid Assets to Total Assets Ratio

Liquid assets' totals of asset side of domestic commercial banks are divided by their assets' total in order to derive this ratio and the results are shown in table 10 (Appendix C).

The literature suggests that the higher the liquid assets in the asset portfolio of a bank are, the less liquidity risk it expresses.

When the data in the table 10 in appendix C is analysed it can be concluded that the state-owned commercial banks have had less liquid assets to total assets ratios on the average when compared to their private-owned commercial peers (Figure 4.5). The percent of liquid assets in asset portfolio of state-owned banks have changed from 20 to 43. While the percent of liquid assets in the asset portfolios of the private-owned banks have changed from 39 to 49. This ratio also indicates the moral hazard problem in the state-owned commercial banks. They have continued to take on risk by high loans and deposits and less equity without taking any precaution to the liquidity crisis like increasing the amount of liquid assets in their portfolios.

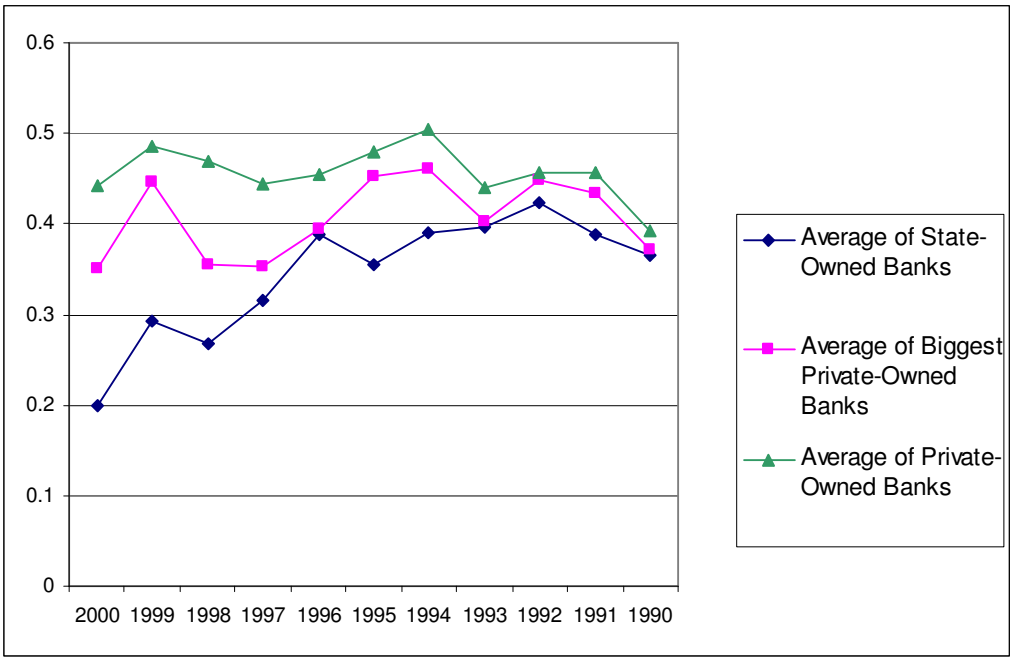

Figure 4.5- Liquid Assets to Total Assets Ratio

On the other hand, almost 50 percent of the asset portfolios of the private-owned commercial banks have been composed of liquid assets. This situation normally decreases the liquidity risk of the private-owned commercial banks. The smallest privately owned five banks, Turkish Bank, MNG Bank, Adabank, Fiba Bank, and Tekfenbank, have had liquid assets to assets ratios above the average almost all the examined period while the biggest two banks T. İş Bankası and Yapı ve Kredi Bankası have been below. Again an interesting point is the situation of Pamukbank since it has had very low values for liquid assets to total assets ratio compared to its peers and implied a higher risk.

Although bigger banks of Turkey have had lower values for this ratio, they have been still over 30 percent (Figure 4.5). Thus Turkish commercial banking industry have shown less vulnerability to bank runs since the demand of depositors can be met by liquid assets. However there is a slight difference here. When the liquid assets

portfolios of the banks were examined the importance of the securities portfolio can be seen (Table 11- Appendix C).

Turkish commercial banks have held approximately 12-13% of their assets as liquid securities till the end of 1994 (Table 11- Appendix C). In 1995 there has been a decrease in the amount of securities held when compared with their asset bases. Due to the financial crisis in 1994 banks have liquidated their assets in order to meet the demands of the depositors, so there has been a decrease in their securities to total assets ratio. From 1996 to 1999 banks have hold higher amount of securities in order to reduce their liquidity risk and have taken the advantage of higher returns of these securities. However in 2000 signals of another financial crisis affected the financial positions of the banks again and they have started to sell their securities.

When the amount of total securities are looked at it can be concluded that the state-owned banks and the biggest private-owned commercial banks, T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti Bankası and Koçbank, have shown continuous increase till 1999 and then a small decrease in 2000 (Figure 4.6).

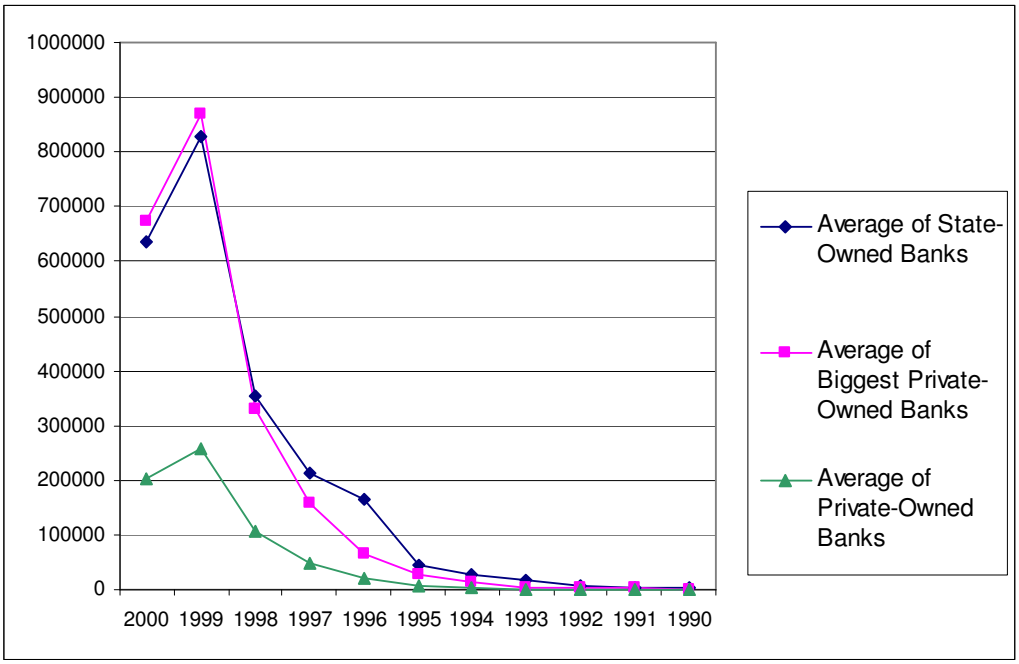

Figure 4.6- Total Securities (billion TL)

Under these circumstances liquidity risk of the sector has determined by the liquidity of the securities portfolios, which are composed of government debt instruments mainly. Unfortunately due to the economic environment of the period 1990-2000 in Turkey, these securities have had less liquidity compared to the securities of the countries with well-developed economies.

4.2.6. Liquid Assets to Total Deposits Ratio

In order to calculate this ratio liquid assets' totals of asset sides are divided to totals of deposits of liability sides of balance sheets of the banks and the results are exposed in table 12 (Appendix C). In this table liquid assets to total deposits ratios of Tekfenbank are not indicated since this bank has not had any deposit through the period.

According to the literature as this ratio increases, liquidity risk of a bank decreases. A high ratio implies that banks can meet the demand of depositors by selling off their liquid assets in case of a bank run.

As can be seen from the table 12 in appendix C the state-owned commercial banks had less liquid assets to total deposit ratios than their private-owned peers (Figure 4.7). This has been due to two reasons. One of them is the smaller liquid asset portfolio of the state-owned commercial banks and the other reason is the large amount of deposits in these banks. Both of these reasons increase the liquidity risk of the state-owned commercial banks.

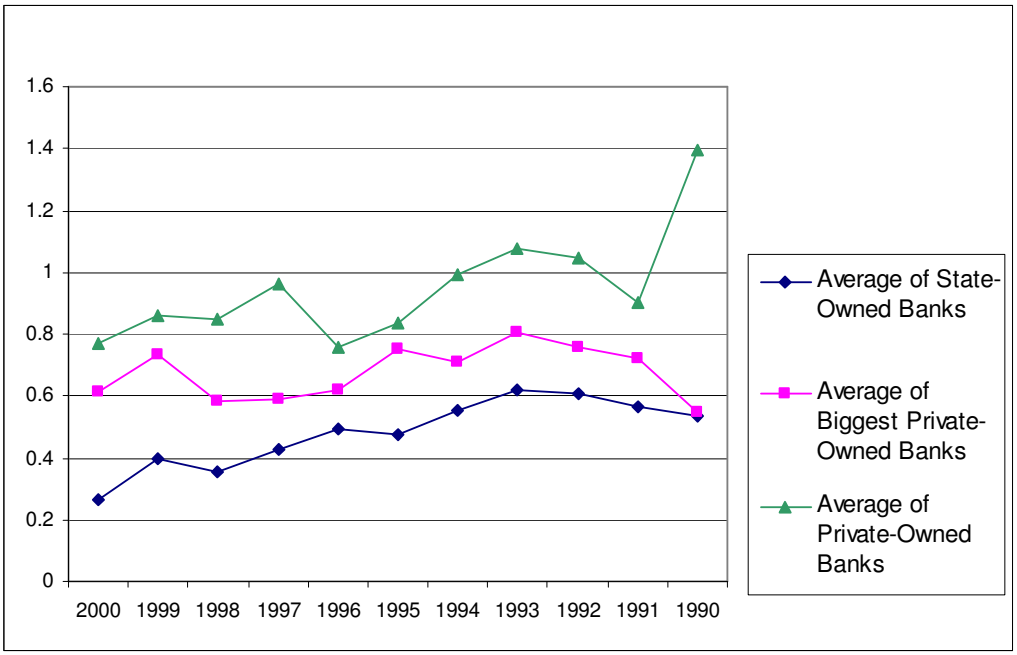

Figure 4.7- Liquid Assets to Total Deposits Ratio

In addition the biggest private-owned commercial banks, T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti Bankası, and Koçbank, have had more than 0.5 for this ratio (Figure 4.7). This indicates a very high liquidity since it means that by

selling all the liquid assets, the banks can meet the demands of more than half of their depositors. However this conclusion must be done with caution since liquid assets are composed of securities mostly as mentioned above.

When the averages of the 11 years are examined, it can be seen that the private-owned commercial banks' liquid assets formed 40 percent to 230 percent of their total deposits. Seven of the private-owned commercial banks, Finans Bank, T. Dış Ticaret Bankası, T. Ekonomi Bankası, Alternatif Bank, Oyak Bank, MNG Bank, and Turkish Bank, have had the average greater than 1.

Furthermore, Pamukbank has always been below average values of the industry before taken into deposit insurance fund. However the other bank taken to deposit insurance fund Bayındırbank have not shown any special trend, it has been above the averages between 1998 and 2000 and below the averages between 1991 and 1997.

4.2.7. Adjusted Non-Interest Income to Total Bank Income Ratio

Adjusted non-interest income is computed by subtracting the total of income and commission fees from the total of non-interest income that are indicated in income statements of banks. In order to approximate bank income for this ratio net income is used. The ratio is computed by dividing adjusted non-interest income to net income, and the values are indicated in table 13 (Appendix C).

Due to the sensitivity of the depositors to financial crisis, banks try to find other ways to earn income other than interest income. So they started to use off-balance sheet activities to earn non-interest income in order to use as buffers to meet demand of depositors in the crises periods. As the literature suggests higher the adjusted non-interest income to total bank income ratio is, the lower liquidity risk of a bank is.

As can be seen from table 13 in appendix C, commercial banks in Turkey both state-owned and private-owned have not been interested in non-traditional activities. Almost all ratios are negative. When averages of the 11-year period is taken, 12 of

the 22 private-owned commercial banks, Akbank, T. Garanti Bankası, Koçbank, Finans Bank, T. Dış Ticaret Bankası, Alternatifbank, Denizbank, Tekstil Bankası, Anadolubank, Oyak Bank, MNG Bank, Fiba Bank, and Pamukbank, have had average values less than 0.

This situation is due to negative adjusted non-interest incomes. Negative ratios indicate that banks in Turkey depend on their interest incomes instead of non-interest incomes and increase their liquidity risk. Under a financial crisis banks start to loose their interest income and since none of them has enough non-interest income, the bankruptcies increase.

4.2.8. Growth of Total Assets

Growth of total assets is computed by subtracting total asset value of year t-1 from year t and then dividing the calculated value by total asset value of year t-1. The same method also applied to loans and total deposits. The results are shown in tables 14, 15, and 16 respectively (Appendix C).

The higher the asset bases are, the more powerful the institutions are. However in banking sector important point is where this growth comes from. If liquid assets increase then a bank's risk decreases, on the other hand if the loans grow then a bank's risk increases.

When table 14 in appendix C is examined it can be seen that growth of total assets of the state-owned commercial banks has shown the same movements through the period, especially T. Halk Bankası and T. Vakıflar Bankası. Except 1993-1994 period state-owned commercial banks have had average growth rates for total assets less than their private peers' averages (Figure 4.8). The reason was probably the financial crisis in 1994. It caused bank runs especially in the private-owned commercial banks. Because of these runs banks have started to liquidate their assets and decreased amount of loans, so their total asset growths have slowed down.

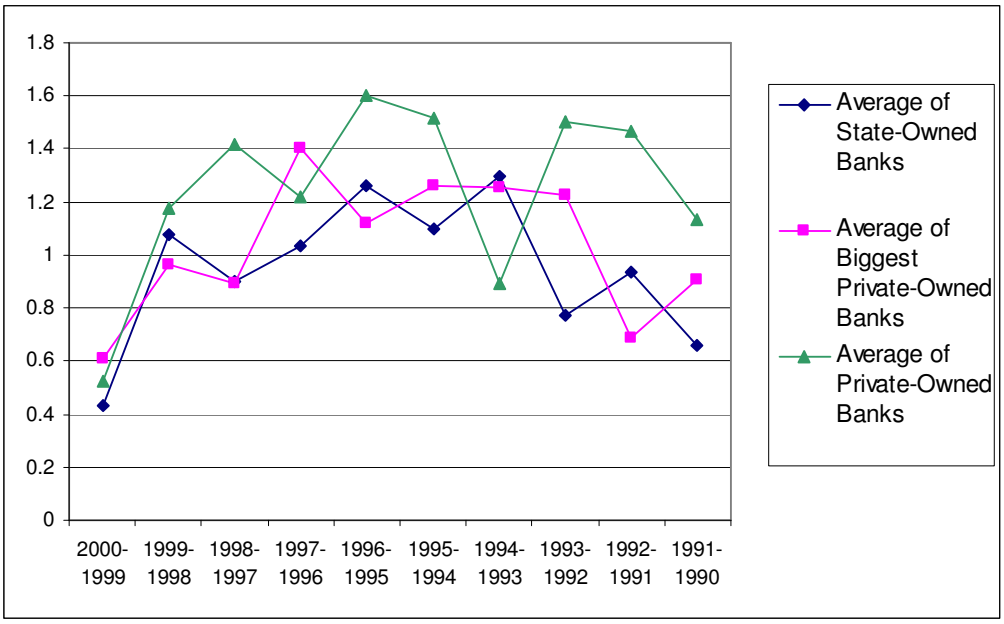

Figure 4.8- Growth of Total Assets

The private-owned commercial banks have more than doubled their total assets till 1993-1994 periods (Figure 4.8). In the crisis period the growth of their total assets has declined due to reasons mentioned above. However after all the deposits have taken into savings deposit insurance fund in 1994, the private-owned commercial banks doubled their total assets until 1999-2000 this time, just before 2001 financial crisis.

Other than T. İş Bankası, Yapı ve Kredi Bankası, Akbank, Şekerbank, Fiba Bank, and Pamukbank, private-owned commercial banks have had average total asset growths for 10 years period over 1. Moreover Denizbank, Anadolubank and Bayındırbank tripled their total assets through the same period. The rest excluding Fiba Bank have had average total asset growth almost 0.9 (Table 14- Appendix C).

4.2.9. Growth of Loans

While the amount of loans increase, the risks of the banks increase, too, since loans are the least liquid assets of the asset portfolios. The high growth in loans portfolios of banks raise the probability of non-performing loans and the end result can be a liquidity crisis.

Except 1993-1994 periods the state-owned commercial banks have shown less average growth of loans when compared to their private-owned peers (Table 15-Appendix C, Figure 4.9). This may indicate a problem in the credit policies of the private-owned commercial banks, besides a high liquidity risk. When the state-owned commercial banks are examined it can be seen that average growth rates of the loan portfolio have been approximately 0.9.

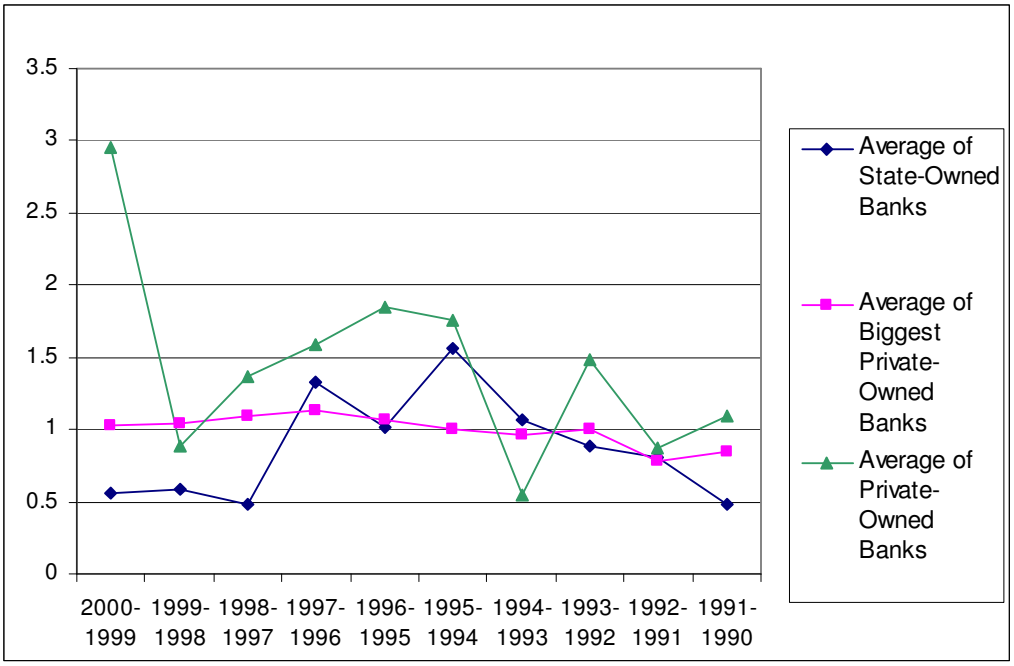

Figure 4.9- Growth of Loans

Just after 1993-1994 periods private-owned commercial banks have started to give credits. On the average their loan portfolios have almost doubled in every year. Unfortunately it is a signal for the high liquidity risk structure of the private-owned commercial banks. The effects of the financial crises are deepened because of non-performing loans.

Excluding, T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Dış Ticaret Bankası, Turkish Bank and Fiba Bank, other private-owned commercial banks have had doubled their loan portfolios when the average of 10 periods is examined (Table 15-Appendix C). The rest, which includes the biggest private-owned commercial banks of Turkey, has also average growth rate of 0.90 (Figure 4.9). As a result it can be concluded that the commercial banking sector of Turkey has been vulnerable to financial crises with high liquidity risk.

4.2.10. Growth of Total Deposits

The main point is to distinguish core deposits from non-core deposits. Although growth rates of non-core deposits increase liquidity risk of banks, growth in core deposits does not. Besides non-core deposits may boost the amount of loan given to borrowers and enhances profitability of banks. However with the data available it is not possible to differentiate core-deposits from non-core deposits. Moreover, depositors prefer to withdraw their deposits immediately in case of financial crises, as seen in 1994 and 2001. So the higher the growth of deposits is, the higher the liquidity risk of a bank is.

MNG Bank and Oyak Bank, two private-owned commercial banks have had very huge total deposit growths that affect the averages (Table 16- Appendix C). If the two-outlier banks are included through the whole period the averages of state-owned banks have been below the private-owned banks. However if these banks are excluded, in 1991-1992 and 1993-1994 periods, the state–owned commercial banks have shown average growth in total deposits more than the average growth of total deposits of the private-owned commercial banks (Table 17- Appendix C, Figure

4.10). In these periods, depositors have preferred the state-owned commercial banks since they are perceived more reliable and guaranteed. However just after all deposit accounts have taken into the savings deposits insurance fund by the government to stop the contagion of the crisis in the banking sector in 1994, depositors have shifted their deposits to the private-owned banks. Banks have started to take on more risks than they can handle and increased the liquidity risk of the Turkish banking sector.

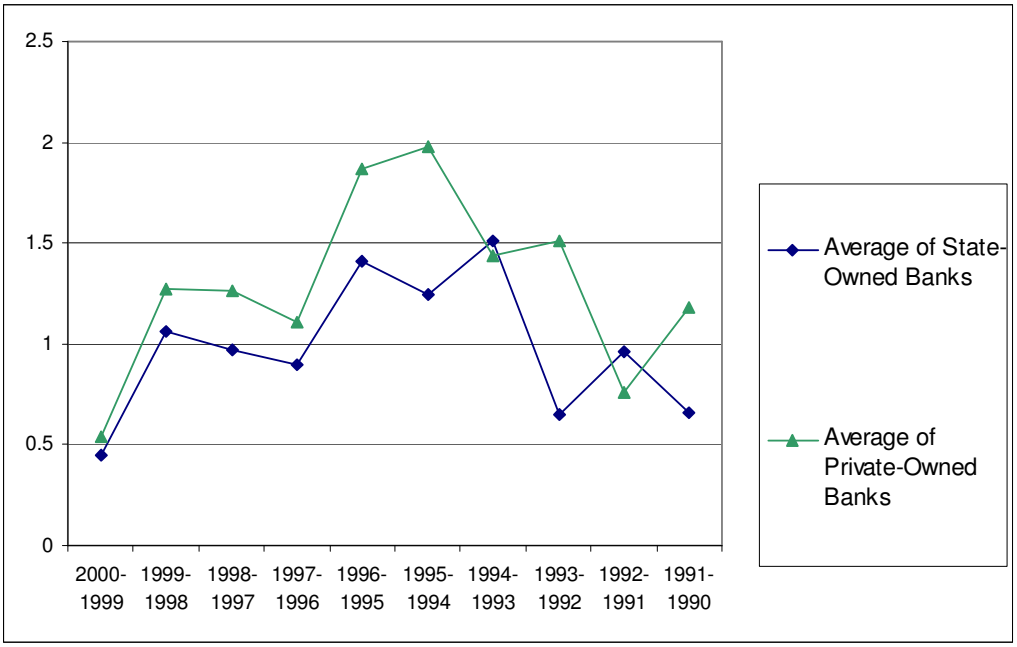

Figure 4.10- Growth of Total Deposits (Excluding MNG Bank and Oyak Bank)

Except T. İş Bankası, Yapı ve Kredi Bankası, Akbank, Şekerbank, Fiba Bank, and Pamukbank, rest of the private-owned commercial banks have increased their deposit bases more than 100%. Unfortunately this indicates a very high vulnerability to the bank runs in the Turkish banking system.

4.2.11. Comparison of Growth of Total Assets, Loans and Total Deposits

In order to decide liquidity risk of Turkish banking sector, growth rates of total assets, loans and total deposits should be examined at the same time. Growth of total assets decreases the risk of a bank, however if this growth is due to the growth of loans this changes the situation. Loans are least liquid assets so they cause a raise in liquidity risk. Meanwhile growth of total deposits does not increase the risk if asset bases of banks, especially liquid asset bases, also enlarge.

When the average growth rates for total assets, loans and total deposits for the 10 periods of the state-owned commercial banks are examined, it can seen that they have expressed high liquidity risk (Table 18- Appendix C). All of them have had high total asset growth rates but the table indicates that the reason behind this growth rate has been the growth of loans. Moreover, growth of deposits on the average has been more than growth of assets.

T. Dış Ticaret Bankası, Alternatifbank, Turkish Bank, and MNG Bank have had average loan growth rates less than total asset growth rates. The rest have loan growth rates more than or equal to their total asset growth rates. Furthermore, except T. İş Bankası, Yapı ve Kredi Bankası, Akbank, Koçbank, Fiba Bank, and Bayındırbank, all other private-owned commercial banks have had average deposit growth rates more than their total asset growths. Although biggest banks of Turkey seem to have deposit growths less than their total asset growths it can be a misleading situation since these averages have been so close. These growth rates have shown that Turkish commercial banking sector have been highly vulnerable to bank runs and expressed a high liquidity risk.

Conclusion:

The state-owned commercial banks have had higher averages for total deposits to total assets and loans to total assets ratios than the private-owned commercial banks through the 1990-2000 periods. They have indicated a liquidity risk since these ratios move in the same direction with risk profile of the banks. Also, the state-owned

banks have had high deposit growths. Moreover the state-owned banks have had lower averages for total equity to total assets, liquid assets to total assets and liquid assets to total deposits ratios, and have shown a high vulnerability to liquidity crises.

Furthermore five big private-owned commercial banks, T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti Bankası and Koçbank, have had more than average values for loans to total deposits, total deposits to total assets and loans to total deposits ratios. Besides they have had lower averages for total equity to total assets and liquid assets to total assets ratios when compared to their smaller peers, hence they have also indicated a high liquidity risk.

After analysing liquidity risk structure of the sector via ratios, the banks are grouped into two according to four different categories and differences of the means of liquidity ratios among these two group of banks are tested by using analysis of variance.

4.3. Comparison of Means of Liquidity Ratios Among Different Groups of Banks

In order to examine liquidity risk of Turkish banking sector in detail five of the liquidity ratios mentioned above are selected. The banks are separated into two by using four criteria and the means of these ratios are compared among these two groups. The differences in means are statistically tested by applying analysis of variance (Samad and Hassan, 1999; Al-Tamimi and Al-Amiri, 2003; Meriç, Kyj and Welsh, 2000; Sabi, 1995; Elyasiani, Mehdian and Rezvanian; 1994). The criteria employed to separate the banks into two are given as follows:

1) Ownership Structure
2) Size of Total Assets
3) Banking Crisis in 1994
4) Listed in İstanbul Stock Exchange

The first two criteria are used since they are frequently employed to test the risk profile of banking sector in the literature. Besides if a sector experienced a crisis then the means of ratios are compared as before and after the crisis year. Moreover in this thesis listed in a stock exchange are added as fourth criterion, since the banks listed in İstanbul Stock Exchange are also audited by Capital Markets Board of Turkey, it is expected that there is a difference among the liquidity risk structure of banks listed in İstanbul Stock exchange and the ones not listed.

The liquidity ratios mentioned in section 4.2. can be grouped into two main categories. First category involves loans to total deposits, total deposits to total assets, and loans to total assets ratios. The ratios in this category move in same direction with liquidity risk of banks. As these ratios increase, liquidity risks of banks increase, too. Second category includes total equity to total assets, liquid assets to total assets, liquid assets to total deposits, and adjusted non-interest income to total bank income ratios. These ratios move in opposite direction of liquidity risk. While these ratios increase, liquidity risk of banks decreases.

In the first category the loans to total deposits ratio has the largest volatility for the banks for 11 years, so the last two ratios with less volatility are more appropriate when analysing the differences of means (Figure 1- Appendix D). In the other category, the first three ratios are more reliable. The data show that in Turkey, the banks are not interested in off-balance sheet activities since most of the banks have had negative adjusted non-interest income to total bank income ratios on average and also this ratio indicates very high volatility through the period, so it may not be a proper way to measure the liquidity risk by using this ratio (Figure 2-Appendix D).

The analysis of variance method, completely randomized design, is preferred in order to analyse the significance of the differences of means of the group of the banks (Sincich, 1996; Bowerman and O'Connell, 2003).

The banks are divided into two as state-owned and private-owned for ownership structure category. According to the size of total assets again domestic commercial

banks are separated into two as large and small ones. Moreover to see the effects of banking crisis at the beginning of 1994, the data are alienated into two sub-periods as 1990-1993 and 1994-2000. Lastly the difference in liquidity risk of the commercial banks listed in İstanbul Stock Exchange and the ones not listed is examined.

The five liquidity ratios used in this analysis were total deposits to total assets, loans to total assets, total equity to total assets, liquid assets to total deposits, and liquid assets to total assets. Before testing the significance of the differences in means, the individual significances of these ratios for all the groups in all the categories are tested. All of these variables are found significant (Table 1-4 in Appendix E).

Each subsection starts with the explanation of how the groups are formed and how the means are calculated and compared. Then analysis of variance results are presented and interpreted.

4.3.1. State-owned versus Private-owned Commercial Banks

In Turkey there were three state-owned commercial banks and twenty private-owned commercial banks operating and two private-owned commercial banks which were in the savings deposit insurance fund in December 2002.

For each of the five liquidity ratios mentioned the data is separated into two. For example for total deposits to total assets ratio, the first group constitutes total deposits to total assets ratios of three state-owned commercial banks for 1990-2000 period. While the second group involves total deposits to total assets ratios of the twenty-two private-owned commercial banks for eleven years. This grouping is repeated for rest of the liquidity ratios.

Then means of the two groups are computed, and the significance of their differences are tested by using One-way (unstacked) analysis of variance (ANOVA) in MINITAB computer programme (Bowerman and O' Connell, 2003).

The state-owned commercial banks are expected to indicate less liquidity risk when compared to private-owned banks. Since they are operated by the Treasury they represent the government. Moreover they give specialized loans while private-owned commercial banks prefer to give non-specialized loans to the other companies of the same group, so the private-owned ones are expected to express higher risk. The state-owned commercial banks are presumed to have higher liquid assets to total assets, liquid assets to total deposits and total equity to total assets ratios. On the other hand they are expected to have lower loans to total assets and total deposits to total assets ratios. The means and test values are provided in table 4.3.

Table 4.3. - ANOVA Results for State-owned Commercial Banks versus Private-owned Commercial Banks

	State-Owned		**Private-Owned**			
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**F**	**p-value**
Total Deposits to Total Assets	0.7261	0.0618	0.5386	0.2212	23.35	0
Loans to Total Assets	0.38	0.1213	0.3692	0.149	0.16	0.691
Total Equity to Total Assets	0.0649	0.0223	0.1649	0.1178	23.54	0
Liquid Assets to Total Deposits	0.4809	0.1475	0.9419	0.776	11.53	0.001
Liquid Assets to Total Assets	0.3442	0.0972	0.4574	0.1619	15.26	0

Table 4.3 implies that the state-owned commercial banks and the private-owned commercial banks have differences in means of their total deposits to total assets, total equity to total assets, liquid assets to total deposits and liquid assets to total assets ratios. These four ratios have significant F values at the 95% confidence level.

The average total deposits to total assets ratio of the state-owned banks is 0.73 as compared to 0.54 of the private-owned commercial banks. As this ratio moves in the same direction with the liquidity risk of the banks the state-owned commercial banks have expressed more risk.

Moreover the state-owned commercial banks have average total equity to total assets ratio of 0.06 while the private-owned commercial banks have 0.16 as the average of same ratio. Besides the state-owned commercial banks have average liquid assets to total deposits ratio (0.48) less than the private-owned peers' (0.78). Furthermore the average of liquid assets to total assets ratio of state-owned commercial banks (0.34) is lower than the average of the same ratio for private-owned commercial banks (0.46). The higher these three ratios are, the lower liquidity risks of banks are. Like total deposits to total assets ratio, these ratios indicate the higher liquidity risk of the state-owned commercial banks in Turkey.

Thus it can be concluded that state-owned commercial banks have taken more risk than private-owned commercial banks in Turkey. The depositors have preferred state-owned banks without examining their risk profiles, and state-owned banks have continued to accept these deposits without considering the increase in their liquidity risk. This situation indicates the moral hazard problem in state-owned commercial banks in Turkey. Due to belief in too big to fail they have taken on more risk than they can handle.

4.3.2. Large Commercial Banks versus Small Commercial Banks

For this study the first ten banks, with total assets more than 2 quadrillion TL, in table 2 (Appendix B) are accepted as large commercial banks, while the rest is accepted as the small commercial banks. The large ones include T.C. Ziraat Bankası, T. Halk Bankası, T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti Bankası, T. Vakıflar Bankası, Pamukbank, Koçbank, and Finans Bank.

The data are separated into two groups for each of the five liquidity ratios. For total deposits to total assets ratio first group involves total deposits to total assets ratios of large banks for eleven years and second group involves total deposits to total assets ratios for eleven years for the rest of the banks. This categorization is repeated for other four liquidity ratios as well.

With the higher asset bases the large commercial banks are expected to express less liquidity risk. They should have higher liquid assets to total assets, liquid assets to total deposits, total equity to total assets ratios and lower total deposits to total assets and loans to total assets ratios.

Then means of the two groups and the significance of these means are computed for each of the liquidity ratios by using one-way ANOVA, and the results are presented in table 4.4.

Table 4.4 - ANOVA Results for Large Commercial Banks versus Small Commercial Banks

	Large		**Small**			
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**F**	**p-value**
Total Deposits to Total Assets	0,6419	0,1152	0,5017	0,2551	28,61	0
Loans to Total Assets	0,4042	0,1113	0,3442	0,1631	10,92	0,001
Total Equity to Total Assets	0,1095	0,0458	0,1848	0,14	29,37	0
Liquid Assets to Total Deposits	0,6361	0,2592	1,0869	0,933	24,07	0
Liquid Assets to Total Assets	0,3849	0,1086	0,4876	0,1779	28,35	0

It should be mentioned that large and small banks have significant differences in means of all the liquidity ratios at 95% confidence level.

Large commercial banks have greater average total deposits to total assets and loans to total assets ratios when compared with small commercial banks. Total deposits are almost 64 percent of their total assets for the large commercial banks, while this percentage is 50 for the small peers. Also the large commercial banks are given 40 percent of their total assets as loans and indicate a high liquidity risk.

On the other hand the large commercial banks have smaller averages for the liquidity ratios which are in the second category. Large commercial banks' equity bases are almost 11 percent of their asset bases on average while this value is almost 19

percent for the small commercial banks. Besides the liquid assets of large commercial banks are 64 percent of their total deposits, while small commercial banks have more liquid assets than their total deposits. Lastly liquid assets constitute the 38 percent of the total assets of large commercial banks while this percentage is 49 for small peers.

According to these parametric tests, large commercial banks have expressed more liquidity risk in Turkey. This is a highly dangerous situation for the Turkish commercial banking sector since large banks have formed almost 90 percent of the domestic commercial banks.

4.3.3. 1990-1993 Periods versus 1994-2000 Periods

Turkish banking sector trapped into a financial crisis in the beginning of 1994. In order to analyse the difference in liquidity risk situation of Turkish banking sector the data are separated in two sub-periods, 1990-1993 and 1994-2000.

Total deposits to total assets ratios of twenty-five banks for the period 1990-1993 form the first group, and the values of the same ratio of twenty-five banks for the period 1994-2000 form the second group. Then means of these two groups are compared. This computation is repeated for other four liquidity ratios, too.

As the whole sector experienced a banking crisis at the end of 1993, it is expected that they have learned from their experiences and expressed less risk after that period. So total deposits to total assets and loans to total assets are expected to decrease in 1994-2000 period. While total equity to total assets, liquid assets to total deposits and liquid assets to total assets ratios are expected to increase in the same period.

Once more the significances of the differences of the averages of all of the five liquidity ratios are tested by using one-way ANOVA, and the results are provided in table 4.5.

Table 4.5 - ANOVA Results for 1990-1993 Period versus 1994-2000 Period

	1990-1993 Period		**1994-2000 Period**			
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**F**	**p-value**
Total Deposits to Total Assets	0,5	0,2239	0,5966	0,2059	11,7	0,001
Loans to Total Assets	0,4322	0,14	0,3383	0,1381	25,86	0
Total Equity to Total Assets	0,1596	0,1344	0,1475	0,1038	0,63	0,43
Liquid Assets to Total Deposits	1,025	0,9867	0,8026	0,563	4,87	0,028
Liquid Assets to Total Assets	0,4307	0,1479	0,4486	0,1653	0,71	0,4

When F-values are examined it can be seen that the differences of the averages of total deposits to total assets, loans to total assets, and liquid assets to total deposits ratios are significant between the two periods, before and after the financial crisis of 1994, at a 95% confidence level. Unfortunately the averages of total equity to total assets and the liquid assets to total assets ratios show insignificant differences between two sub-periods.

Before the crisis, the domestic commercial banks accept deposits that are totalled to 50 percent of their total assets on average. Interestingly enough the depositors continue to deposit their savings to the banks and the banks still accept these savings, increase their total deposits to total assets ratio to 60 percent on average, despite to their experience. Almost half of their liabilities sides are constituted from the deposits.

On the other hand the domestic banks decrease the loans they give after the financial crisis. Before the crisis on the average the domestic commercial banks of Turkey give 43 percent of their total assets as loans. However after the crisis this ratio decreases to 34 percent on average. It can be concluded that the banks have been more careful when giving credits after the banking crisis due to the problem of loan losses in the crisis period, and they have tried to decrease their liquidity risk.

According to table 4.5 the average of liquid assets to total deposits ratio of the domestic commercial banks decrease after 1994, from 1.03 to 0.80. There are two

reasons behind this decrease. One of them is an increase in the deposit portfolios of the banks, which is the result of taking all deposits to the savings deposit insurance fund. This situation unfortunately signals the moral hazard problem and excessive risk taking of the Turkish commercial banking sector. The second reason is the decrease in the amount of liquid assets in the liquid assets portfolios of the banks. The banks have sold their liquid assets to meet the demands of the depositors.

As a result it can be concluded that the liquidity risk of Turkish banking sector has continued to rise after the crisis at the beginning of the 1994. The total deposits to total assets ratio has increased on the average after 1993 while the average of liquid assets to total deposits ratio has decreased.

4.3.4. Commercial Banks Listed in İstanbul Stock Exchange versus Commercial Banks Not Listed in İstanbul Stock Exchange

The firms listed in İstanbul Stock Exchange (ISE) should satisfy many qualifications and they are monitored closely by Capital Markets Board of Turkey. The eight of the twenty-two private-owned banks that are examined during the thesis were listed in the İstanbul Stock Exchange through 1990-2000 periods. These were Akbank, Alternatifbank, T. Dış Ticaret Bankası, Finans Bank, T Garanti Bankası, T. İş Bankası, Tekstil Bankası, and Yapı ve Kredi Bankası (İstanbul Stock Exchange, 2004). This time not all domestic commercial banks are used in the data set. Only the private-owned commercial banks are employed, since none of the state-owned commercial banks have been listed in the ISE, the differences in the means of private-owned commercial banks listed in ISE and not listed in ISE are computed and compared.

Total deposits to total assets ratios of the eight commercial banks that have been listed in the ISE for the eleven years are grouped on one side and total deposits to total assets ratios of the rest of the banks are grouped on the other side. This computation is repeated for the other four liquidity ratios, loans to total assets, total

equity to total assets, liquid assets to total deposits and liquid assets to total assets, too.

Since the banks listed in the İstanbul Stock Exchange are monitored closely compared to the rest it is expected that they show less liquidity risk. We are expected to have higher total equity to total assets, liquid assets to total assets, and liquid assets to total deposits ratios, and lower total deposits to total assets and loans to total assets ratios for the banks listed in the ISE when compared to the ones not listed.

In order to test the significance of the differences in means of the liquidity ratios of the domestic commercial banks of Turkey, one-way ANOVA is used and the finding are given in table 4.6.

Table 4.6-. ANOVA Results for Commercial Banks Listed in İstanbul Stock Exchange versus Commercial Banks Not Listed in İstanbul Stock Exchange

	Listed in ISE		**Not Listed in ISE**			
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**F**	**p-value**
Total Deposits to Total Assets	0.5495	0.1268	0.5315	0.2658	0.34	0.56
Loans to Total Assets	0.3884	0.1054	0.3565	0.1709	2.39	0.124
Total Equity to Total Assets	0.1311	0.0425	0.187	0.1437	12.29	0.001
Liquid Assets to Total Deposits	0.8497	0.3734	1.009	0.9658	2.11	0.148
Liquid Assets to Total Assets	0.4346	0.1079	0.4723	0.1881	2.84	0.093

At the 95 percent confidence level only the difference in the means of total equity to total assets ratio is significant. The differences in the means of the remaining ratios are insignificant.

Interestingly the private-owned commercial banks not listed in İstanbul Stock Exchange have greater total equity to total assets ratio. The domestic private-owned commercial banks listed in İstanbul Stock Exchange have been smaller in number but they have been the largest private-owned commercial banks of Turkey so having

lower total equity to total assets ratio has increased the liquidity risk of Turkish banking sector.

Although these tests are parametric it is not needed to do non-parametric tests. As the number of observations for each sub-group in each category is large enough the normality tests to hold.

Conclusion:

The results have supported that Turkish banking sector has expressed liquidity risk. The state-owned commercial banks and the larger banks have shown more risk than the private-owned and smaller peers respectively. Furthermore it can also be said that the banking sector have continued to express high risk after the crisis, and listed in İstanbul Stock Exchange have not made a difference in liquidity risk structures of private-owned commercial banks.

After liquidity risk of Turkish banking sector is examined by using ratio analysis and the means of liquidity ratios among different groups of banks are compared via analysis of variance, the effects of liquidity risks on returns of the banks in the sector are analysed in the next chapter.

CHAPTER 5

RELATION BETWEEN LIQUIDITY RISK AND BANKING RETURNS

In the previous chapter liquidity risk structure of Turkish banking sector is analysed by using well known liquidity ratios. In order to examine the risk structure of the sector further the banks are grouped into two according to four criteria and the differences in the means of liquidity ratios for these two groups are statistically tested. In this chapter relation between liquidity risk and returns of the banks is examined. It should be mentioned that in this thesis return is used to describe the profitability of the banks. This relation is explained by using two models mainly. In first model liquidity risk and return ratios are used and in the second model the balance sheet and income statement items are employed. Each group of models form a different section in the chapter. The sections start with the explanation of the models and than continued with the estimation results and their interpretations. The models are estimated by panel data regressions.

The finance literature suggests that risk and return move in the same direction. As risk increases, return increases, too (Ross, Westerfield, and Jordan, 1998; Brigham and Ehrhardt, 2002). This situation also holds for the banking sector (Sinkey, Jr., 1998; Saayman, 2002; Koch and MacDonald, 2000; Saunders, 1997; ECB, 2002; Tripe 1999).

The weight of government debt instruments is high in liquid assets portfolios of Turkish commercial banks. Turkish commercial banks have preferred to invest in

these instruments instead of giving loans. This situation should decrease their returns according to literature, since loans are accepted riskier than liquid assets, when liquidity risk is concerned. However government debt instruments in Turkey are riskier than the ones in developed countries so they have higher returns. The effect of investing in government debt instruments instead of giving loans on the returns of banks is discussed in this chapter.

The models used to explain relation between liquidity risk and banking returns are estimated by panel data regressions (Erlat, 1997; Lindquist, 2004; Beck and Levine; 2004; Van Rijckeghem and Weder; 2003; Greene, 2002; Greene, 1997; Johnston and Dinardo, 1997; Baltagi, 2002; Hsiao, 2003). For panel data estimations the computer programme called STATA is used in the thesis (Hamilton, 2003; Stata7, 2001; UCLA Academic Technology Services; 2004).

Only the differences of the cross-sectional units, in this case the banks are looked at through the whole period, so one-way panel data approach is used. Moreover to have a balanced panel-data regression the data of Fiba Bank, Denizbank, Anadolubank, and Alternatifbank are disregarded from the data set since the data for these banks have started from 1999, 1997, 1997 and 1992 respectively. Moreover the data for Bayındırbank and Tekfenbank are also disregarded in the first section, since Bayındırbank have not had any deposits in 1990 and 1991, and Tekfenbank have not had any deposits through the whole period. Because of this liquid assets to total deposits ratios can not be computed.

5.1. Relation Between Liquidity Risk and Banking Returns Estimated by Ratios

The returns of the banks are proxied by two accounting ratios; return on equity and return on assets. Return on equity is computed by dividing net income to total equity and shows how much can investors earn for 1 TL they invest. While return on asset is calculated by dividing net income to total assets and indicates net income generated for 1 TL in assets portfolio.

In this section return on equity (ROE) and return on asset (ROA) ratios are employed as dependent variables and total deposits to total assets (TDTTA), loans to total assets (LTTA), total equity to total assets (TETTA), liquid assets to total assets (LATTA) and liquid assets to total deposits (LATTD) ratios are used as independent variables.

The expectation is to see a positive relation between the returns and liquidity risk structures of the banks. As liquidity risks increase, returns should also increase. To test this hypothesis the return on equity and return on assets ratios of the nineteen banks are computed for the period 1990-2000, and regressed on the five liquidity ratios computed before. The model is:

$$ROE_{it}=\beta_0+\beta_1 TDTTA_{it}+ \beta_2 LTTA_{it}+ \beta_3 TETTA_{it}+ \beta_4 LATTA_{it}+ \beta_5 LATTD_{it}+\varepsilon_{it}$$

As first two independent variables move in same direction with liquidity risk of a bank it has been expected that they have positive coefficients. Other three ratios move in opposite direction with liquidity risk. As they increase liquidity risks of the banks decrease, so they are expected to have negative coefficients.

The estimation results of a random effects model are given in table 5.1.

Table 5.1. - Estimation Results of a Random Effects Model when Dependent Variable is ROE

Independent Variables	**Coefficient**	**Standard Error**	**Z**	**P>|z|**
CONSTANT	0.5865284	0.2368451	2.48	0.013
TDTTA	-0.7374891	0.2147799	-3.43	0.001
LTTA	0.2014986	0.2196488	0.92	0.359
TETTA	-0.0377819	0.3221302	-0.12	0.907
LATTD	-0.1340876	0.0387819	-3.46	0.001
LATTA	0.8201976	0.2171781	3.78	0.000
R^2 within	*0.0345*			
R^2 between	*0.5743*			
R^2 overall	*0.2224*			
Breush and Pagan	*$\chi^2(1)=14.77$*			
Hausman	*$\chi^2(5)=33.85$*			

The significant independent variables in this model are total deposits to total assets ratio, liquid assets to total deposits ratio and liquid assets to total assets ratio in 95 percent confidence level.

Total deposits to total assets ratio has a negative coefficient, which indicates that an increase in this ratio will cause a decrease in return on equity ratio of a bank by 0.74 units. The increase in this ratio mostly signals a higher liquidity risk for a bank. In this situation the literature does not hold for Turkish commercial banks and increase in risk affects the return negatively.

Liquid assets to total deposits ratio also have a negative coefficient. The higher this ratio is, the lower the return on equity ratio of banks will be by 0.13 units. Increase in liquid assets to total deposits ratio indicates a lower liquidity risk for banks. As a result decrease in risk position of banks causes a decrease in their returns.

Lastly in this regression, liquid assets to total assets ratio of the banks has a positive coefficient and return on equity ratios of banks increase when this ratio increases by 0.82 units. As liquid assets to total deposits ratio enhances, liquidity risk of banks

decrease. So decrease in risk position of banks is followed by a simultaneous increase in their returns.

Under the assumption that intercept terms of the cross-sectional units are uncorrelated with the dependent variables the model has an overall R-square of 0.22. The 22 percent of overall variation in the return on equity ratio can be explained by the variation of the dependent variables. The between R-square is even higher. The fifty-seven percent of the variation of ROE can be explained by the cross-sectional variation.

In order to see if the pooled model or panel data estimation is more appropriate for this data set, the Breusch-Pagan Lagrange Multiplier (LM) test (1980) (Greene, 1997) is applied. The p-value for this test is 0.0001. As a result null hypothesis that variance of random disturbance terms characterizing the *i*th observation in the random effects model is 0, is rejected. In conclusion panel data regression is preferable for this data set.

Then to see if fixed effects or random effects models are better for this estimation Hausman Specification test (1978) (Greene, 1997) is carried out. Under null hypothesis the estimates of ordinary least squares and generalized least squares should not differ systematically. The p-value for this test is 0.0000. The null hypothesis is rejected so fixed effects model is preferred to random effects model since assumption about 0 covariance between individual effect and independent variables does not hold, so model is estimated once more by using fixed effects model, and the estimation of fixed-effects panel data regressions is given in the table 5.2

Table 5.2 - Estimation Results of a Fixed Effects Model when Dependent Variable is ROE

Independent Variables	**Coefficient**	**Standard Error**	**T**	**P>|t|**
CONSTANT	-0.0068304	0.2636355	-0.03	0.979
TDTTA	0.1294697	0.278661	0.46	0.643
LTTA	0.2591205	0.2240102	1.16	0.249
TETTA	0.6470591	0.360097	1.80	0.074
LATTD	-0.0711332	0.0394278	-1.80	0.073
LATTA	0.5927802	0.2340098	2.53	0.012
R^2 *within*	*0.0712*			
R^2 *between*	*0.0032*			
R^2 *overall*	*0.0195*			

In this estimation only liquid assets to total assets ratio is significant in 0.95 confidence level, while total equity to total assets and liquid assets to total deposits ratios are significant in 90 percent confidence level.

The three of these ratios move in the opposite direction of the liquidity risk situation of a bank. If these ratios increase then the liquidity risk of a bank decreases.

Total equity to total assets ratio has a positive coefficient. An increase in this ratio increases return on equity ratio of a bank by 0.65 units, hence a decrease in risk position of a bank causes an increase in its return.

Liquid assets to total deposits and liquid assets to total assets ratios have negative and positive coefficients respectively. When liquid assets to total deposits increases return on equity decreases by 0.07 units, so a decrease in liquidity risk of a bank causes a decrease in its return. When the ratio of liquid assets to total assets increases return on equity ratio increases by 0.59 units, so risk and return move in the opposite directions according to this ratio. As a conclusion while the liquid assets to total deposits ratio complies with the literature the other two ratios, the total equity to total assets and liquid assets to total assets do not.

Unfortunately the overall R-square of this fixed effects panel data regression is very low, 0.02. Only 2 percent of the variation in the return on equity ratio can be explained by the variation in the independent variables.

Moreover, in order to have a more explanatory model, return on assets ratio is regressed on these five liquidity ratios to measure effects of risk on their returns. The expectations for the coefficient signs of this regression are same with the other model. The signs of the coefficients of first two independent variables are expected positive while the signs of the coefficients of rest of these independent variables are expected negative. The second model is:

$$ROA_{it}=\beta_0+\beta_1 TDTTA_{it}+ \beta_2 LTTA_{it}+ \beta_3 TETTA_{it}+ \beta_4 LATTA_{it}+ \beta_5 LATTD_{it}+\varepsilon_{it}$$

The random effects estimation results of this regression are given in the table 5.3.

Table 5.3 - Estimation Results of a Random Effects Model when Dependent Variable is ROA

Independent Variables	**Coefficient**	**Standard Error**	**Z**	**P>|z|**
CONSTANT	0.0475031	0.0194416	2.44	0.015
TDTTA	-0.0700228	0.016719	-4.19	0.000
LTTA	-0.0025188	0.0187961	-0.13	0.893
TETTA	0.2228315	0.0263691	8.45	0.000
LATTD	-0.0143103	0.0033668	-4.25	0.000
LATTA	0.0386618	0.0181961	2.12	0.034
R^2 within	*0.3036*			
R^2 between	*0.8293*			
R^2 overall	*0.5037*			
Breush and Pagan	*$\chi^2(1)=0.87$*			

As indicated in table 5.3 when dependent variable is return on assets ratio, the constant, total deposits to total assets, total equity to total assets, liquid assets to total

deposits and the liquid assets to total assets ratios are significant at 95 percent confidence level.

Total deposits to total assets ratio has a negative coefficient. When this ratio increases by 1 unit, the return on asset ratio decreases by 0.07 units. As this ratio increases liquidity risk of a bank increases, too. According to this ratio the risk increases while the return decreases and this situation highlights a conflict between the findings of Turkish commercial banks and the literature.

The last three ratios move in the opposite direction with liquidity risk. An increase in these ratios indicate a decrease in risk profiles of banks. Total equity to total assets and liquid assets to total assets ratios have positive coefficients. As they increase by 1 unit, return on assets ratios increase by 0.22 and 0.04 units respectively. They indicate that as the risk decreases the returns of the banks increase.

On the other hand the liquid assets to total deposits ratio has a negative coefficient. One unit rise in this ratio reduces return on asset ratio by 0.01 units. This ratio has an expected sign, since increase in this ratio causes a decrease in risk and return.

Moreover the R-square for this estimation is very high, it is 50.37 percent. Almost half of the variability in return on asset ratio can be explained by using the model.

Then in order to see which model, pooled or panel is preferable for this data, the Breush-Pagan LM test (1980) is applied. The p value for this test is 0.3518, so null hypothesis, the variances of the random disturbance terms characterizing each cross sectional unit is 0, can not be rejected. There are no bank specific effects in the data. The pooled model is better for this estimation. The estimation results for the pooled model is shown in table 5.4:

Table 5.4 -. Estimation Results of Pooled Model when Dependent Variable is ROA

Independent Variables	Coefficient	Standard Error	T	P>|t|
CONSTANT	0.0547116	0.0183603	2.98	0.003
TDTTA	-0.079884	0.0151829	-5.26	0.000
LTTA	-0.001739	0.0182803	-0.10	0.924
TETTA	0.2098383	0.0248189	8.45	0.000
LATTD	-0.0150655	0.0033382	-4.51	0.000
LATTA	0.0406526	0.0174108	2.33	0.021
R^2	*0.5050*			

In this regression the loans to total assets ratio is the only insignificant variable. All the other explanatory variables and the constant term are significant in the 95 percent confidence level.

An increase in total deposits to total assets ratio and liquid assets to total deposits ratios by 1 unit decrease return on assets ratio of banks by 0.08 and 0.02 units respectively. On the other hand increases in total equity to total assets and liquid assets to total assets ratios by 1 unit, increase return on asset ratio by 0.21 and 0.04 units.

As indicated before an increase in total deposits to total assets ratio signals an increase in liquidity risk of a bank while an increase in last three ratios, total equity to total assets, liquid assets to total deposits and liquid assets to total assets, indicate a decrease in liquidity risk of a bank. Since risk and return move in the same direction. It is expected that total deposits to total assets ratio to have positive coefficient while the last three have negative coefficients. However only the sign of the coefficient of liquid assets to total deposits ratio is estimated as expected.

Moreover this time R-square of the model also increases slightly. The model can explain the 50.50 percent of the variation of the return on asset ratio.

Conclusion:

As a conclusion only the liquid assets to total deposits ratio has an expected sign. It shows the positive relation between risk and return in the commercial banking sector of Turkey. The rest indicates the negative relation between risk and return structures of Turkish commercial banks. As risk increases, return in the sector decreases. This conflict with the finance literature is probably because of the weight of total securities in liquid asset portfolios of the banks examined. Since risk of these securities are higher than expected, they have higher returns, hence Turkish banking sector have shown a negative relation between risk and return, to analyse this negative relation further two more group of regressions are run.

5.2. Relation Between Liquidity Risk and Banking Returns Estimated By Balance Sheet and Income Statement Items

In this section instead of the ratios, balance sheet and income statement items indicating returns and liquidity position of the banks are used. For this study net income (NI) of income statement is used as a proxy for return of the banks. Liquidity positions of the banks are proxied by using liquid assets (LA) and loan (L) totals of asset side, and total shareholders equity (E), and total deposits (D) of liabilities side. Moreover total of securities portfolio (SEC), which mainly consists of the government debt instruments, and the total of savings deposits (SD) are also used in order to estimate liquidity position of the banks.

Only the data of Fiba Bank, Anadolubank, Alternatifbank, and Denizbank are disregarded. The deposits of Tekfenbank through the whole period and Bayındırbank in 1990 and 1991 are kept 0.

Net income in banks is summation of the interest income from liquid assets and loans minus the interest expense on the deposits, to see the effects of these variables two regression equations are used. In the first regression equation net income is tried to

be explained by total liquid assets, total deposits, total loans and total equity. The first model is:

$$NI_{it}=\beta_0+\beta_1 LA_{it}+ \beta_2 D_{it}+ \beta_3 L_{it}+ \beta_4 E_{it}+\varepsilon_{it}$$

In this regression since banks get interest income from liquid assets and loans their coefficients are expected to be positive. On the other hand banks have interest expenses on deposits so its coefficient should be negative. Although total equity does not affect the net income directly, since banks with higher equity bases are accepted as more powerful, it may affect net income positively. Estimation results for random effects panel data regression is in table 5.5.

Table 5.5- Estimation Results of a Random Effects Model when Dependent Variable is Net Income

Independent Variables	**Coefficient**	**Standard Error**	**Z**	**P>|z|**
CONSTANT	74.13902	1215.375	0.06	0.951
LA	0.1115948	0.0057113	19.54	0.000
E	0.0913614	0.0148016	6.17	0.000
D	-0.0254563	0.0019956	-12.76	0.000
L	0.0055177	0.0064903	0.85	0.395
R^2 within	*0.8917*			
R^2 between	*0.9607*			
R^2 overall	*0.9011*			
Breush and Pagan	*$\chi^2(1)=6.34$*			

While explaining net income only the liquid assets, total equity and total deposits are significant at 95 percent confidence level.

All three have expected signs, liquid assets and total equity have positive coefficients while total deposits have negative coefficient. Increases in liquid assets and total equity by 1 unit, increase net income by 0.11 and 0.09 units respectively. On the other hand an increase in total deposits by 1 unit, decreases net income by 0.03 units.

In this regression total loans are insignificant. They do not have any effect on net income of the banks.

The overall R-square for this estimation is 90.11 percent. The model explains the 90 percent of variability in net income. This is also expected since net income is equal to interest income from liquid assets and loans less the interest expenses of the deposits.

In order to see if there are any bank specific effects Breusch-Pagan Lagrangian Multiplier test (1980) is applied. The p value for this test is 0.0118 which is smaller than 0.05. The null hypothesis that pooled model is better is rejected. There are bank specific effects. However the estimated variance of the u is 0, so another regression is run by using pooled model. The estimation results for independent variables are equal to the estimation results with random effects model.

Then the model is estimated by using fixed-effects assumption and the results for are given in table 5.6.

Table 5.6- Estimation Results of a Fixed Effects Model when Dependent Variable is Net Income

Independent Variables	**Coefficient**	**Standard Error**	**T**	**P>|t|**
CONSTANT	379.7309	1176.629	0.32	0.747
LA	0.104575	0.0059839	17.48	0.000
E	0.0694215	0.15264	4.55	0.000
D	-0.023554	0.0020947	-11.24	0.000
L	0.0118064	0.0070055	1.69	0.093
R^2 *within*	*0.8938*			
R^2 *between*	*0.9381*			
R^2 *overall*	*0.8986*			

This time significance of total loans is increased but still it is insignificant in the 95 percent confidence level. Moreover coefficients of liquid assets, total equity and total deposits are decreased in absolute terms, while coefficient of total loans is increased

in absolute terms. A rise in liquid assets and total equity by 1 unit, increases net income by 0.1046 and 0.069 units respectively. This time increase in total deposits by 1 unit diminishes net income by 0.0235 units.

Furthermore the overall R-squared is decreased to 0.8986. The 89.86 percent of variability of net income can be explained by variance of independent variables.

In Turkey total securities portfolios of banks, have high weight in their assets' portfolios, so incomes of banks mostly depend on their income from securities portfolios. Also interest expenses of banks are due to savings deposits since they are interest bearing deposits, so these variables can be more explanatory in explaining the net income. Moreover total securities has less correlation with net income than total liquid assets and total saving deposits has less correlation with net income when compared to total deposits, thus explanatory power of the model can be enhanced by using these variables (Table 5.7).

Table 5.7-. Correlation Between Dependent and Independent Variables

	NI	SEC	LA	E	D	SD	L
NI	1.0000						
SEC	0.8319	1.0000					
LA	0.8523	0.9230	1.0000				
E	0.8445	0.7691	0.8370	1.0000			
D	0.5346	0.7676	0.8575	0.6639	1.0000		
SD	0.5340	0.7613	0.8544	0.6617	0.9981	1.0000	
L	0.7416	0.8476	0.9206	0.8499	0.8971	0.8979	1.0000

The second model includes total securities, total equity, total saving deposits and total loans as independent variables.

$$NI_{it}=\beta_0+\beta_1 SEC_{it}+ \beta_2 SD_{it}+ \beta_3 L_{it}+ \beta_4 E_{it}+\varepsilon_{it}$$

It is expected that total securities, total equity, and loans to have positive coefficients while saving deposits have negative coefficients in the estimation. The results of the second model random effects panel data regression is given in table 5.8:

Table 5.8 – Second Estimation Results of a Random Effects Model when Dependent Variable is Net Income

Independent Variables	**Coefficient**	**Standard Error**	**Z**	**P>|z|**
CONSTANT	1619.852	1596.748	1.01	0.310
SEC	0.1518912	0.0122014	12.45	0.000
E	0.1548565	0.0176702	8.76	0.000
SD	-0.0184197	0.0029778	-6.19	0.000
L	0.0133698	0.0083108	1.61	0.108
R^2 within	*0.8354*			
R^2 between	*0.8869*			
R^2 overall	*0.8425*			
Breush and Pagan	*$\chi^2(1)=16.14$*			
Hausman	*$\chi^2(4)=78.16$*			

Total securities, total equity and savings deposits are significant but total loans are still insignificant in 95 percent confidence level.

The signs of explanatory variables are estimated as expected. One unit increase in both total securities and total equities of the banks cause a 0.15 units increase in their net income. On the other hand 1 unit rise in savings deposits diminishes net income by 0.018 units. The overall R-square is 84.25 percent. Eighty-four percent of variation in net income can be explained by variations of these explanatory variables.

As usual then Breush-Pagan LM (1980) test is applied. The p-value is 0.0001 so we can conclude that there are bank specific effects in the data. Moreover Hausman specification test (1978) is used in order to decide fixed-effects or random-effects models is more suitable for this data. The p-value for is 0.0000. fixed-effects model

is better. Estimation results for fixed-effects panel data, where individual effects are uncorrelated with regressors, are given below.

Table 5.9- Second Estimation Results of a Fixed Effects Model when Dependent Variable is Net Income

Independent Variables	**Coefficient**	**Standard Error**	**T**	**P>|t|**
CONSTANT	1491.669	1443.079	1.03	0.303
SEC	0.1397746	0.0121018	11.55	0.000
E	0.1218132	0.0181182	6.72	0.000
SD	-0.0181267	0.0031023	-5.84	0.000
L	0.0248721	0.008662	2.87	0.005
R^2 *within*	*0.8391*			
R^2 *between*	*0.8449*			
R^2 *overall*	*0.8376*			

In this regression only constant term is insignificant in 95 percent confidence level. The signs are estimated again as expected. Rises in total securities, total equity, and total loans increase net income by 0.14, 0.12, and 0.03 units respectively while an increase in savings deposits by 1 unit decreases net income by 0.018 units.

As can be seen this time total loans have a significant value but still very low when compared to total securities (0.02487 versus 0.13977). The domestic commercial banks in Turkey prefer investing in total securities to giving credits since total securities increases their returns more.

However the R-square in this regression in decreased a little. The 83.76 percent of variability in net income can be explained by the model. Besides almost 84.49 percent of variation in net income can be explained by the variation between banks

In the regressions in this section the R-square values are very high so multicollinearity in the data set is also tested. In order to test for multicollinearity the correlation between independent variables are looked at by using variance-inflation

factor (VIF). It is known that a VIF value in access of 20 is a signal for multicollinearity (Gujarati, 1995).

The variance inflation factor values for the regression where total loans, liquid assets, total deposits and total equity are used as independent variables are listed in table 5.10.

Table 5.10- VIF Values (1)

Variables	**VIF**
Loans	13.68
Liquid Assets	7.97
Total Deposits	7.05
Total Equity	5.15

The variance inflation factor values for the regression where loans, total securities, savings deposits and total equity are used as independent variables are listed in table 5.11.

Table 5.11- VIF Values (2)

Variables	**VIF**
Loans	14.07
Total Securities	3.69
Savings Deposits	6.43
Total Equity	4.63

Fortunately all of the variance inflation factor vales are below 20 so it can be concluded that there is no harmful multicollinearity in the models.

Conclusion:

The estimations in the first section show that in Turkey banks have expressed less risk and more return at the same time. The increase in total equity to total assets and liquid assets to total assets ratios, which express a decrease in liquidity risk structure, have caused a rise in the return ratios. In the second section it is seen that total securities portfolios have the greatest effect on net incomes of the banks, while total loans are either insignificant or have very low effects on net income, which indicate that the banks have preferred to use deposits to invest in liquid assets instead of giving them as loans to investors.

CHAPTER 6

CONCLUSION

In this thesis, liquidity risk of Turkish banking sector during 1990-2000 periods is analysed. In order to manage this aim ratio analysis methodology is used. Besides the means of liquidity ratios among different groups of banks are compared via analysis of variance. Furthermore relation between liquidity risk and return in the sector is examined, and the models are estimated by panel data regressions.

In the ratio analysis peers are compared. The state-owned commercial banks have had higher averages for total deposits to total assets and loans to total assets ratios than the private-owned commercial banks through the 1990-2000 periods. They have indicated a liquidity risk since these ratios move in the same direction with risk profile of the banks. The state-owned banks have had huge deposit growths. The financial crises which have ended in bank runs have shifted the deposits from private-owned commercial banks to state-owned ones, especially in 1991-1992 and 1993-1994 periods. In 1994 since all the deposits in the banks are taken into Savings Deposit Insurance Fund, the depositors have started to invest to other banks, too. Moreover the state-owned banks have had lower averages for total equity to total assets, liquid assets to total assets and liquid assets to total deposits ratios. The state-owned banks have accepted the deposits, continued to give loans, and hold less liquid assets, so they have expressed liquidity risk through the examined period.

The five big private-owned commercial banks not taken into Savings Deposit Insurance Fund have been T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti

Bankası and Koçbank in that period. These banks have had more than average values for loans to total deposits, total deposits to total assets and loans to total deposits ratios. Besides they have had lower averages for total equity to total assets and liquid assets to total assets ratios when compared to their smaller peers. The depositors have chosen these banks rather than their smaller counterparts and these banks have extended more than half of these deposits as loans, hence they have also indicated a liquidity risk.

In order to compare the means of liquidity ratios among different groups of banks, banks are grouped according to their ownership structure, size, the period before and after the crisis in 1994, and being listed in İstanbul Stock Exchange or not, and differences of the means are tested statistically by analysis of variance. The five of liquidity ratios which are total deposits to total assets, loans to total assets, total equity to total assets, liquid assets to total deposits and liquid assets to total assets, are selected. The findings of the analysis support the ratio analysis. The state-owned commercial banks and the larger banks have shown more risk than the private-owned and smaller peers respectively. Furthermore it can also be said that the banking sector have continued to express high risk after the crisis, and the financial crisis in 2001 can be seen as the best support to this conclusion.

The third group of analysis has been conducted to examine the risk and return relation in Turkish commercial banks. The panel data regressions have shown that a rise in total equity to total assets and liquid assets to total assets ratios have caused a rise in the return ratios. The banks have expressed less risk and more return at the same time. Also the loans to total deposits ratio has been insignificant in explaining the return on equity and return on assets ratios of the banks.

To analyse risk and return relation in the sector with more explanatory models, balance sheet and income statement values are used instead of ratios. Total securities portfolios, government debt instruments, have the greatest effect on the net incomes of the banks, which is followed by total equity portfolios. As expected total deposits have a negative effect on net income as banks pay interest to the depositors. Lastly

total loans are either insignificant or very low effects on net income, which indicates that the banks have preferred to use deposits to invest in liquid assets instead of giving them as loans to investors.

As a conclusion the state-owned and the five big private-owned, T. İş Bankası, Yapı ve Kredi Bankası, Akbank, T. Garanti Bankası, and Koçbank, commercial banks of Turkey have indicated a high liquidity risk through the 1990-2000 period. Since these banks represent the sector it can be told that Turkish banking sector has been risky.

Although the private-owned commercial banks have had high liquid assets to total deposits and liquid assets to total assets ratios, this has been due to high weight of total securities portfolios, government debt instruments, in liquid asset portfolios of the banks. The government debt instruments are the main reason of conflict with finance literature in Turkish banking sector. These instruments are accepted as liquid assets however they are not as liquid as thought. They indicate high risk thus high return. Since they are named as liquid assets Turkish banking sector shows low risk and high return at the same time, which is a situation that needs further research.

The sector has become dependent on debt sustainability of Turkish government. The banks have financed the government budget deficit through the whole period. The wealth of the banks and the economy has been tied too closely and a crisis in one of them has spilled over to other immediately like in 1994 and 2001.

The main disadvantage of using the ratios for the liquidity risk analysis is having only the historical accounting data on hand, so the ratios calculated show the past not the future. The future financial environment that will affect the liquidity risk of the banks can not be incorporated into the analysis under these circumstances. Moreover in this thesis the data is unfortunately insufficient. Banks must disclose only yearly balance sheets and income statements to the third parities. The analysis done with more frequent and detailed data can help in finding more precise results.

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APPENDICES

APPENDIX A

BALANCE SHEET AND INCOME STATEMENT ITEMS

Balance Sheet:

1. Assets
    1.1. Liquid Assets
        1.1.1. Cash
        1.1.2. Due from Banks
        1.1.3. Central Bank
        1.1.4. Other Financial Institutions
        1.1.5. Interbank Funds Sold
        1.1.6. Securities
            1.1.6.1. Government Bonds
            1.1.6.2. Shares
            1.1.6.3. Others
            1.1.6.4. Total
        1.1.7. Reserve Requirements
        1.1.8. Total
    1.2. Loans
        1.2.1. Non-Specialized Loans
            1.2.1.1. Short Term
            1.2.1.2. Medium and Long Term
            1.2.1.3. Total
        1.2.2. Specialized Loans
        1.2.3. Total
    1.3. Permanent Assets
        1.3.1. Non-Performing Assets
            1.3.1.1. Non-Performing Loans
            1.3.1.2. Net
        1.3.2. Equity Participations (net)
            1.3.2.1. Financials
            1.3.2.2. Others
        1.3.3. Affiliated Assets
        1.3.4. Fixed Assets (net)
        1.3.5. Total

1.4. Other Assets
    1.4.1. Accrued Income
    1.4.2. Unclassified Assets
    1.4.3. Total
1.5. Total Assets

2. Liabilities
    2.1. Deposits
        2.1.1. Demand Deposits
        2.1.2. Savings Deposits
        2.1.3. Total
    2.2. Non-Deposit Funds
        2.2.1. Interbank Funds Borrowed
        2.2.2. Funds Borrowed (from)
            2.2.2.1. Central Bank
            2.2.2.2. Domestic Banks
            2.2.2.3. Abroad
            2.2.2.4. Others
            2.2.2.5. Total
        2.2.3. Funds
        2.2.4. Securities
        2.2.5. Total
    2.3. Other Liabilities
        2.3.1. Accrued Interest
        2.3.2. Taxes, Duties Payable
        2.3.3. Provisions
        2.3.4. Unclassified Liabilities
        2.3.5. Total
    2.4. Shareholders' Equity
        2.4.1. Share-in Capital
        2.4.2. Reserves
        2.4.3. Revaluation Fund
        2.4.4. Loss
            2.4.4.1. Current Year
            2.4.4.2. Previous Years
        2.4.5. Total
    2.5. Total Income
        2.5.1. Current Year
        2.5.2. Previous Years
        2.5.3. Total
    2.6. Total Liabilities

Income Statement:

1. Interest Income
    1.1. Interest on Loans
        1.1.1. Total
        1.1.2. Interest on TL Loans

1.2. Interest on Securities
1.3. Interest on Deposit in Banks
1.4. Interest on Interbank Funds Sold
1.5. Other Interest Income
1.6. Total

2. Interest Expenses
   2.1. Interest on Deposits
      2.1.1. Total
      2.1.2. Interest on FX Deposits
   2.2. Interest on Non-Deposit Funds
   2.3. Other Interest Expense
   2.4. Total
3. Net Interest Income
4. (-) Provision for Loan Losses
5. Net Interest Income after Provisions
6. Non-Interest Income
   6.1. Income from Commissions (net)
      6.1.1. (+) Fees and Commissions Received from
         6.1.1.1. Loans
         6.1.1.2. Services
         6.1.1.3. Total
      6.1.2. (-) Fees and Commissions Paid
      6.1.3. Net
   6.2. Income from FX Transactions (net)
      6.2.1. Income
      6.2.2. (-) Loss
      6.2.3. Net
   6.3. Income from Capital Market Transactions (net)
      6.3.1. Income
      6.3.2. (-) Loss
      6.3.3. Net
   6.4. Other Non-Interest Income from
      6.4.1. Equity Participation
      6.4.2. Unclassified
      6.4.3. Total
   6.5. Total
7. Non-Interest Expenses
   7.1. Salaries and Employee Benefits
   7.2. Reserve for Retirement Pay
   7.3. Other Provisions
   7.4. Taxes and Duties
   7.5. Rental Expenses
   7.6. Depreciation and Amortization
   7.7. Other Expenses
   7.8. Total
8. Income (Loss) Before Tax
9. Provision for Income Tax (-)
10. Net Income (Loss)

APPENDIX B

TOTAL ASSETS OF THE BANKS

Table 1 - Total Assets of the Whole Sector and Domestic Commercial Banks (billion TL)

Years	Whole Banking Sector (1)	State-Owned and Private-Owned Commercial Banks (2)	(2) / (1)
2000	104,283,106	76,944,686	0.73784421
1999	72,120,858	51,446,846	0.71334212
1998	36,827,949	25,379,825	0.68914576
1997	19,378,544	13,137,012	0.67791533
1996	8,959,111	6,050,278	0.67532125
1995	4,102,384	2,749,527	0.67022663
1994	2,018,938	1,341,270	0.66434432
1993	1,047,988	640,839	0.6114946
1992	553,929	345,149	0.62309249
1991	295,277	187,924	0.63643291
1990	169,225	109,043	0.64436697

Table 2 - Total Assets (billion TL)

	2000		**1999**
T.C. Ziraat Bankası	16,393,327	T.C. Ziraat Bankası	12,035,315
T. Halk Bankası	10,737,800	T. Halk Bankası	7,147,230
T. İş Bankası	7,795,142	Yapı ve Kredi Bankası	4,895,095
Yapı ve Kredi Bankası	7,508,677	T. İş Bankası	4,765,894
Akbank	7,357,978	T. Garanti Bankası	4,532,402
T. Garanti Bankası	6,609,701	Akbank	4,353,822
T. Vakıflar Bankası	4,889,961	T. Vakıflar Bankası	3,390,877
Pamukbank	4,672,904	Pamukbank	3,262,599
Kocbank	2,129,532	Finansbank	1,339,826
Finansbank	2,006,036	Kocbank	1,227,414
T. Dış Ticaret Bankası	1,135,223	T. Dış Ticaret Bankası	889,995
T. Ekonomi Bankası	1,029,939	T. Ekonomi Bankası	655,388
Şekerbank	843,570	T. İmar Bankası	554,627
T. İmar Bankası	778,107	Şekerbank	481,888
Alternatifbank	644,484	Alternatifbank	465,049
Denizbank	587,902	Denizbank	375,145
Tekstilbankası	572,706	Tekstilbankası	329,452
Anadolubank	493,471	Bayındırbank	180,505
Bayındırbank	258,891	Anadolubank	170,911
Oyakbank	179,925	Oyakbank	136,972
Turkishbank	93,983	Adabank	58,720
MNG Bank	66,517	Turkishbank	57,929
Adabank	62,180	MNG Bank	52,690
Fibabank	51,727	Fibabank	46,658
Tekfenbank	45,003	Tekfenbank	40,443

Table 2 (Continued)

	1998		**1997**
T.C. Ziraat Bankası	5,936,669	T.C. Ziraat Bankası	3,168,736
T. Halk Bankası	3,120,532	T. Halk Bankası	1,533,523
Yapı ve Kredi Bankası	2,425,221	T. İş Bankası	1,349,131
Akbank	2,405,432	Yapı ve Kredi Bankası	1,240,475
T. İş Bankası	2,359,191	T. Garanti Bankası	1,192,703
T. Garanti Bankası	2,352,306	Akbank	1,169,556
T. Vakıflar Bankası	1,771,923	T. Vakıflar Bankası	990,665
Pamukbank	1,597,349	Pamukbank	788,976
Kocbank	603,110	Kocbank	350,731
Finansbank	528,064	Finansbank	275,669
T. Dış Ticaret Bankası	462,797	T. İmar Bankası	229,821
T. İmar Bankası	393,799	T. Ekonomi Bankası	190,942
T. Ekonomi Bankası	329,636	T. Dış Ticaret Bankası	161,470
Şekerbank	310,608	Şekerbank	133,640
Tekstilbankası	194,677	Tekstilbankası	110,906
Alternatifbank	174,097	Alternatifbank	96,333
Denizbank	113,766	Oyakbank	48,963
Oyakbank	92,848	Denizbank	20,968
Bayındırbank	50,045	Turkishbank	17,900
Adabank	38,064	Tekfenbank	17,684
Anadolubank	36,417	Anadolubank	17,151
Turkishbank	28,178	Adabank	16,305
MNG Bank	27,946	Bayındırbank	8,331
Tekfenbank	27,150	MNG Bank	6,433
Fibabank		Fibabank	

Table 2 (Continued)

	1996		**1995**
T.C. Ziraat Bankası	1,628,358	T.C. Ziraat Bankası	694,440
T. Halk Bankası	704,663	T. İş Bankası	375,129
T. İş Bankası	682,811	T. Halk Bankası	307,488
Yapı ve Kredi Bankası	556,956	Yapı ve Kredi Bankası	291,969
T. Vakıflar Bankası	497,744	Akbank	234,857
Akbank	467,551	T. Vakıflar Bankası	231,909
T. Garanti Bankası	402,464	Pamukbank	170,045
Pamukbank	343,479	T. Garanti Bankası	160,194
Kocbank	148,921	Kocbank	62,972
T. İmar Bankası	135,966	T. İmar Bankası	45,436
T. Ekonomi Bankası	99,270	Finansbank	35,172
Finansbank	90,375	T. Ekonomi Bankası	32,117
T. Dış Ticaret Bankası	74,859	Şekerbank	30,445
Şekerbank	66,407	T. Dış Ticaret Bankası	26,246
Alternatifbank	56,793	Alternatifbank	17,089
Tekstilbankası	42,016	Tekstilbankası	15,143
Oyakbank	17,952	Oyakbank	5,355
Adabank	9,701	Turkishbank	4,052
Turkishbank	9,452	MNG Bank	3,226
Tekfenbank	5,817	Tekfenbank	2,707
Bayındırbank	4,657	Adabank	2,302
MNG Bank	4,066	Bayındırbank	1,234
Anadolubank		Anadolubank	
Denizbank		Denizbank	
Fibabank		Fibabank	

Table 2 (Continued)

	1994		**1993**
T.C. Ziraat Bankası	356,857	T.C. Ziraat Bankası	177,665
T. İş Bankası	191,582	T. İş Bankası	83,777
T. Halk Bankası	141,773	Yapı ve Kredi Bankası	70,337
Yapı ve Kredi Bankası	139,612	Akbank	56,135
Akbank	121,068	T. Halk Bankası	54,649
T. Vakıflar Bankası	106,253	T. Vakıflar Bankası	46,512
Pamukbank	92,186	Pamukbank	42,860
T. Garanti Bankası	84,160	T. Garanti Bankası	38,616
Kocbank	18,352	Finansbank	16,714
Şekerbank	16,837	T. Dış Ticaret Bankası	13,545
T. Dış Ticaret Bankası	15,784	Şekerbank	8,951
T. İmar Bankası	14,181	Kocbank	6,847
T. Ekonomi Bankası	12,884	T. İmar Bankası	6,379
Finansbank	10,932	T. Ekonomi Bankası	5,873
Tekstilbankası	6,875	Tekstilbankası	4,532
Alternatifbank	2,981	Alternatifbank	2,288
Oyakbank	2,831	Tekfenbank	1,900
Tekfenbank	2,075	MNG Bank	961
Turkishbank	1,764	Turkishbank	771
MNG Bank	1,034	Oyakbank	691
Adabank	814	Adabank	561
Bayındırbank	435	Bayındırbank	275
Anadolubank		Anadolubank	
Denizbank		Denizbank	
Fibabank		Fibabank	

Table 2 (Continued)

	1992		**1991**
T.C. Ziraat Bankası	100,133	T.C. Ziraat Bankası	52,747
T. İş Bankası	50,314	T. İş Bankası	27,680
Yapı ve Kredi Bankası	34,435	Yapı ve Kredi Bankası	19,030
Akbank	31,076	akbank	18,522
T. Vakıflar Bankası	29,235	T. Vakıflar Bankası	15,547
T. Halk Bankası	28,147	T. Halk Bankası	13,862
Pamukbank	24,768	Pamukbank	13,684
T. Garanti Bankası	20,033	T. Garanti Bankası	11,671
Finansbank	5,557	T. İmar Bankası	3,178
Şekerbank	4,519	Şekerbank	2,420
T. Dış Ticaret Bankası	4,405	T. Ekonomi Bankası	2,188
T. İmar Bankası	3,463	T. Dış Ticaret Bankası	2,169
T. Ekonomi Bankası	2,988	Finansbank	2,029
Kocbank	1,853	Kocbank	1,323
Tekstilbankası	1,538	Tekstilbankası	800
Alternatifbank	613	Oyakbank	439
MNG Bank	534	Turkishbank	221
Tekfenbank	458	Tekfenbank	191
Oyakbank	373	Adabank	149
Turkishbank	337	MNG Bank	66
Adabank	304	Bayındırbank	8
Bayındırbank	66	Alternatifbank	
Anadolubank		Anadolubank	
Denizbank		Denizbank	
Fibabank		Fibabank	

Table 2 (Continued)

	1990
T.C. Ziraat Bankası	32,378
T. İş Bankası	17,039
Akbank	10,756
Yapı ve Kredi Bankası	10,547
T. Vakıflar Bankası	9,661
T. Halk Bankası	7,948
Pamukbank	7,069
T. Garanti Bankası	6,387
T. Dış Ticaret Bankası	1,588
Şekerbank	1,381
T. İmar Bankası	1,185
T. Ekonomi Bankası	1,039
Finansbank	782
Kocbank	519
Tekstilbankası	376
Oyakbank	108
Turkishbank	91
Tekfenbank	77
Adabank	72
MNG Bank	34
Bayındırbank	6
Alternatifbank	
Anadolubank	
Denizbank	
Fibabank	

APPENDIX C

RATIO ANALYSIS

Table 1 - Loans to Total Deposits Ratio

	2000	1999	1998	1997	1996	1995	1994
T.C. Ziraat Bankası	0.34068	0.30448	0.36153	0.72231	0.57088	0.71033	0.56934
T. Halk Bankası	0.16593	0.21437	0.28988	0.35249	0.31495	0.39222	0.26275
T. Vakıflar Bankası	0.66013	0.4812	0.66828	0.70492	0.53925	0.59947	0.81445
Average of State-Owned Banks	**0.3889**	**0.3334**	**0.4399**	**0.5932**	**0.475**	**0.5673**	**0.5488**
T. İş Bankası	0.62629	0.54717	0.74125	0.69431	0.66226	0.55883	0.45667
Yapı ve Kredi Bankası	0.63822	0.55572	0.70574	0.71173	0.70306	0.76366	0.72467
Akbank	0.60104	0.52933	0.60253	0.58524	0.42635	0.35229	0.31428
T. Garanti Bankası	0.73078	0.59395	0.70751	1.15057	1.05883	0.84213	0.6228
Koçbank	0.87664	0.51292	0.67122	0.61801	0.57622	0.59581	0.79911
Finansbank	0.70181	0.44518	0.50207	0.57845	0.81117	0.41963	1.5567
T. Dış Ticaret Banaksı	0.52193	0.27526	0.549	0.93212	0.91265	0.85306	0.79153
T. EkonomiBankası	0.52558	0.37145	0.45288	0.70692	0.78246	0.60818	0.57016
Şekerbank	0.5073	0.54219	0.52567	0.28524	0.41642	0.53432	0.68104
T. İmar Bankası	0.45726	0.57236	0.48774	0.50007	0.46342	0.70042	0.72754
Alternatifbank	0.90943	0.59441	0.78187	0.63354	0.2109	0.29715	0.85471
Denizbank	0.73097	0.48854	0.49162	0.51576			
Tekstilbankası	0.49495	0.99491	0.77618	0.96503	1.02575	0.59691	0.57654
Anadolubank	0.29727	0.39038	0.4666	0.14567			
Oyakbank	1.21271	1.42908	1.13458	1.60665	1.11514	1.76643	1.01901
Turkishbank	0.04401	0.08403	0.15678	0.21113	0.42096	0.41269	0.38455
MNG Bank	0.93113	0.61474	0.90437	2.34681	0.30175	0.17516	0.45042
Adabank	0.01061	0.00018	0.1553	0.19064	0.18574	0.53068	0.14205
Fibabank	0.69533	0.19603					
Tekfenbank							
Pamukbank	0.88011	0.78379	0.78302	0.77002	0.74755	0.65824	0.67969
Bayındırbank	0.2753	0.50229	0.46263	0.45206	0.58668	0.50141	0.47755
Average of Private-Owned Banks	**0.6033**	**0.5249**	**0.6029**	**0.73**	**0.6337**	**0.6204**	**0.6572**
Average of All Commercial Banks	**0.5765**	**0.501**	**0.5817**	**0.7122**	**0.6111**	**0.6128**	**0.6417**

Table 1 (Continued)

	1993	1992	1991	1990	Average of 11 Years
T.C. Ziraat Bankası	0.6379	0.85683	0.85548	0.80763	0.61249075
T. Halk Bankası	0.58189	0.54726	0.63286	0.73559	0.408198787
T. Vakıflar Bankası	0.62273	0.37232	0.41698	0.53065	0.582762788
Average of State-Owned Banks	**0.6142**	**0.5921**	**0.6351**	**0.6913**	**0.534484108**
T. İş Bankası	0.70902	0.56195	0.567	0.63387	0.614419343
Yapı ve Kredi Bankası	0.97102	0.67252	0.54985	0.46986	0.678731131
Akbank	0.62676	0.42996	0.44661	0.58672	0.500101355
T. Garanti Bankası	0.88535	0.69709	0.66823	0.66865	0.784170217
Koçbank	1.65588	1.03859	1.28598	1.0997	0.884551831
Finansbank	0.40859	0.81982	0.81707	0.91696	0.725222137
T. Dış Ticaret Banaksı	2.63028	1.79142	1.3945	2.10571	1.159768287
T. EkonomiBankası	1.35813	1.07961	0.80235	1.08232	0.758185669
Şekerbank	0.65056	0.70838	0.71269	0.56258	0.556943394
T. İmar Bankası	0.68477	0.32419	0.34711	0.68021	0.540463781
Alternatifbank	1.56384	1.47208			0.813105817
Denizbank					0.556722332
Tekstilbankası	0.6798	1.32588	1.52569	0.91935	0.898273134
Anadolubank					0.324979934
Oyakbank	10.3333	3.95745	2.88889	4.8	2.842115808
Turkishbank	0.89003	1	0.69725	1.58065	0.534734768
MNG Bank	0.14096	0.37537	1.19231	26	3.039365457
Adabank	0.49502	0.56771	0.89024	1.21212	0.398207223
Fibabank					0.445679855
Tekfenbank					
Pamukbank	0.82421	0.87968	0.7183	0.64561	0.760929717
Bayındırbank	0.38953	0.48387			0.459035206
Average of Private-Owned Banks	**1.4387**	**1.0103**	**0.969**	**2.7478**	**0.958022679**
Average of All Commercial Banks	**1.3209**	**0.9506**	**0.9163**	**2.4231**	**0.82829828**

Table 2 - Total Loans in the Banking Sector in1997-2000 (billion TL)

	Specialized Loans	**Non-Specialized Loans**
Banking Sector (1)	12,401,732	66,460,970
Commercial Banks (2)	11,871,843	59,621,702
(2)/(1)	0.957272984	0.897093467

Table 3 - Total Loans of the Domestic Commercial Banks in 1997-2000 (billion TL)

	Specialized Loans	**Non-Specialized Loans**
Commercial Banks	11,871,843	59,621,702
State-owned	11,746,368	10,761,354
Private-owned	125,475	43,646,515

Table 4 - The Specialized Loans in 1997-2000 (billion TL)

	Agriculture	**Real Estate**	**Vocational**	**Maritime**	**Tourism**	**Other**
T.C. Ziraat Bankası	7,935,221	0	0	0	0	0
T. Halk Bankası	0	0	1,042,986	0	0	1,272,407
T. Vakıflar Bankası	5	313,424	0	0	26	25,827
Total	7,935,226	313,424	1,042,986	0	26	1,314,546

Table 5 - Non-Specialized Loans in 1997-2000 (billion TL)

				Domestic Banks	
	Export	**Import**	**Investment**	**Deposit Banks**	**Development Banks**
Adabank	0	0	0	0	0
Akbank	1,017,122	0	557,975	55,151	688,855
Alternatifbank	124,397	0	28,989	0	300
Anadolubank	15,842	0	252	0	29,500
Bayındırbank	31,851	0	0	0	6,809
Denizbank	54,577	0	1,395	0	0
Fibabank	655	0	0	0	0
Finansbank	221,596	493	5,487	0	1,068
Koçbank	700,458	359	161,146	396	17,706
MNG Bank	13,688	0	0	0	1,869
Oyakbank	52,296	0	59,980	412	543
Pamukbank .	973,842	0	173,302	0	0
Şekerbank	143,487	6,739	18,922	65	11,676
Tekstilbankası	121,989	0	10	2,127	20,765
Turkishbank	132,850	0	10	2,127	20,765
T. Dış Ticaret Bankası	149,856	128	8,331	2,769	66
T. Ekonomi Bankası	251,067	1,448	23,973	0	5,007
T. Garanti Bankası	1,357,200	908	23,033	31,460	19,695
T. İmar Bankası	0	0	0	0	0
T. İş Bankası	2,124,595	216	911,092	54,345	106,792
Yapı ve Kredi Bankası	1,756,543	7,686	13,038	3,155	360
Total	9,243,911	17,977	1,986,935	152,007	931,776

Table 5 (Continued)

	Banks Abroad	Other Financial Sector	Gold Loans	Other
Adabank	0	0	0	7,801
Akbank	4,145	26,430	0	2,960,317
Alternatifbank	0	535	0	348,849
Anadolubank	0	0	0	129,176
Bayındırbank	1,615	1,000	0	78,456
Denizbank	0	0	0	287,554
Fibabank	0	0	0	8,935
Finansbank	0	0	0	799,361
Koçbank	8,914	0	36,794	841,227
MNG Bank	0	0	0	42,044
Oyakbank	1,341	0	0	70,761
Pamukbank .	10,335	313	0	4,910,029
Şekerbank	0	345	0	465,041
Tekstilbankası	0	0	0	303,587
Turkishbank	0	260	0	314,452
T. Dış Ticaret Bankası	14,445	5,132	0	367,088
T. Ekonomi Bankası	432	5,126	15,892	207,327
T. Garanti Bankası	60,772	23,422	27,501	3,899,688
T. İmar Bankası	0	0	0	840,113
T. İş Bankası	10,671	49,416	0	3,071,623
Yapı ve Kredi Bankası	33,494	0	0	4,890,337
Total	146,164	111,979	80,187	24,843,766

Table 6 - Non-Specialized Loans in 1997-2000 given by Turkey's Seven Biggest Banks (billion TL)

	Export	**Import**	**Investment**	**Deposit Banks**	**Development Banks**
Akbank	0.110031571		0.28082197	0.362818795	0.739292417
Koçbank	0.075775073				
Pamukbank	0.10534957				
Şekerbank		0.374867887			
T. Garanti Bankası	0.146820979			0.20696414	
T. İş Bankası	0.229837252		0.458541422	0.357516408	
Yapı ve Kred Bankası	0.190021636	0.427546309			
Total	0.857836082	0.802414196	0.739363391	0.927299343	0.739292417

Table 6- (Continued)

	Banks Abroad	**Other Financial Sectors**	**Gold Loans**	**Other**
Akbank		0.236026398		0.119157335
Koçbank			0.458852432	
Pamukbank				0.197636257
Şekerbank				
T. Garanti Bankası	0.415779535	0.209164218		0.15696847
T. İş Bankası		0.441297029		0.123637574
Yapı ve Kred Bankası	0.229153554			0.196843624
Total	0.644933089	0.886487645	0.458852432	0.794243261

Table 7 - Total Deposits to Total Assets Ratio

	2000	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**
T.C. Ziraat Bankası	0.7744	0.79651	0.8012	0.7676	0.8325	0.77985	0.73515
T. Halk Bankası	0.81207	0.77786	0.78515	0.74487	0.79603	0.74798	0.73372
T. Vakıflar Bankası	0.71452	0.70988	0.71579	0.70879	0.7593	0.71332	0.63614
Average of State-Owned Banks	**0.767**	**0.7614**	**0.7674**	**0.7404**	**0.7959**	**0.747**	**0.7017**
T. İş Bankası	0.59744	0.62486	0.65226	0.68526	0.69551	0.65967	0.74536
Yapı ve Kredi Bankası	0.61446	0.71406	0.708	0.72677	0.75532	0.68683	0.74708
Akbank	0.59471	0.59745	0.5962	0.64124	0.71458	0.65755	0.71012
T. Garanti Bankası	0.52001	0.52818	0.55151	0.43153	0.48346	0.53339	0.59994
Koçbank	0.54116	0.61334	0.59246	0.60334	0.59383	0.53487	0.52921
Finansbank	0.41077	0.39664	0.49336	0.51623	0.52315	0.53574	0.25814
T. Dış Ticaret Banaksı	0.46424	0.41821	0.38682	0.48229	0.50713	0.49162	0.42638
T. EkonomiBankası	0.42925	0.47343	0.58403	0.5591	0.56708	0.6103	0.53213
Şekerbank	0.77634	0.74542	0.7187	0.7985	0.80591	0.78328	0.80329
T. İmar Bankası	0.82963	0.85894	0.87422	0.90798	0.9227	0.89321	0.87222
Alternatifbank	0.43698	0.54733	0.48853	0.47762	0.73937	0.60536	0.43408
Denizbank	0.46503	0.58033	0.57551	0.4752			
Tekstilbankası	0.56335	0.47209	0.52171	0.51591	0.52785	0.57749	0.5568
Anadolubank	0.80344	0.67782	0.56844	0.81051			
Oyakbank	0.35365	0.24947	0.32643	0.31714	0.28253	0.24146	0.24161
Turkishbank	0.84999	0.8203	0.78842	0.85363	0.73487	0.76604	0.69728
MNG Bank	0.53395	0.48622	0.28773	0.09995	0.35047	0.4442	0.34139
Adabank	0.60783	0.7588	0.79356	0.86894	0.85857	0.68679	0.64865
Fibabank	0.26663	0.61314					
Tekfenbank	0	0	0 0	0 0	0 0	0	0
Pamukbank	0.67141	0.7345	0.79616	0.80473	0.82126	0.78444	0.79034
Bayındırbank	0.75114	0.55099	0.56807	0.81995	0.74812	0.57374	0.56322
Average of Private-Owned Banks	**0.5492**	**0.5664**	**0.5653**	**0.5903**	**0.6122**	**0.5824**	**0.5525**
Average of All Commercial Banks	**0.5753**	**0.5898**	**0.5906**	**0.609**	**0.6373**	**0.6049**	**0.5728**

Table 7 (Continued)

	1993	**1992**	**1991**	**1990**	**Average of 11 Years**
T.C. Ziraat Bankası	0.61299	0.63713	0.59977	0.6602	0.727026716
T. Halk Bankası	0.61809	0.67698	0.68417	0.6657	0.731147323
T. Vakıflar Bankası	0.71173	0.76391	0.76741	0.72094	0.720157612
Average of State-Owned Banks	**0.6476**	**0.6927**	**0.6838**	**0.6823**	**0.72611055**
T. İş Bankası	0.60344	0.67405	0.69884	0.68414	0.665529862
Yapı ve Kredi Bankası	0.51122	0.57738	0.66574	0.72665	0.675773355
Akbank	0.57308	0.7006	0.6881	0.68343	0.650643346
T. Garanti Bankası	0.49057	0.53442	0.62291	0.65915	0.541370193
Koçbank	0.36118	0.48948	0.40967	0.63776	0.536936862
Finansbank	0.56845	0.46842	0.44455	0.36957	0.453182564
T. Dış Ticaret Banaksı	0.16094	0.34938	0.40203	0.29786	0.398808203
T. EkonomiBankası	0.38226	0.44143	0.5457	0.3975	0.502019892
Şekerbank	0.70752	0.77097	0.66736	0.59594	0.74302021
T. İmar Bankası	0.7937	0.84176	0.87571	0.78903	0.85991787
Alternatifbank	0.3868	0.32137			0.493049573
Denizbank					0.524015731
Tekstilbankası	0.6271	0.40702	0.31625	0.49468	0.507295959
Anadolubank					0.715053492
Oyakbank	0.06946	0.12601	0.20501	0.09259	0.227759774
Turkishbank	0.37743	0.31454	0.49321	0.34066	0.639670406
MNG Bank	0.62747	0.63858	0.39394	0.02941	0.38484768
Adabank	0.53654	0.63158	0.55034	0.45833	0.672721317
Fibabank					0.43988651
Tekfenbank	0	0	0	0	0
Pamukbank	0.59606	0.5973	0.65295	0.63828	0.717039669
Bayındırbank	0.62545	0.4697	0	0	0.51548988
Average of Private-Owned Banks	**0.4736**	**0.4923**	**0.4796**	**0.4386**	**0.539274198**
Average of All Commercial Banks	**0.4973**	**0.5196**	**0.5087**	**0.4734**	**0.56169456**

Table 8 - Total Equity to Total Assets Ratio

	2000	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**
T.C. Ziraat Bankası	0.03133	0.02749	0.03778	0.05305	0.03293	0.05289	0.07151
T. Halk Bankası	0.02985	0.03622	0.04123	0.06331	0.05226	0.07095	0.05079
T. Vakıflar Bankası	0.07801	0.08134	0.0864	0.07982	0.06579	0.0658	0.05986
Average of State-Owned Banks	**0.0464**	**0.0484**	**0.0551**	**0.0654**	**0.0503**	**0.0632**	**0.0607**
T. İş Bankası	0.21033	0.17497	0.17732	0.14262	0.12692	0.10938	0.09826
Yapı ve Kredi Bankası	0.22157	0.12516	0.13308	0.12972	0.11761	0.1164	0.08205
Akbank	0.14707	0.17416	0.1873	0.1718	0.18487	0.15363	0.11945
T. Garanti Bankası	0.12371	0.12941	0.12258	0.10738	0.12108	0.14426	0.13085
Koçbank	0.08572	0.11885	0.13158	0.10545	0.1325	0.14648	0.21322
Finansbank	0.10976	0.10894	0.14994	0.12908	0.15617	0.1543	0.21204
T. Dış Ticaret Banaksı	0.1802	0.13076	0.12277	0.11197	0.13325	0.16879	0.1058
T. EkonomiBankası	0.09031	0.07187	0.08097	0.06529	0.07185	0.11642	0.16354
Şekerbank	0.08569	0.09881	0.08138	0.10875	0.10579	0.1212	0.12989
T. İmar Bankası	0.10217	0.06133	0.06376	0.04301	0.04193	0.06409	0.09604
Alternatifbank	0.10793	0.1142	0.0944	0.06274	0.06513	0.12084	0.32539
Denizbank	0.14149	0.10351	0.11887	0.21294			
Tekstilbankası	0.12503	0.15821	0.12264	0.08136	0.10382	0.13888	0.16625
Anadolubank	0.05281	0.07147	0.1602	0.1474			
Oyakbank	0.3311	0.25638	0.26539	0.23085	0.35756	0.4704	0.46309
Turkishbank	0.0924	0.05895	0.07666	0.0633	0.09204	0.15202	0.18991
MNG Bank	0.25523	0.2261	0.36062	0.56645	0.43483	0.35803	0.57737
Adabank	0.36896	0.0967	0.07973	0.09991	0.10628	0.20634	0.29115
Fibabank	0.46728	0.17622					
Tekfenbank	0.31482	0.27723	0.27529	0.23428	0.32285	0.21093	0.1306
Pamukbank	0.19449	0.12995	0.08745	0.10602	0.08432	0.0774	0.07648
Bayındırbank	0.14124	0.14469	0.29278	-0.1091	0.13099	0.20421	0.37011
Average of Private-Owned Banks	**0.1795**	**0.1367**	**0.1517**	**0.1339**	**0.1521**	**0.1702**	**0.2074**
Average of All Commercial Banks	**0.1635**	**0.1261**	**0.1396**	**0.1253**	**0.1382**	**0.1556**	**0.1874**

Table 8 (Continued)

	1993	**1992**	**1991**	**1990**	**Average of 11 Years**
T.C. Ziraat Bankası	0.11594	0.11127	0.099	0.07156	0.06406935
T. Halk Bankası	0.06985	0.08061	0.07661	0.08027	0.059269894
T. Vakıflar Bankası	0.05302	0.0652	0.06426	0.08477	0.071296621
Average of State-Owned Banks	**0.0796**	**0.0857**	**0.08**	**0.0789**	**0.064878621**
T. İş Bankası	0.1149	0.0985	0.10665	0.09056	0.131854788
Yapı ve Kredi Bankası	0.06854	0.08024	0.08886	0.08363	0.113350862
Akbank	0.139	0.13966	0.19366	0.19719	0.164344547
T. Garanti Bankası	0.13546	0.13073	0.1173	0.10709	0.124533282
Koçbank	0.21601	0.12466	0.13908	0.09249	0.136912591
Finansbank	0.06641	0.0862	0.11878	0.16624	0.132531981
T. Dış Ticaret Banaksı	0.08845	0.12191	0.16551	0.12594	0.132305481
T. EkonomiBankası	0.15205	0.15797	0.13757	0.15977	0.115236527
Şekerbank	0.1163	0.09338	0.11983	0.13541	0.108767541
T. İmar Bankası	0.10801	0.10829	0.06797	0.08186	0.076223696
Alternatifbank	0.15647	0.21207			0.139908186
Denizbank					0.144201451
Tekstilbankası	0.08561	0.08713	0.07375	0.08511	0.111617189
Anadolubank					0.10796801
Oyakbank	0.34877	0.26273	0.14579	0.33333	0.315036461
Turkishbank	0.2179	0.15134	0.181	0.21978	0.135935422
MNG Bank	0.24662	0.20225	0.12121	0.20588	0.323144128
Adabank	0.27094	0.27303	0.34228	0.38889	0.229474185
Fibabank					0.321749292
Tekfenbank	0.04	0.13974	0.20419	0.20779	0.214338245
Pamukbank	0.08082	0.07098	0.06833	0.08502	0.096478274
Bayındırbank	0.22545	0.4697	0.875	0.83333	0.325308259
Average of Private-Owned Banks	**0.1515**	**0.1584**	**0.1815**	**0.2**	**0.165714722**
Average of All Commercial Banks	**0.1417**	**0.1485**	**0.167**	**0.1827**	**0.152332852**

Table 9 - Loans to Total Assets Ratio

	2000	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**
T.C. Ziraat Bankası	0.26382	0.24252	0.28966	0.55444	0.47526	0.55395	0.41855
T. Halk Bankası	0.13475	0.16675	0.22759	0.26256	0.25071	0.29337	0.19279
T. Vakıflar Bankası	0.47168	0.34159	0.47834	0.49965	0.40945	0.42762	0.5181
Average of State-Owned Banks	**0.2901**	**0.2503**	**0.3319**	**0.4389**	**0.3785**	**0.425**	**0.3765**
T. İş Bankası	0.37417	0.34191	0.48348	0.47578	0.46061	0.36864	0.34039
Yapı ve Kredi Bankası	0.39216	0.39682	0.49966	0.51726	0.53103	0.5245	0.54139
Akbank	0.35745	0.31625	0.35923	0.37528	0.30466	0.23165	0.22318
T. Garanti Bankası	0.38001	0.31371	0.3902	0.49651	0.5119	0.44919	0.37365
Koçbank	0.4744	0.31459	0.39767	0.37287	0.34217	0.31868	0.4229
Finansbank	0.28828	0.17658	0.2477	0.29861	0.42437	0.22481	0.40185
T. Dış Ticaret Banaksı	0.2423	0.11512	0.21236	0.44955	0.46283	0.41938	0.33749
T. EkonomiBankası	0.22561	0.17586	0.26449	0.39524	0.44372	0.37117	0.3034
Şekerbank	0.39383	0.40416	0.37779	0.22776	0.3356	0.41853	0.54707
T. İmar Bankası	0.37936	0.49163	0.42639	0.45405	0.4276	0.62563	0.63458
Alternatifbank	0.3974	0.32534	0.38197	0.3026	0.15593	0.17988	0.37102
Denizbank	0.33992	0.28351	0.28293	0.24509			
Tekstilbankası	0.27883	0.46969	0.40494	0.49787	0.54144	0.34471	0.32102
Anadolubank	0.23884	0.26461	0.26523	0.11807			
Oyakbank	0.42887	0.35652	0.37036	0.50953	0.31506	0.42652	0.2462
Turkishbank	0.03741	0.06893	0.12361	0.18022	0.30935	0.31614	0.26814
MNG Bank	0.49718	0.2989	0.26022	0.23457	0.10576	0.07781	0.15377
Adabank	0.00645	0.00014	0.12324	0.16565	0.15947	0.36447	0.09214
Fibabank	0.1854	0.12019					
Tekfenbank	0.27907	0.24501	0.20906	0.29976	0.13065	0.10935	0.1306
Pamukbank	0.59091	0.5757	0.62341	0.61966	0.61394	0.51635	0.53719
Bayındırbank	0.20679	0.27676	0.2628	0.37066	0.43891	0.28768	0.26897
Average of Private-Owned Banks	**0.3179**	**0.2878**	**0.3318**	**0.3622**	**0.3692**	**0.3461**	**0.3429**
Average of All Commercial Banks	**0.3146**	**0.2833**	**0.3318**	**0.3718**	**0.3705**	**0.3568**	**0.3475**

Table 9 (Continued)

	1993	**1992**	**1991**	**1990**	**Average of 11 Years**
T.C. Ziraat Bankası	0.39102	0.54591	0.51309	0.5332	0.434675937
T. Halk Bankası	0.35966	0.37048	0.43298	0.48968	0.289212182
T. Vakıflar Bankası	0.44322	0.28442	0.32	0.38257	0.416057733
Average of State-Owned Banks	**0.398**	**0.4003**	**0.422**	**0.4685**	**0.379981951**
T. İş Bankası	0.42785	0.37878	0.39624	0.43365	0.407409616
Yapı ve Kredi Bankası	0.49641	0.3883	0.36605	0.34142	0.45409199
Akbank	0.35919	0.30123	0.30731	0.40099	0.321491505
T. Garanti Bankası	0.43433	0.37254	0.41625	0.44074	0.416273054
Koçbank	0.59807	0.50836	0.52683	0.70135	0.452536816
Finansbank	0.23226	0.38402	0.36323	0.33887	0.307325503
T. Dış Ticaret Banaksı	0.42333	0.62588	0.56063	0.6272	0.40691577
T. EkonomiBankası	0.51916	0.47657	0.43784	0.43022	0.367571389
Şekerbank	0.46028	0.54614	0.47562	0.33526	0.411094972
T. İmar Bankası	0.5435	0.27288	0.30396	0.53671	0.46329964
Alternatifbank	0.6049	0.47308			0.29019268
Denizbank					0.287863589
Tekstilbankası	0.4263	0.53966	0.4825	0.45479	0.432886596
Anadolubank					0.221687638
Oyakbank	0.7178	0.49866	0.59226	0.44444	0.446019878
Turkishbank	0.33593	0.31454	0.34389	0.53846	0.257874947
MNG Bank	0.08845	0.2397	0.4697	0.76471	0.290068469
Adabank	0.2656	0.35855	0.48993	0.55556	0.234653579
Fibabank					0.152795079
Tekfenbank	0.30053	0.5524	0.71728	0.67532	0.331730488
Pamukbank	0.49127	0.52544	0.46901	0.41208	0.543178369
Bayındırbank	0.24364	0.22727	0	0	0.234861465
Average of Private-Owned Banks	**0.4194**	**0.4202**	**0.4288**	**0.4684**	**0.351446501**
Average of All Commercial Banks	**0.4165**	**0.4175**	**0.4278**	**0.4684**	**0.354870755**

Table 10 - Liquid Assets to Total Assets Ratio

	2000	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**
T.C. Ziraat Bankası	0.17352	0.19658	0.22177	0.27481	0.36566	0.35501	0.44131
T. Halk Bankası	0.16536	0.18441	0.19179	0.28058	0.33178	0.32966	0.38734
T. Vakıflar Bankası	0.25786	0.49616	0.3903	0.39168	0.4701	0.37997	0.34381
Average of State-Owned Banks	**0.1989**	**0.2924**	**0.268**	**0.3157**	**0.3892**	**0.3549**	**0.3908**
T. İş Bankası	0.28531	0.41907	0.30297	0.34212	0.3742	0.4771	0.48941
Yapı ve Kredi Bankası	0.33069	0.38167	0.26239	0.28172	0.26582	0.27331	0.24868
Akbank	0.50231	0.51286	0.43712	0.39184	0.50341	0.58617	0.63206
T. Garanti Bankası	0.32279	0.40259	0.40564	0.29941	0.28041	0.36771	0.46175
Koçbank	0.31302	0.51242	0.36941	0.44931	0.55362	0.55849	0.47472
Finansbank	0.38235	0.48411	0.54833	0.51687	0.38462	0.60127	0.38794
T. Dış Ticaret Banaksı	0.59936	0.55885	0.58727	0.36696	0.38062	0.35034	0.46446
T. EkonomiBankası	0.50558	0.59715	0.6315	0.5218	0.50226	0.55647	0.63148
Şekerbank	0.39383	0.40416	0.37779	0.22776	0.3356	0.41853	0.54707
T. İmar Bankası	0.39257	0.22652	0.40011	0.40372	0.41082	0.26056	0.21811
Alternatifbank	0.50034	0.43061	0.37543	0.50555	0.77115	0.663	0.4532
Denizbank	0.2538	0.31369	0.37503	0.38926			
Tekstilbankası	0.44685	0.25756	0.47381	0.41194	0.3736	0.51284	0.57615
Anadolubank	0.61265	0.5197	0.6319	0.82357			
Oyakbank	0.28479	0.34816	0.38224	0.26152	0.36113	0.40355	0.62098
Turkishbank	0.89961	0.86596	0.80463	0.7443	0.61236	0.4884	0.59467
MNG Bank	0.34943	0.44786	0.50172	0.58993	0.6879	0.78332	0.69052
Adabank	0.92689	0.91059	0.71233	0.69414	0.67148	0.52954	0.75184
Fibabank	0.10095	0.72005					
Tekfenbank	0.52368	0.54872	0.5986	0.46211	0.60151	0.66901	0.71663
Pamukbank	0.20952	0.29394	0.22803	0.23516	0.20606	0.26628	0.32163
Bayındırbank	0.59092	0.54206	0.43061	0.42756	0.36891	0.3363	0.30345
Average of Private-Owned Banks	**0.4421**	**0.4863**	**0.4684**	**0.4451**	**0.455**	**0.4791**	**0.5045**
Average of All Commercial Banks	**0.413**	**0.463**	**0.4434**	**0.4289**	**0.446**	**0.4621**	**0.489**

Table 10 (Continued)

	1993	1992	1991	1990	Average of 11 Years
T.C. Ziraat Bankası	0.47692	0.34151	0.30821	0.32612	0.31649288
T. Halk Bankası	0.32714	0.41152	0.38717	0.34185	0.303508288
T. Vakıflar Bankası	0.38629	0.5201	0.47173	0.42987	0.412533732
Average of State-Owned Banks	**0.3968**	**0.4244**	**0.389**	**0.3659**	**0.3441783**
T. İş Bankası	0.37658	0.44558	0.43833	0.39991	0.395506736
Yapı ve Kredi Bankası	0.36015	0.41507	0.41892	0.43368	0.333827876
Akbank	0.51068	0.52433	0.50389	0.41289	0.501595861
T. Garanti Bankası	0.44349	0.4865	0.43295	0.40395	0.391563226
Koçbank	0.32744	0.36751	0.37944	0.21002	0.410490748
Finansbank	0.70438	0.54562	0.52883	0.53581	0.510921886
T. Dış Ticaret Banaksı	0.51325	0.26901	0.30705	0.25693	0.423100275
T. EkonomiBankası	0.42721	0.4575	0.51782	0.50048	0.531750632
Şekerbank	0.46028	0.54614	0.47562	0.33526	0.411094972
T. İmar Bankası	0.1936	0.49697	0.57017	0.28945	0.35114565
Alternatifbank	0.27579	0.4584			0.492608939
Denizbank					0.33294489
Tekstilbankası	0.48522	0.35631	0.4525	0.4734	0.438197597
Anadolubank					0.646956267
Oyakbank	0.1809	0.38874	0.36674	0.49074	0.371771455
Turkishbank	0.58625	0.59941	0.56561	0.2967	0.641627643
MNG Bank	0.74922	0.71161	0.5	0.20588	0.565217834
Adabank	0.34759	0.51316	0.26174	0.22222	0.59468454
Fibabank					0.410500545
Tekfenbank	0.56053	0.29694	0.20419	0.24675	0.493515361
Pamukbank	0.33012	0.27697	0.29794	0.33555	0.272836922
Bayındırbank	0.52	0.5303	1	1	0.550010749
Average of Private-Owned Banks	**0.4396**	**0.4572**	**0.4568**	**0.3916**	**0.4578123**
Average of All Commercial Banks	**0.4338**	**0.4527**	**0.4471**	**0.388**	**0.44417622**

Table 11 - Securities Portfolios of Domestic Commercial Banks (billion TL)

Years	Securities	Total Assets	Liquid Assets	Securities/Total Assets	Securities/Liquid Assets
2000	6,394,208	76,944,686	22,097,526	0.083101359	0.289363072
1999	8,173,835	51,446,846	17,555,360	0.158879225	0.465603383
1998	3,414,888	25,379,825	7,955,274	0.134551282	0.42926089
1997	1,716,803	13,137,012	4,252,894	0.130684436	0.403678766
1996	952,952	6,050,278	2,245,767	0.15750549	0.424332533
1995	306,409	2,749,527	1,073,815	0.111440622	0.285346172
1994	161,223	1,341,270	574,232	0.120201749	0.280762828
1993	82,647	640,839	271,761	0.12896687	0.304116485
1992	40,326	345,149	142,933	0.116836497	0.282132188
1991	24,366	187,924	74,630	0.129658798	0.326490687
1990	12,882	109,043	40,778	0.118136882	0.315905635

Table 12 - Liquid Assets to Total Deposits Ratio

	2000	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**
T.C. Ziraat Bankası	0.22407	0.2468	0.2768	0.35802	0.43924	0.45523	0.6003
T. Halk Bankası	0.20363	0.23707	0.24427	0.37668	0.41679	0.44073	0.52791
T. Vakıflar Bankası	0.36089	0.69894	0.54528	0.55259	0.61912	0.53268	0.54046
Average of State-Owned Banks	**0.2629**	**0.3943**	**0.3555**	**0.4291**	**0.4917**	**0.4762**	**0.5562**
T. İş Bankası	0.47755	0.67066	0.46449	0.49925	0.53802	0.72324	0.65661
Yapı ve Kredi Bankası	0.53819	0.53451	0.37061	0.38763	0.35193	0.39793	0.33287
Akbank	0.84462	0.85842	0.73317	0.61107	0.70448	0.89145	0.89007
T. Garanti Bankası	0.62073	0.76222	0.73552	0.69384	0.58002	0.68938	0.76966
Koçbank	0.57843	0.83546	0.62351	0.7447	0.93229	1.04415	0.89703
Finansbank	0.93082	1.22054	1.11143	1.00124	0.73519	1.12233	1.50283
T. Dış Ticaret Banaksı	1.29106	1.33629	1.5182	0.76087	0.75055	0.71262	1.0893
T. EkonomiBankası	1.17782	1.26133	1.08129	0.93329	0.88569	0.91179	1.1867
Şekerbank	0.5073	0.54219	0.52567	0.28524	0.41642	0.53432	0.68104
T. İmar Bankası	0.47319	0.26372	0.45767	0.44464	0.44523	0.29172	0.25006
Alternatifbank	1.145	0.78675	0.7685	1.05846	1.04299	1.09522	1.04405
Denizbank	0.54577	0.54054	0.65166	0.81915			
Tekstilbankası	0.79319	0.54557	0.90819	0.79847	0.70777	0.88805	1.03474
Anadolubank	0.76253	0.76673	1.11164	1.01611			
Oyakbank	0.80528	1.39557	1.17098	0.82464	1.27819	1.67131	2.57018
Turkishbank	1.05837	1.05566	1.02057	0.87192	0.83329	0.63756	0.85285
MNG Bank	0.65442	0.92111	1.74369	5.90202	1.96281	1.76343	2.02266
Adabank	1.52491	1.20004	0.89764	0.79884	0.78209	0.77103	1.15909
Fibabank	0.37863	1.17436					
Tekfenbank							
Pamukbank	0.31206	0.40019	0.28641	0.29222	0.25091	0.33946	0.40696
Bayındırbank	0.7867	0.98379	0.75803	0.52145	0.49311	0.58616	0.53878
Average of Private-Owned Banks	**0.7717**	**0.8598**	**0.8469**	**0.9633**	**0.7606**	**0.8373**	**0.9936**
Average of All Commercial Banks	**0.7081**	**0.8016**	**0.7828**	**0.8936**	**0.7222**	**0.7857**	**0.9312**

Table 12 (Continued)

	1993	1992	1991	1990	Average of 11 Years
T.C. Ziraat Bankası	0.77803	0.536	0.51388	0.49397	0.447484836
T. Halk Bankası	0.52928	0.60787	0.5659	0.51351	0.423968311
T. Vakıflar Bankası	0.54274	0.68083	0.6147	0.59627	0.571319429
Average of State-Owned Banks	**0.6167**	**0.6082**	**0.5648**	**0.5346**	**0.480924192**
T. İş Bankası	0.62407	0.66105	0.62722	0.58454	0.593336789
Yapı ve Kredi Bankası	0.70449	0.71889	0.62925	0.59682	0.505738218
Akbank	0.89111	0.74839	0.73229	0.60414	0.773565074
T. Garanti Bankası	0.90403	0.91033	0.69505	0.61283	0.724872777
Koçbank	0.90659	0.75083	0.9262	0.32931	0.778954465
Finansbank	1.23913	1.16481	1.18958	1.44983	1.151612949
T. Dış Ticaret Banaksı	3.18899	0.76998	0.76376	0.86258	1.185836935
T. EkonomiBankası	1.11759	1.03639	0.94891	1.25908	1.072716556
Şekerbank	0.65056	0.70838	0.71269	0.56258	0.556943394
T. İmar Bankası	0.24393	0.59039	0.6511	0.36684	0.407135521
Alternatifbank	0.71299	1.4264			1.008928584
Denizbank					0.63927815
Tekstilbankası	0.77375	0.8754	1.43083	0.95699	0.882996734
Anadolubank					0.914252697
Oyakbank	2.60417	3.08511	1.78889	5.3	2.044936874
Turkishbank	1.55326	1.90566	1.14679	0.87097	1.07335502
MNG Bank	1.19403	1.11437	1.26923	7	2.322525091
Adabank	0.64784	0.8125	0.47561	0.48485	0.868584788
Fibabank					0.776491057
Tekfenbank					
Pamukbank	0.55384	0.4637	0.4563	0.52571	0.3897954
Bayındırbank	0.8314	1.12903			0.736492836
Average of Private-Owned Banks	**1.0745**	**1.0484**	**0.9027**	**1.3979**	**0.924207139**
Average of All Commercial Banks	**1.0091**	**0.9855**	**0.8494**	**1.2616**	**0.86879677**

Table 13 - Adjusted Non-interest Income to Total Bank Income Ratio

	2000	1999	1998	1997	1996	1995	1994
T.C. Ziraat Bankası	-1.8123	-2.1707	-1.2857	0.44358	22.8615	4.09266	-0.5763
T. Halk Bankası	5.45114	1.04929	1.5757	4.9009	1.94079	1.36894	-5.2375
T. Vakıflar Bankası	3.37338	0.68594	0.33769	0.37921	1.05097	1.23204	-0.5017
Average of State-Owned Banks	**2.3374**	**-0.145**	**0.2092**	**1.9079**	**8.6177**	**2.2312**	**-2.105**
T. İş Bankası	0.96811	0.63404	0.43951	0.35783	0.82246	0.77197	1.63291
Yapı ve Kredi Bankası	0.66457	0.64457	-0.0782	0.20979	0.30425	0.99439	-0.8857
Akbank	-0.4467	-0.031	-0.1003	-0.1996	-0.0045	-0.0564	-0.6631
T. Garanti Bankası	1.03367	-0.1841	-0.1925	-0.4947	-0.2114	-0.4275	-0.7596
Koçbank	-5.9587	0.49969	-0.4763	-0.9934	0.14665	-0.1001	-0.1389
Finansbank	0.90203	0.63271	0.3042	0.17198	-0.9682	-0.4164	-2.9145
T. Dış Ticaret Banaksı	1.46984	1.0439	-0.9401	-1.8582	-0.2827	0.63305	-6.0148
T. EkonomiBankası	0.17651	-0.4773	-1.17	-1.0847	-0.146	0.28865	0.70183
Şekerbank	-2.9215	1.5231	2.16628	0.93864	0.36656	-0.04	1.09113
T. İmar Bankası	24.3358	1.67237	18.0271	31.7523	35.6861	42.2024	48.4444
Alternatifbank	-4.7599	0.5759	-1.1118	-4.7606	-0.343	0.14767	-1.1013
Denizbank	-3.6417	-1.4487	-2.3394	-0.4323			
Tekstilbankası	-1.2576	-0.513	-0.7775	-0.3442	0.20254	-0.2337	0.16226
Anadolubank	-5.5308	-2.0276	-2.3148	0.07576			
Oyakbank	0.17929	0.03503	0.19171	0.11249	0.3962	0.21114	-0.0034
Turkishbank	-0.4746	-0.5476	0.05342	0.2605	8.88889	0.2161	0.73267
MNG Bank	-40.056	-1.58	-0.4485	0.70574	1.36917	1.34982	-1.3279
Adabank	9.18169	31.2955	11.4865	12.8919	21.3429	9.27273	-2.5
Fibabank	-4.2823	-2.2715					
Tekfenbank	1.45178	-0.2221	-0.2175	-0.4296	-0.5286	-1.115	10.0313
Pamukbank	0.27346	-0.3852	-0.8187	-0.8867	-2.025	-2.2745	-3.0743
Bayındırbank	4.97875	3.65885	1.74304	-0.1704	41.1429	13.3333	5.71429
Average of Private-Owned Banks	**1.07791**	**-1.4785**	**-1.1155**	**-1.7058**	**-5.5873**	**-3.4083**	**-2.58564532**
Average of All Commercial Banks	**-0.6681**	**0.61562**	**0.33417**	**1.06302**	**5.33249**	**2.57972**	**1.27792018**

Table 13 (Continued)

	1993	**1992**	**1991**	**1990**	**Average of 11 Years**
T.C. Ziraat Bankası	0.47835	0.31795	0.35213	0.484	2.107738678
T. Halk Bankası	3.39048	3.91586	0.60959	1.975	1.90365183
T. Vakıflar Bankası	2.47403	-0.0241	4.14286	0.44628	1.236052872
Average of State-Owned Banks	**2.1143**	**1.4032**	**1.7015**	**0.9684**	**1.749147794**
T. İş Bankası	1.23004	1.59075	1.39623	5.31319	1.377911944
Yapı ve Kredi Bankası	-0.2815	2.19253	0.84698	1.14676	0.523496783
Akbank	-0.22	0.09698	0.1787	0.20873	-0.112473929
T. Garanti Bankası	-0.6444	-0.624	-0.4801	-0.0644	-0.277170019
Koçbank	-0.6409	-4.3019	-1.8308	-0.4286	-1.293018417
Finansbank	-1.5755	-1.3407	-0.8261	-0.1176	-0.558918149
T. Dış Ticaret Banaksı	-0.3251	0.29108	0.0381	0.60345	-0.485590549
T. EkonomiBankası	0.04975	0.37179	0.72897	0.95556	0.035924517
Şekerbank	0.1519	2.2093	1.12727	0.52941	0.649285538
T. İmar Bankası	6	0.31683	-1.4535	-3.9545	18.45720529
Alternatifbank	-0.478	0.77778			-1.228137573
Denizbank					-1.965525837
Tekstilbankası	-1.0412	-3.35	-2.8333	-0.0909	-0.916065045
Anadolubank					-2.449372709
Oyakbank	-1.2308	-0.7273	-0.1111	1	0.004845364
Turkishbank	0.17073	0.07692		0.42857	0.980567126
MNG Bank	-0.7857	0	1		-3.977294191
Adabank	-0.64	-0.9333	0.5	0.18182	8.370871658
Fibabank					-3.27691208
Tekfenbank	3.5	-0.0417	-0.625	-0.2	1.054864461
Pamukbank	-1.0299	-1.7672	-2.0465	3.60784	-0.947876728
Bayındırbank					10.05724824
Average of Private-Owned Banks	**-0.1228**	**0.28678**	**0.27438**	**-0.57**	**-1.091993896**
Average of All Commercial Banks	**-0.2608**	**-0.7134**	**-0.6305**	**-0.0352**	**0.502783245**

Table 14 - Growth of Total Assets

	2000-1999	**1999-1998**	**1998-1997**	**1997-1996**	**1996-1995**	**1995-1994**
T.C. Ziraat Bankası	0.362102	1.027284	0.873513	0.94597	1.344851	0.94599
T. Halk Bankası	0.502372	1.290388	1.034878	1.17625	1.291676	1.168876
T. Vakıflar Bankası	0.442093	0.913671	0.78862	0.99031	1.14629	1.182611
Avr. of State-Owned Banks	**0.43552**	**1.07711**	**0.899**	**1.03751**	**1.26094**	**1.09916**
T. İş Bankası	0.63561	1.020139	0.748675	0.975848	0.820203	0.95806
Yapı ve Kredi Bankası	0.533919	1.018412	0.955074	1.227241	0.907586	1.091289
Akbank	0.690004	0.809996	1.056705	1.501451	0.99079	0.939877
T. Garanti Bankası	0.458322	0.926791	0.972248	1.963502	1.512354	0.903446
Koçbank	0.734975	1.035141	0.71958	1.355148	1.364876	2.431343
Finansbank	0.497236	1.537242	0.915573	2.050279	1.569516	2.217344
T. Dış Ticaret Banaksı	0.275539	0.923079	1.866149	1.156988	1.852206	0.662823
T. EkonomiBankası	0.571495	0.988217	0.726367	0.923461	2.090886	1.492782
Şekerbank	0.750552	0.551435	1.324214	1.012438	1.181212	0.80822
T. İmar Bankası	0.402937	0.408401	0.713503	0.690283	1.992473	2.204005
Alternatifbank	0.385841	1.671206	0.807242	0.696213	2.323366	4.73264
Denizbank	0.567133	2.297514	4.425696			
Tekstilbankası	0.738359	0.692301	0.755333	1.639613	1.774615	1.202618
Anadolubank	1.887298	3.693165	1.123316			
Oyakbank	0.31359	0.475228	0.896289	1.72744	2.352381	0.891558
Turkishbank	0.622383	1.055824	0.57419	0.893779	1.332675	1.297052
MNG Bank	0.262422	0.885422	3.344163	0.582145	0.260384	2.119923
Adabank	0.058924	0.542665	1.334499	0.680755	3.214162	1.82801
Fibabank	0.108642					
Tekfenbank	0.112751	0.489613	0.535286	2.040055	1.148873	0.304578
Pamukbank	0.432264	1.042509	1.024585	1.297014	1.01993	0.844586
Bayındırbank	0.434259	2.606854	5.007082	0.78892	2.773906	1.836782
Avr. of Private-Owned Banks	**0.52157**	**1.17482**	**1.42027**	**1.22119**	**1.60434**	**1.51405**
Avr. of All Commercial Banks	**0.51124**	**1.1626**	**1.35512**	**1.19614**	**1.55751**	**1.45747**

Table 14 (Continued)

	1994-1993	**1993-1992**	**1992-1991**	**1991-1990**	**Avr. of 10 Periods**
T.C. Ziraat Bankası	1.008595	0.77429	0.898364	0.6291	0.881006
T. Halk Bankası	1.594247	0.941557	1.030515	0.744087	1.077485
T. Vakıflar Bankası	1.284421	0.59097	0.880427	0.609254	0.882867
Avr. of State-Owned Banks	**1.29575**	**0.76894**	**0.93644**	**0.66081**	**0.94712**
T. İş Bankası	1.286809	0.665083	0.817702	0.624508	0.855264
Yapı ve Kredi Bankası	0.984901	1.042602	0.809511	0.804305	0.937484
Akbank	1.156729	0.806378	0.677789	0.722016	0.935173
T. Garanti Bankası	1.179407	0.927619	0.716477	0.827305	1.038747
Koçbank	1.680298	2.695089	0.400605	1.549133	1.396619
Finansbank	-0.34594	2.007738	1.738788	1.594629	1.378241
T. Dış Ticaret Banaksı	0.165301	2.074915	1.03089	0.365869	1.037376
T. EkonomiBankası	1.193768	0.965529	0.365631	1.105871	1.042401
Şekerbank	0.881019	0.980748	0.867355	0.752353	0.910955
T. İmar Bankası	1.223076	0.842044	0.089679	1.681857	1.024826
Alternatifbank	0.302885	2.732463			1.706482
Denizbank					2.430114
Tekstilbankası	0.51699	1.946684	0.9225	1.12766	1.131667
Anadolubank					2.234593
Oyakbank	3.096961	0.852547	-0.15034	3.064815	1.352047
Turkishbank	1.287938	1.287834	0.524887	1.428571	1.030513
MNG Bank	0.075963	0.799625	7.090909	0.941176	1.636213
Adabank	0.45098	0.845395	1.040268	1.069444	1.10651
Fibabank					0.108642
Tekfenbank	0.092105	3.148472	1.397906	1.480519	1.075016
Pamukbank	1.150863	0.730459	0.809997	0.935776	0.928798
Bayındırbank	0.581818	3.166667	7.25	0.333333	2.477962
Avr. of Private-Owned Banks	**0.89273**	**1.50094**	**1.4667**	**1.13384**	**1.26253**
Avr. of All Commercial Banks	**0.94769**	**1.40112**	**1.39095**	**1.06627**	**1.22468**

Table 15 - Growth of Loans

	2000-1999	**1999-1998**	**1998-1997**	**1997-1996**	**1996-1995**	**1995-1994**
T.C. Ziraat Bankası	0.481731	0.697387	-0.02121	1.270191	1.011752	1.575504
T. Halk Bankası	0.214015	0.678087	0.763885	1.279081	0.958441	2.30049
T. Vakıflar Bankası	0.991257	0.366588	0.712365	1.428735	1.055119	0.801417
Avr. of State-Owned Banks	**0.56233**	**0.58069**	**0.48501**	**1.326**	**1.00844**	**1.55914**
T. İş Bankası	0.789966	0.428586	0.776994	1.040924	1.274321	1.120576
Yapı ve Kredi Bankası	0.515911	0.602961	0.888571	1.169474	0.93133	1.026077
Akbank	0.910159	0.593445	0.968745	2.081252	1.618282	1.013472
T. Garanti Bankası	0.766543	0.549093	0.549959	1.87441	1.863099	1.288272
Koçbank	1.616298	0.609973	0.833962	1.566419	1.539217	1.585749
Finansbank	1.444398	0.808725	0.588972	1.146381	3.850386	0.799909
T. Dış Ticaret Banaksı	1.684756	0.04246	0.353938	1.095102	2.147724	1.066266
T. EkonomiBankası	1.016095	0.321917	0.155284	0.713313	2.694992	2.049629
Şekerbank	0.705812	0.659707	2.855247	0.36579	0.749019	0.383346
T. İmar Bankası	0.082562	0.62388	0.609108	0.794854	1.045275	2.158795
Alternatifbank	0.692802	1.275222	1.281269	2.291554	1.880937	1.779385
Denizbank	0.87892	2.304306	5.263475			
Tekstilbankası	0.031989	0.962871	0.427694	1.427228	3.358046	1.365202
Anadolubank	1.606183	3.682058	3.769877			
Oyakbank	0.580181	0.420101	0.378347	3.410891	1.476357	2.276901
Turkishbank	-0.11946	0.146425	0.079665	0.103283	1.282592	1.708245
MNG Bank	1.099879	1.165704	3.819085	2.509302	0.713147	0.578616
Adabank	49.125	-0.99829	0.736764	0.74596	0.843862	10.18667
Fibabank	0.710057					
Tekfenbank	0.267434	0.745772	0.070741	5.975	1.567568	0.092251
Pamukbank	0.470118	0.886173	1.036854	1.318427	1.401672	0.773046
Bayındırbank	0.071643	2.798358	3.259067	0.510763	4.757746	2.034188
Avr. of Private-Owned Banks	**2.95215**	**0.88712**	**1.36684**	**1.58633**	**1.84187**	**1.75193**
Avr. of All Commercial Banks	**2.66537**	**0.84881**	**1.25661**	**1.55083**	**1.72822**	**1.72564**

Table 15 (Continued)

	1994-1993	**1993-1992**	**1992-1991**	**1991-1990**	**Avr. of 10 Periods**
T.C. Ziraat Bankası	1.150005	0.270873	1.019805	0.567655	0.802369
T. Halk Bankası	0.390588	0.884829	0.737421	0.542138	0.874897
T. Vakıflar Bankası	1.670386	1.479254	0.671357	0.34605	0.952253
Avr. of State-Owned Banks	**1.07033**	**0.87832**	**0.80953**	**0.48528**	**0.87651**
T. İş Bankası	0.819328	0.880785	0.7376	0.484369	0.835345
Yapı ve Kredi Bankası	1.164738	1.611323	0.919466	0.934463	0.976432
Akbank	0.340078	1.153937	0.644589	0.319731	0.964369
T. Garanti Bankası	0.874911	1.247354	0.536229	0.725755	1.027562
Koçbank	0.895238	3.347134	0.351506	0.914835	1.326033
Finansbank	0.131633	0.819119	1.895522	1.781132	1.326618
T. Dış Ticaret Banaksı	-0.07098	1.079797	1.26727	0.220884	0.888722
T. EkonomiBankası	0.28206	1.141152	0.48643	1.143177	1.000405
Şekerbank	1.23568	0.669368	1.144222	1.485961	1.025415
T. İmar Bankası	1.595616	2.668783	-0.02174	0.518868	1.0076
Alternatifbank	-0.20087	3.772414			1.59659
Denizbank					2.815567
Tekstilbankası	0.14234	1.327711	1.150259	1.25731	1.145065
Anadolubank					3.019372
Oyakbank	0.405242	1.666667	-0.28462	4.416667	1.474674
Turkishbank	0.826255	1.443396	0.394737	0.55102	0.641616
MNG Bank	0.870588	-0.33594	3.129032	0.192308	1.374173
Adabank	-0.49664	0.366972	0.493151	0.825	6.182844
Fibabank					0.710057
Tekfenbank	-0.52539	1.256917	0.846715	1.634615	1.193162
Pamukbank	1.351871	0.61795	1.027734	1.203227	1.008707
Bayındırbank	0.746269	3.466667			2.205588
Avr. of Private-Owned Banks	**0.54673**	**1.48429**	**0.86577**	**1.09467**	**1.53391**
Avr. of All Commercial Banks	**0.61813**	**1.40166**	**0.85733**	**1.00326**	**1.45502**

Table 16 - Growth of Total Deposits

	2000-1999	**1999-1998**	**1998-1997**	**1997-1996**	**1996-1995**	**1995-1994**
T.C. Ziraat Bankası	0.324303	1.015414	0.955528	0.79427	1.503134	1.064324
T. Halk Bankası	0.568443	1.269133	1.144895	1.036384	1.438916	1.211034
T. Vakıflar Bankası	0.451528	0.897868	0.806265	0.857921	1.284643	1.447405
Avr. of State-Owned Banks	**0.44809**	**1.0608**	**0.9689**	**0.89619**	**1.4089**	**1.24092**
T. İş Bankası	0.563839	0.935291	0.664461	0.946714	0.919118	0.732937
Yapı ve Kredi Bankası	0.31996	1.035666	0.904603	1.14305	1.097794	0.922647
Akbank	0.682263	0.813784	0.91226	1.244716	1.163453	0.796262
T. Garanti Bankası	0.435765	0.845271	1.520591	1.645215	1.277158	0.692302
Koçbank	0.530794	1.10686	0.688573	1.392858	1.625557	2.468081
Finansbank	0.550572	1.039839	0.830705	2.009898	1.509155	5.677179
T. Dış Ticaret Banaksı	0.41594	1.079126	1.298799	1.051339	1.942184	0.917236
T. EkonomiBankası	0.424861	0.611702	0.803337	0.896401	1.871996	1.858956
Şekerbank	0.823153	0.609121	1.09192	0.993946	1.244224	0.763179
T. İmar Bankası	0.355058	0.383789	0.6498	0.663308	2.091267	2.281106
Alternatifbank	0.106433	1.992746	0.848493	0.095735	3.059062	6.99459
Denizbank	0.255765	2.325157	5.570955			
Tekstilbankası	1.074429	0.531335	0.775053	1.579944	1.536078	1.284483
Anadolubank	2.422411	4.596203	0.489173			
Oyakbank	0.862105	0.127458	0.951829	2.061514	2.92266	0.890351
Turkishbank	0.681117	1.138954	0.453927	1.199827	1.237758	1.523577
MNG Bank	0.386354	2.186047	11.50544	-0.54877	-0.00558	3.05949
Adabank	-0.15176	0.475104	1.131988	0.701045	4.268185	1.994318
Fibabank	-0.5179					
Tekfenbank						
Pamukbank	0.309233	0.884329	1.003037	1.250771	1.114746	0.830822
Bayındırbank	0.955257	2.498435	3.161763	0.960677	3.920904	1.889796
Avr. of Private-Owned Banks	**0.54694**	**1.26081**	**1.76284**	**1.07157**	**1.82198**	**1.97652**
Avr. of All Commercial Banks	**0.53458**	**1.23472**	**1.65928**	**1.04651**	**1.76297**	**1.87143**

Table 16 (Continued)

	1994-1993	**1993-1992**	**1992-1991**	**1991-1990**	**Avr. of 10 Periods**
T.C. Ziraat Bankası	1.408894	0.707044	1.016627	0.479978	0.926952
T. Halk Bankası	2.079549	0.772658	1.009173	0.792478	1.132266
T. Vakıflar Bankası	1.041808	0.482291	0.871846	0.712994	0.885457
Avr. of State-Owned Banks	**1.51008**	**0.654**	**0.96588**	**0.66182**	**0.98156**
T. İş Bankası	1.824663	0.490653	0.753205	0.659432	0.849031
Yapı ve Kredi Bankası	1.900634	0.808571	0.569342	0.653053	0.935532
Akbank	1.672459	0.477586	0.708278	0.733778	0.920484
T. Garanti Bankası	1.665277	0.769475	0.472627	0.726841	1.005052
Koçbank	2.927214	1.726571	0.673432	0.637462	1.37774
Finansbank	-0.70298	2.650019	1.885809	2.121107	1.757131
T. Dış Ticaret Banaksı	2.087156	0.416504	0.764908	0.843552	1.081674
T. EkonomiBankası	2.053898	0.702047	0.10469	1.891041	1.121893
Şekerbank	1.135639	0.817738	1.157276	0.962333	0.959853
T. İmar Bankası	1.443018	0.736878	0.047431	1.976471	1.062813
Alternatifbank	0.462147	3.492386			2.131449
Denizbank					2.717292
Tekstilbankası	0.346939	3.539936	1.474308	0.360215	1.250272
Anadolubank					2.502596
Oyakbank	13.25	0.021277	-0.47778	8	2.860942
Turkishbank	3.226804	1.745283	-0.02752	2.516129	1.369585
MNG Bank	-0.41459	0.768328	12.11538	25	5.40521
Adabank	0.754153	0.567708	1.341463	1.484848	1.256705
Fibabank					-0.5179
Tekfenbank					
Pamukbank	1.85192	0.726849	0.655736	0.980275	0.960772
Bayındırbank	0.424419	4.548387			2.294955
Avr. of Private-Owned Banks	**1.99493**	**1.38923**	**1.38866**	**3.09666**	**1.58586**
Avr. of All Commercial Banks	**1.92567**	**1.2842**	**1.32191**	**2.71221**	**1.51032**

Table 17 - Growth of Total Deposits (MNG Bankası and Oyakbank are excluded)

	2000-1999	**1999-1998**	**1998-1997**	**1997-1996**	**1996-1995**	**1995-1994**
T.C. Ziraat Bankası	0.3243029	1.0154136	0.9555279	0.79427	1.50313	1.06432
T. Halk Bankası	0.5684434	1.2691332	1.1448952	1.036384	1.43892	1.21103
T. Vakıflar Bankası	0.4515284	0.8978679	0.8062654	0.857921	1.28464	1.44741
Avr. of State-Owned Banks	**0.44809**	**1.0608**	**0.968896**	**0.89619**	**1.4089**	**1.2409**
T. İş Bankası	0.5638389	0.9352912	0.6644612	0.946714	0.91912	0.73294
Yapı ve Kredi Bankası	0.3199598	1.035666	0.9046028	1.14305	1.09779	0.92265
Akbank	0.6822633	0.8137841	0.9122598	1.244716	1.16345	0.79626
T. Garanti Bankası	0.4357648	0.8452714	1.520591	1.645215	1.27716	0.6923
Koçbank	0.5307942	1.1068597	0.6885733	1.392858	1.62556	2.46808
Finansbank	0.5505723	1.0398389	0.8307052	2.009898	1.50915	5.67718
T. Dış Ticaret Banaksı	0.4159397	1.0791257	1.2987994	1.051339	1.94218	0.91724
T. EkonomiBankası	0.4248614	0.6117018	0.8033366	0.896401	1.872	1.85896
Şekerbank	0.8231531	0.6091214	1.0919203	0.993946	1.24422	0.76318
T. İmar Bankası	0.3550577	0.3837893	0.6497997	0.663308	2.09127	2.28111
Alternatifbank	0.1064329	1.9927455	0.8484928	0.095735	3.05906	6.99459
Denizbank	0.2557646	2.3251569	5.5709554			
Tekstilbankası	1.0744294	0.5313346	0.7750533	1.579944	1.53608	1.28448
Anadolubank	2.4224106	4.5962031	0.4891734			
Turkishbank	0.681117	1.1389539	0.4539267	1.199827	1.23776	1.52358
Adabank	-0.151761	0.4751043	1.1319876	0.701045	4.26818	1.99432
Fibabank	-0.517897					
Tekfenbank						
Pamukbank	0.3092328	0.8843287	1.0030366	1.250771	1.11475	0.83082
Bayındırbank	0.955257	2.4984347	3.1617626	0.960677	3.9209	1.8898
Avr. of Private-Owned Banks	**0.5388**	**1.27237**	**1.266635**	**1.11097**	**1.8674**	**1.9767**
Avr. of All Commercial Banks	**0.52643**	**1.24215**	**1.224101**	**1.07705**	**1.795**	**1.8605**

Table 17 (Continued)

	1994-1993	**1993-1992**	**1992-1991**	**1991-1990**	**Avr. of 10 Periods**
T.C. Ziraat Bankası	1.4088939	0.7070441	1.01662663	0.4799775	0.92695157
T. Halk Bankası	2.0795488	0.7726581	1.00917334	0.7924778	1.13226638
T. Vakıflar Bankası	1.0418076	0.4822908	0.87184645	0.7129935	0.88545684
Avr. of State-Owned Banks	**1.510083**	**0.653998**	**0.965882**	**0.661816**	**0.981558**
T. İş Bankası	1.8246627	0.4906528	0.75320513	0.6594321	0.84903133
Yapı ve Kredi Bankası	1.9006341	0.8085706	0.56934249	0.6530532	0.93553195
Akbank	1.6724588	0.4775859	0.70827776	0.7337777	0.92048375
T. Garanti Bankası	1.6652766	0.7694751	0.47262724	0.7268409	1.00505207
Koçbank	2.9272139	1.7265711	0.67343173	0.6374622	1.37774015
Finansbank	-0.7029786	2.6500192	1.88580931	2.1211073	1.7571306
T. Dış Ticaret Banaksı	2.087156	0.4165042	0.76490826	0.8435518	1.08167447
T. EkonomiBankası	2.0538976	0.702047	0.10469012	1.8910412	1.12189287
Şekerbank	1.1356387	0.8177382	1.15727554	0.9623329	0.95985291
T. İmar Bankası	1.443018	0.7368782	0.04743083	1.9764706	1.06281261
Alternatifbank	0.4621469	3.4923858			2.13144893
Denizbank					2.71729233
Tekstilbankası	0.3469388	3.5399361	1.4743083	0.3602151	1.25027201
Anadolubank					2.50259571
Turkishbank	3.2268041	1.745283	-0.0275229	2.516129	1.36958531
Adabank	0.7541528	0.5677083	1.34146341	1.4848485	1.25670517
Fibabank					-0.5178971
Tekfenbank					
Pamukbank	1.85192	0.7268487	0.65573587	0.9802748	0.96077164
Bayındırbank	0.4244186	4.5483871			2.29495466
Avr. of Private-Owned Banks	**1.442085**	**1.513537**	**0.755785**	**1.181896**	**1.317733**
Avr. of All Commercial Banks	**1.452822**	**1.37782**	**0.792861**	**1.090117**	**1.271891**

Table 18 - Average Growth Rates for 10 Periods

	Total Assets	**Loans**	**Total Deposits**
T.C. Ziraat Bankası	0.88100586	0.802368893	0.926951568
T. Halk Bankası	1.077484603	0.874897481	1.132266377
T. Vakıflar Bankası	0.882866717	0.952252705	0.885456843
Average of State-Owned Banks	**0.94711906**	**0.87650636**	**0.981558263**
T. İş Bankası	0.855263761	0.835344929	0.849031325
Yapı ve Kredi Bankası	0.937483941	0.976431512	0.93553195
Akbank	0.935173498	0.964368973	0.920483745
T. Garanti Bankası	1.038747182	1.027562459	1.005052074
Koçbank	1.396618739	1.326033149	1.377740153
Finansbank	1.378240625	1.326617693	1.757130603
T. Dış Ticaret Banaksı	1.03737579	0.888721632	1.081674467
T. EkonomiBankası	1.04240076	1.000404852	1.121892868
Şekerbank	0.910954694	1.025415244	0.959852909
T. İmar Bankası	1.024825875	1.007600199	1.062812605
Alternatifbank	1.706481916	1.596589551	2.131448926
Denizbank	2.430114401	2.815566948	2.717292326
Tekstilbankası	1.131667425	1.145064917	1.250272013
Anadolubank	2.234593257	3.019372428	2.502595705
Oyakbank	1.352046652	1.474673826	2.860941672
Turkishbank	1.030513256	0.641616011	1.369585308
MNG Bank	1.63621317	1.374172569	5.405209845
Adabank	1.106510133	6.182843675	1.256705167
Fibabank	0.108641605	0.710057061	-0.517897092
Tekfenbank	1.075015941	1.193161884	
Pamukbank	0.928798255	1.008707311	0.960771643
Bayındırbank	2.477962095	2.205587639	2.294954657
Average of Private-Owned Banks	**1.262529226**	**1.533905203**	**1.585861089**
Average of All Commercial Banks	**1.224680006**	**1.455017342**	**1.510323236**

APPENDIX D

STANDARD DEVIATIONS OF LIQUIDITY RATIOS

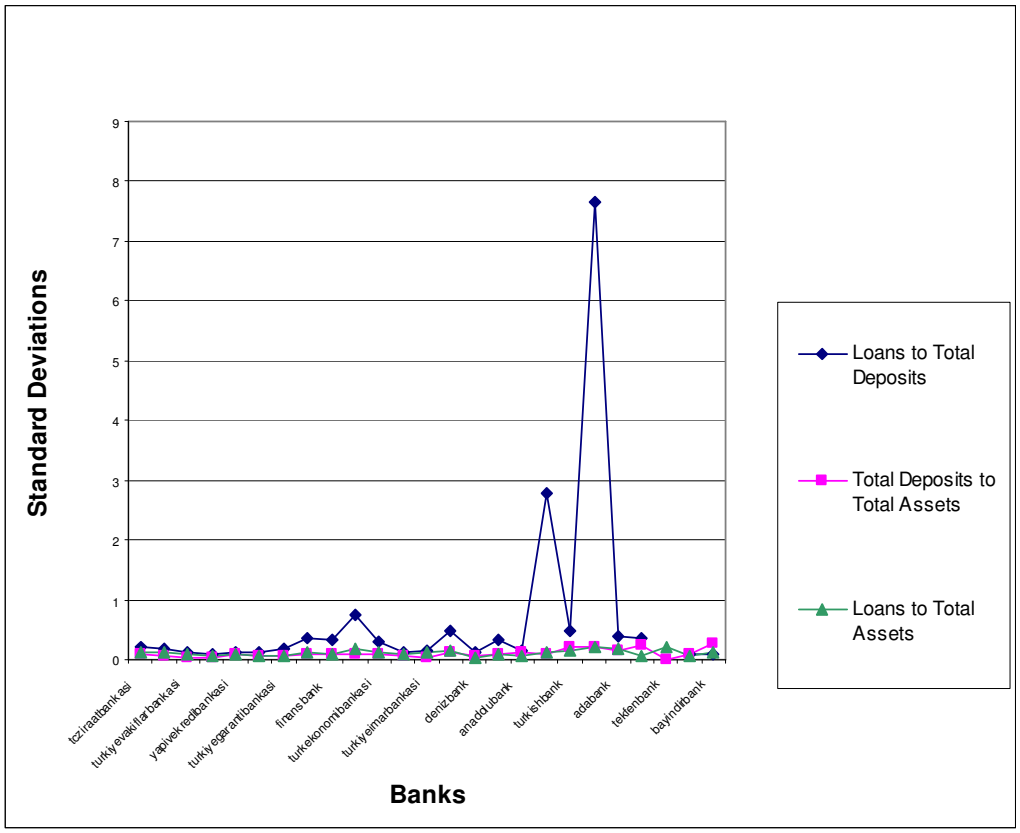

Figure 1 - Standard Deviations of Loans to Total Deposits, Total Deposits to Total Assets and Loans to Total Assets Ratios

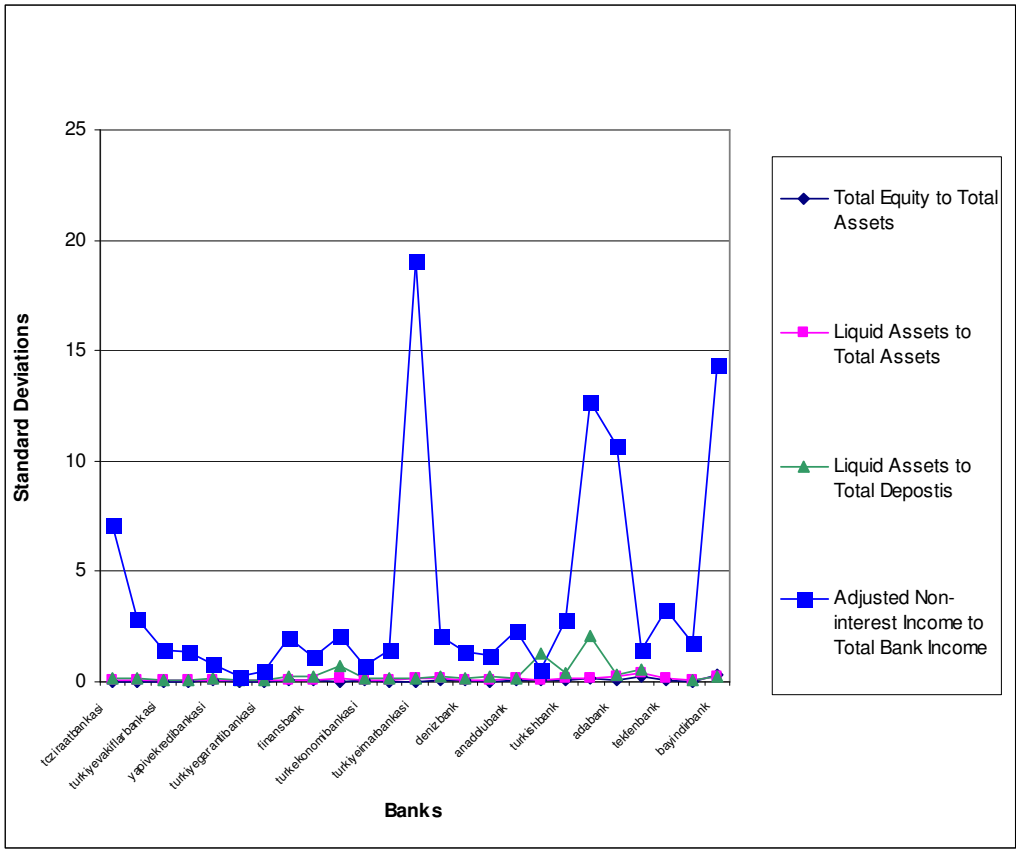

Figure 2 - Standard Deviaitons of Total Equity to Total Assets, Liquid Assets to Total Assets, Liquid Assets to Total Deposits and Adjusted Non-interest Income to Total Bank Income Ratios

APPENDIX E

SIGNIFICANCE TESTS FOR LIQUIDITY RATIOS

Table 1 - Individual Significances of Liquidity Ratios when State-owned Commercial Banks are compared with Private-owned Commercial Banks

Variable	Mean	St. Dev.	T	P-Value
TDTTA (S)	0.7261	0.0618	67.47	0.0000
TDTTA (P)	0.5386	0.2212	35.87	0.0000
LTTA (S)	0.3800	0.1213	18.00	0.0000
LTTA (P)	0.3692	0.1490	36.50	0.0000
TETTA (S)	0.0649	0.0223	16.71	0.0000
TETTA (P)	0.1649	0.1178	20.61	0.0000
LATTD (S)	0.4809	0.1475	18.73	0.0000
LATTD (P)	0.9419	0.7760	17.33	0.0000
LATTA (S)	0.3442	0.0972	20.35	0.0000
LATTA (P)	0.4574	0.1619	41.61	0.0000

S represents the state-owned commercial banks
P represents the private owned commercial banks

Table 2 - Individual Significances of Liquidity Ratios when Large Commercial Banks are compared with Small Commercial Banks

Variable	Mean	St. Dev.	T	P-Value
TDTTA (L)	0.6419	0.1152	58.46	0.0000
TDTTA (S)	0.5017	0.2551	23.27	0.0000
LTTA (L)	0.4042	0.1113	38.07	0.0000
LTTA (S)	0.3442	0.1631	24.97	0.0000
TETTA (L)	0.1095	0.0458	25.05	0.0000
TETTA (S)	0.1848	0.1400	15.62	0.0000
LATTD (L)	0.6361	0.2592	25.74	0.0000
LATTD (S)	1.0869	0.9330	13.13	0.0000
LATTA (L)	0.3849	0.1086	37.18	0.0000
LATTA (S)	0.4876	0.1779	32.44	0.0000

L represents large banks
S represents small banks

Table 3 - Individual Significances of Liquidity Ratios when 1990-1993 Period is compared with 1994-2000 Period

Variable	Mean	St. Dev.	T	P-Value
TDTTA (1)	0.5000	0.2239	20.71	0.0000
TDTTA (2)	0.5966	0.2059	37.11	0.0000
LTTA (1)	0.4322	0.1400	28.64	0.0000
LTTA (2)	0.3383	0.1381	31.38	0.0000
TETTA (1)	0.1596	0.1344	11.01	0.0000
TETTA (2)	0.1475	0.1038	18.19	0.0000
LATTD (1)	1.0250	0.9867	9.29	0.0000
LATTD (2)	0.8026	0.5630	17.86	0.0000
LATTA (1)	0.4307	0.1479	27.01	0.0000
LATTA (2)	0.4486	0.1653	34.75	0.0000

1 represents 1990-1993 periods
2 represents 1994-2000 periods

Table 4 - Individual Significances of Liquidity Ratios when 1990 Banks Listed in ISE are Compared with Banks not Listed in ISE

Variable	Mean	St. Dev.	T	P-Value
TDTTA (L)	0.5644	0.1328	44.16	0.0000
TDTTA (NL)	0.5626	0.2638	25.42	0.0000
LTTA (L)	0.3886	0.1044	38.68	0.0000
LTTA (NL)	0.3569	0.1693	25.12	0.0000
TETTA (L)	0.1272	0.0409	32.30	0.0000
TETTA (NL)	0.1702	0.1461	13.89	0.0000
LATTD (L)	0.8426	0.3578	24.47	0.0000
LATTD (NL)	0.9070	0.9480	10.87	0.0000
LATTA (L)	0.4421	0.1071	42.89	0.0000
LATTA (NL)	0.4427	0.1903	27.73.	0.0000

L represents banks listed in ISE
NL represents banks not listed in ISE