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Profitability in Turkish Banking Sector: Panel Data Analysis (The period 1990-1999)

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Abstract. In this study, the factors determining profitability in the Turkish banking sector are examined. Return on assets (ROA) is analyzed through panel data analysis using internal, external and sectorial factors. The purpose of the study is to explore the factors that affect bank profitability and to develop policy suggestions based on the findings. In the literature section of the study, domestic and foreign sources concerning bank profitability are scanned. In the section of econometric analysis, data belonging to the period 1990-1999 of state-owned, privately owned national and foreign deposit banks operating in Turkish banking sector are analyzed by using Stata program and panel data method. The analysis results indicate that capital and liquidity are the most important variables for ROA. In addition to that, it is reached that it is ensuring the efficiency in cost management for 1990-1990 period, keeping loans under follow at a low level and risk management make a positive impact on profitability.
Keywords. Profitability, Bank Profitability, Return on Assets, Panel Data Analysis
JEL. D70, D80.

1. Introduction

Earning profit is the main objective of economic units producing goods and services by bringing production factors within a single system. Economic units will continue their operations as long as they make a profit. Profit generated in the long run will increase economic units' competitiveness and enable them to finance their new investments.

Profitability is economic enterprises' primary goal and condition of existence. The profitability performance of banks is one of the indicators of institutional and administrative success. The entire economy will be affected by a possible trouble in the banking sector that interacts economic decision-making units listed as households, firms and state. For this reason, it is highly important to know the profitability in the banking sector and its determinants.

The purpose of this study is to determine the determinants of profitability of the banks which accept deposits in Turkish banking sector. The identification of the determinants at issue is very crucial subject for managers of Turkish banks along with potential national and international investors. Return on assets (ROA) in the period 1990-1999 is analyzed through the use of panel data method. In this study aiming to identify the factors affecting bank profitability in Turkey, the concept of

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profit is discussed and the determinants of profitability is analyzed using internal, external and sectorial factors.

In Turkey and the world, the literature related to bank profitability is quite broad; nevertheless it is believed to make a contribution to the literature through the period covered by this study and the frequency of the data. In terms of both methodological approach and the period under study, the study intends to respond to the inadequacy of the literature.

In the sense of economic activity, the production of a good and a service is performed by means of firms. The existence of firms and their primary goal is explained through the concept of profit. Firm owners enter into production and investment activities with profit expectations. Firms avoid getting engaged with activities that reduce their profits while they seek works to increase their profits. In order for a firm to maximize its profits, it is required to maximize production with a particular amount of inputs or perform production using inputs at a minimum level.

Profit can be defined as any advantage, earnings, benefit, increase in monetary value, share remaining after subtracting all expenses from revenue, portion of firm revenues exceeding firm expenses and costs. (Seyidoğlu, 2002: 330).

From the viewpoints of management and science of economics, the concept of profit differs in terms of definition. Which is important to firms is accounting profit. Accounting profit is calculated by subtracting production expenses from total sales revenue. From an economic point of view, profit is generated by subtracting spending on resources of entrepreneur along with production expenses from total sales revenue. Moreover, it can be expressed as opportunity cost of resources belonging to firm owners. (Frank & Bernanke, 2006: 218-219).

Like other firms, the purpose of banks is profit maximization on the basis of increasing operating revenue and decreasing operating expenses. Either an ordinary investment or a banking transaction, the important thing is how much gain is achieved at the end of operation (Tunay, 2010: 4-5). Banks are of great importance in terms of transferring money policies into the real sector so as to affect the level of economic activity. At the same time, banks which are businesses generally in aid of shareholders; therefore, they are willing to maximize their return on assets (O'hara, 1983: 127).

Unlike other sectors, finance sector is important in economic growth and development of countries since it is determinative regarding the distribution of resources. Financial institutions that cannot transform savings into productive investments face the risk of incurring a loss. Because of its important functions, it is necessary to carry out a profitability analysis of the banking system and determine its profitability resources.

Besides being the reason for the existence of a bank, profitability is a significant outcome indicating the capacity of a bank to increase risk it can undertake and its capital. Profitability is also an indicator of a bank's success in identifying well its resources as well as continuing its operations in areas with high returns. In the measurement of bank profitability, whether the bank makes an adequate profit in real terms is checked. For this purpose, it is necessary to compare the bank profits and the size of assets together with the amount of capital and average profitability of the sector (Atan, 2002: 13-14).

There are three fundamental indicators generally used in measuring profitability performances of banks. These are; return on assets (ROA), return on equity (ROE) and net interest margin (NIM). In our study, return on assets (ROA) is used out of these three indicators.

One of the criteria indicating profitability is return on assets (ROA). It refers to what the bank earns after tax deduction as a response to investments performed. In

other words, it is a ratio showing the degree to which the bank gains returns out of its investments (Aktan & Bodur, 2006: 60).

ROA reflects profit earned from asset, more importantly bank's managerial ability to turn financial and real investment resources into profits. For any bank, apart from bank's policy decisions, ROA also depends on uncontrollable factors associated with policy decisions, economy and government regulations (Hassan & Bashir, 2003: 11-12).

Return on assets ratio is found by dividing after-tax profit by total assets. ROA is said to be indicator determining a bank's efficiency because it shows how much profit is generated out of each unit of average assets (Petersen & Schoeman, 2008: 1). ROA represents how bank assets are transformed into profit.

$$\text{Return on Assets (ROA)} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

Profitability of banks is a function of internal and external factors. Internal or micro factors are variables which are peculiar to banks and under banks' own control. External or macro factors, however, are those that affect all financial institutions, are not directly related to bank management but caused by legal and economic environment. It is possible to use numerous variables for both of the categories (Athanasoglou et al., 2005: 122-123).

2. Literature

At national and international area, large number of studies has been conducted in the literature about bank profitability. Once the literature in respect of bank profitability is viewed, it is seen that some studies analyzed banking system of a single country whereas some others analyzed banking systems of more than one country.

Demirgüç-Kunt and Huizinga (1998), carried out research about net interest margin between 1988-1995 and determinants of return on assets using data of 7900 banks from more than 80 developing and developed countries. In accordance with the data results, the following findings have been reached: profitability ratios of banks with strong capital structure is also high, inflation has a positive impact on bank profitability, net interest margin declines as the ratio of assets not bearing interest earnings increases, an increase in the share of deposits in total liabilities leads to a drop in return on assets, an increase in required reserve ratios negatively affects profitability, the existence of deposit insurance system negatively affects profitability due to insufficient pricing of risky investment, foreign banks are more profitable because of having some franchises in developing countries whereas in developed countries domestic banks are more profitable.

By using panel data analysis, Awdeh (2005) tested return on assets and return on equity of domestic and foreign banks operating in Lebanon banking system. In the study in which 11-year period between 1993-2003 were analyzed, a regression model established for micro variables has shown that the micro variables positively affecting profitability are bank size, growth rate of deposits, net interest margin, foreign control over bank, the ratio of liquid assets to total assets, having corporate structure and being traded on the stock exchange. On the other side, the size of off-balance sheet transactions, the ratio of equity to total assets, reserves allocated for loans, the ratio of expenses to revenues, the ratio of expenses to total assets and bank shares being traded on the stock exchange are the micro variables that affect profitability negatively. According to the results of the regression model generated for macro variables, *real gross domestic product growth rate has a positive effect*

upon profitability whereas concentration ratio and inflation rate affect profitability negatively.

Athasanasoglou et al. (2008) analyzed return on assets and return on equity between 1985-2001 of 21 commercial banks operating in Greece. The results of the analysis have shown that capital, personnel productivity, inflation and economic cycle variables are in the same direction and have a strong relationship with bank profitability whereas bank profitability decreases as a response to an increase in operating expenses and concentration ratio. Size and ownership structure, however, have turned out to have no significance in explaining bank profitability. The test results have revealed that bank profitability is determined by macroeconomic and bank-specific variable.

Profitability of 625 banks operating in Denmark, France, Germany, Italy, Netherlands, Spain and England were analyzed by Goddard, et al. (2004). In the study covering the period 1992-1998, it was seen that there is no statistically significant relationship for all countries between size and profitability and ownership structure and profitability. Furthermore, it was found out that the relationship between off-balance sheet transactions and profitability is negative in Germany, positive in England and does not exist in other countries. Lastly, it was determined that the effect of capital upon profitability is positive for all countries.

Berger (1995) analyzed profitability of banks in USA in the periods 1983-1989 and 1990-1992 using "Granger Causality" test. In 1980s, a strong relationship was found between capital and profitability in the USA banking sector. However, in contrast with 1980s a negative relationship was detected between the same variables.

Hassan & Bashir (2003) analyzed Islamic bank profitability of more than 60 Islamic countries with the distinction of return on assets and return on equity in the period 1994-2001. It was again found that capital increases affects profitability positively whereas an increase in the share of credits in assets, rise in deposits for being an expensive resource and the excess of assets with low interest revenue reduces profitability.

By using panel data method, Kaya (2002) for the period 1997-2000 determined profitability indicators of private and public banks (net interest margin, return on assets and return on equity) through the two-step approach developed by Ho and Saunders. The findings have shown that a strong capital structure is required to ensure sustainability in profitability performances of banks. Another finding is the importance of restructuring operations of banks. Banks' success in ensuring efficiency in staff expenditures is one of the fundamental determinants of profitability. Similarly, banks' success in liquidity management is influential over profitability indicators.

By using multiple regression method, Yıldırım (2008) analyzed profitability of Turkish banking sector between 2002 - 2007. In the analysis, those having a positive relationship with return on assets were found to be the ratio of budget balance to industrial production balance, the ratio of securities to total assets, the ratio of equity to total assets and industrial production index whereas consumer price inflation, the ratio of off-balance sheet transactions to total assets and the ratio of liquid assets to total assets were identified to have a negative relationship with return on assets.

Through the use of panel data method, Tunay and Silpar (2006) analyzed profitability of Turkish banking sector between 1988-2004 with the data from 34 commercial bank. In the study wherein return on assets, return on equity and net interest margin were evaluated, the ratio of credit to total assets, logarithm of total assets, the ratio of non-interest revenues to total assets, inflation rate, real national income, the ratio of deposits to the value of stock market capitalization, the ratio of

the value of stock market capitalization to national income and the ratio of total assets to national income were identified.

3. Data and Method

3.1. Variables and Sources of Data

In our study, deposit banks operating in Turkey between 1990-1999 were analyzed. Taking into account the possibility of change in characters of activities, investment and development banks and participation banks were not included in the study. As the data used for analysis were sorted by years, banks whose capitals changed hands, were united or handed over to TMSF were excluded from the scope.

In this study with the purpose of identifying determinants of return on assets (ROA) in Turkish banking sector, the data of the 10-year period 1990-1999 were analyzed. Banks in the scope of analysis consist of the groups of state-owned, privately owned national and foreign banks. Banks whose data were used are adequate to represent the entire of Turkish banking sector.

Data belonging to the variables were compiled of different institutions and organizations. In this context, the data of variables specific to banks were obtained from the websites of The Banks Association of Turkey (TBB) and its publications named "Bankalarımız", the official website of The Central Bank of the Republic of Turkey (TCMB) and Turkish Statistical Institute (TÜİK) whereas the variables associated with financial structure were retrieved from the official web sites of The Turkish Banks Association (TBB) and Banking Regulation and Supervision Agency (BDDK).

The total 27 banks whose data were used in the period 1990-1999 consist of 4 state-owned, 14 privately owned national and 9 privately owned foreign banks. The 27 banks whose data were used are presented in Table-1 below and 270 observations were carried out in total.

TABLE 1. *Banks whose data were analyzed in the period 1990-1999*

Adabank A.Ş.	Türk Dış Ticaret Bankası A.Ş.
Akbank T.A.Ş.	Türk Ekonomi Bankası A.Ş.
Arap Türk Bankası A.Ş.	Türkiye Emlak Bankası A.Ş.
Banca di Roma S.P.A.	Türkiye Garanti Bankası A.Ş.
Bank Mellat	Türkiye Halk Bankası A.Ş.
Bnp-Ak Dresdner Bank A.Ş.	Türkiye İmar Bankası T.A.Ş.
Citibank N.A.	Türkiye İş Bankası A.Ş.
Demirbank T.A.Ş.	Türkiye Vakıflar Bankası T.A.O.
Finans Bank A.Ş.	T.C. Ziraat Bankası A.Ş.
Habib Bank Limited	Osmanlı Bankası A.Ş.
Koçbank A.Ş.	Société Générale (SA)
Pamukbank T.A.Ş.	Westdeutsche Landesbank Girozentrale
Şekerbank T.A.Ş.	Yapı ve Kredi Bankası A.Ş.
Tekstil Bankası A.Ş.	

The variables that were subject to analysis are given in Table-2 below: 1 variable was used as dependent variable, 6 variables were used as bank-specific variable out of independent variables, 2 variables were used as macroeconomic variable and 1 variable was used as sectorial variable.

TABLE 2. *Variables Used in the Analysis*

DEPENDENT VARIABLE

RETURN ON ASSETS (ROA)	Revenue generated out of average total assets.
INDEPENDENT VARIABLES	
BANK-SPECIFIC VARIABLES	
SIZE	Natural logarithm of inflation-adjusted total assets
CAPITAL	The ratio of equity to total assets.
RISK MANAGEMENT	The ratio of total loans and receivables to total assets.
EXPENSE MANAGEMENT	The ratio of staff expenditures to total assets.
NON-PERFORMING LOANS	The ratio of non-performing loans to total loans.
LIQUIDITY	The ratio of liquid assets to total assets.
MACROECONOMIC VARIABLES	
INFLATION	Average annual rise in consumer prices.
GDP GROWTH	The annual real growth rate in GDP.
SECTORIAL VARIABLE	
CONCENTRATION	Asset size of the total assets of the five largest banks, is the ratio of the total assets of all banks in the sector.

3.2. Method

Through the purpose of the research, fixed effects and random effect method were utilized. In panel data analysis, primarily it should be evaluated whether the difference between fixed effects parameter estimator and random effects parameter estimators are meaningful or not and choosing one method from fixed effects and random effects models. Hausman test can be utilized for selection of the method (Wooldridge, 2002: 289-290). In Hausman test, the zero hypothesis (H0: E (eit, *xit*)=0) indicates whether there is a relationship between regression's error term and independent variables, it means it Show us if there is a relationship between fixed effects and random effects models. In the rejection of Zero hypothesis, fixed effect models will be used and in the situation of not rejection of the hypothesis the random effects model which is an alternative hypothesis will be accepted to be utilized (Greene, 2003: 301-302).

Random effects model assumes that the correlation between μ1 random variable and independent variables is zero. In other terms, if cor (μ1, *xit*) = 0, random effects model is being used. On the other hand, if the correlation between μ1 which has zero as arithmetic mean and independent variables does not equal to zero, fixed effect model should be chosen. Consequently, fixed effects model will be in charge if cor (μ1, xit) ≠ 0 (Yaffee, 2003: 8).

The general demonstration of the panel data equality is as follows (Greene, 2002: 285):

$$Yit = a + xit\beta + \varepsilon it \quad (1)$$

Here, *Yit* stands for dependent variable, α shows fixed term, β demonstrates curve rate, *xit* stands for explanatory variables and *εit* indicates error terms. i shows the group number in the model (i=1,2,3…..n) and t shows the time per group (t=1990, 1991…) (Johnston and Dinardo, 1997: 390).

3.3. General Statistics of Variables

Before the regression modeling with Stata program, the descriptive statistics, which belongs to independent and dependent variables during 1990 – 1999, is shown in Table 3. The standard deviation and other statistical evaluations of the variables are depicted in the related table in details.

TABLE 3. *The Descriptive Statistics, which Belongs to Independent and Dependent Variables*

Period of 1990 - 1999	Sample Size	Average	Median	Min.	Max.	Standard Deviation
Size	270	17,02	17,09	9,78	23,21	2,87
Capital	270	12,88	10,99	-25,43	68,75	10,33
Risk Management	270	36,18	37,27	0	71,96	14,61
Expense Management	270	3,03	2,41	0,49	18,55	2,3
Non-Performing Loan	270	6,24	1,93	0	300,04	22,09
Liquidity	270	45,56	44,64	16,26	91,31	15,66
Inflation	270	77,36	75,25	60,3	106,3	13,67
GDP Growth	270	4,03	6,49	-5,46	9,26	4,84
Concentration	270	47,19	47,1	43,78	50,91	2,17
Return on Assets	270	3,65	3,65	-17,36	19,74	3,74

After specifying the model which is used in the study and the descriptive statistic, Hausman test was utilized in order to determine of using the fixed effect model or random effects model. The test results are shown in Table 4.

TABLE 4. *Hausman Test for the Period of 1990 – 1999*

	ROA
Hausman Test	15,92
p value	0,01

According to results of Hausman test, fixed effects model was found suitable for return on asset (ROA) in the period of 1990 – 1999.

Another important issue, that needs to be taken into account, is the series which were used in the models should be constant. The reason of why the series should be constant is to determine the assumptions of error terms. These assumptions are being zero of the averages' of series and being fixed of their variations. It could be possible to have naturally unexisting relationships between variables after any shock if the model, which was set with a nonconstant variable, would be assumed with the least square method. Therefore it concludes with trouble named as spurious regression (Sims, 1980: 1-48). Before starting an econometric analysis, it should be necessarily completed implementing unit roots test of the series which will be used in the model, which will be set, to see the series are constant or not. For this reason, before the assumption of the models, unit roots test was completed to specify the series constant or not. The results of unit roots test are shown in Table 5.

TABLE 5. *Unit Roots Test Findings*

Variable/ Period	**1990 – 1999**	
	Levin-Lin-Chu Test	**Im-Pesaran-Shin Test**
Size	-9,03 (0,00)	-3,84 (0,00)
Capital	-11,17 (0,00)	-4,25 (0,00)
Risk Management	-6,01 (0,00)	-3,65 (0,00)
Expense Management	-12,33 (0,00)	-3,88 (0,00)

Non-Performing Loan	-16,90 (0,00)	
Liquidity	-7,37 (0,00)	3,74 (0,00)
Inflation	0,12* (0,55)	-1,30 (0,09)
GDP Growth	-1,63 (0,05)	-6,90 (0,00)
Concentration	-7,90 (0,00)	-4,12 (0,00)
Return on Asset	-9,39 (0,00)	-4,38 (0,00)

Unit roots are visible naturally in a standard regression model. Classical regression models' assumptions put forward the necessity of being constant of both dependent and independent variable series, and their errors have zero average and constant variance. In the spurious regression, which results in out-of-constant variables situations, parameter assumption results are irrational as economical means even if t statistics are rational. Additionally, traditional, statistical and inferential test are also not effective (Sevüktekin & Nargeleçekenler, 2005: 305). Therefore, Before starting an econometric analysis, it should be necessarily completed implementing unit roots test of the series which will be used in the model, which will be set, to see the series are constant or not.

According to panel unit roots test, Levin-Lin-Chu and Im Pesaran Shin recognized that in inflation variable there exist a unit roots problem and it is not constant. For this reason, series had been made constant by investigation the series primary differences. Other series do not have unit roots, as seen.

(2) Numbered model was set in order to test determinants of Return on Asset (ROA) variable with panel data.

The model which was especially set for Return on Assets as follows;

$$ROA_{it} = \alpha + \beta_1 * B\ddot{U}Y_{it} + \beta_2 * SER_{it} + \beta_3 * R\dot{I}SK_{it} + \beta_4 * G\dot{I}DER_{it} + \beta_4 * TKREDİ_{it} + \beta_5 * L\dot{I}K_{it} + \beta_6 * ENF_{it} + \beta_7 * GSY\dot{I}H_{it} + \beta_8 * YO\breve{G}_{it} + \varepsilon_{it} \quad (2)$$

In Model 2, Return on Assets which was used as idependant variable, was shown as ROA_{it} . Independent variables which were utilized in the model as indicated as follows; α : Fixd term; β_1 , Curve Rate; i , Bank Amount; t , Period; $B\ddot{U}Y_{it,}$ Size; SER_{it}, Capital; $R\dot{I}SK_{it}$, Risk Management; $G\dot{I}DER_{it}$, Expense Managenent; $TKREDİ_{it}$, Non-Performing Loan; $L\dot{I}K_{it}$, Likidity; ENF_{it}, Inflation; $GSY\dot{I}H_{it}$, GDP; $YO\breve{G}_{it}$, Concentration.

4. Findings

The results of econometric model, which were found via stata program, are evaluated below. The econometric model was set through finding the factors which affected the deposit banks' profitableness in the period of 1990 – 1999 in Turkey. Regression assumption results are shown in Table 6 and regression was made to understand Return on Assets (ROA) for the bank included in the study.

TABLE 6. *Return on Assets (ROA) Assumption Results*

Independent Variables	1990 – 1999 Period
Size	0,232 (1,14)
Capital	0,331 (12,06)*
Risk Management	0,619 (2,38)**
Expense Management	-0,522 (-3,55)*
Non-Performing Loan	-0,310 (-3,87)*

Liquidity	0,073 (2,92)*
Inflation	-0,007 (-0,57)
ΔGDP Growth	-0,037 (-0,62)
Concentration	0,215 (1,14)
Fixed Term	-18,386 (-1,48)
R^2	0,35
Sample	243
F Statistics (p value)	0,00

In Table 6, It is shown that whether in statistic terms there is a meaningful relations between independent and dependent variables or not; if yes Return on asset (ROA) regression assumption which indicates the direction of the relation, was evaluated in the table.

Application results show that 5 variables can explain the return on asset meaningful in the period of 1990 – 1999. Empirical findings show that capital, risk management and liquidity variables are in positive direction and statistically logical behavior with return on assets and expense management and non-performing loan variables in negative direction and statistically logical behavior with return on assets for the period of 1990 – 1999. Size, inflation, GDP growth and concentration variables do not have statistically meaningful relation with return on assets.

In Table 7, It was shown that explanatory variables' statistically meaningfulness level and their direction in the relationship.

TABLE 7. *Explanatory Variables' Meaningfulness Levels, 1990 – 1999*

Meaningfulness Level	Variables and Direction
% 1	SER (+), GİDER (-), TKREDİ (-), LİK (+)
% 5	RİSK (+)

There is a meaningful relation between the capital variable that banks own and ROA in positive direction and at 1% level statistically. Strong capital owner banks increase their profitableness levels due to fund costs are low and they decrease the need of other funds of which costs are high. Additionally, strong capital will reassure the market as increasing the confidence to the sector; therefore this enables to decrease the capital costs.

There is a meaningful relation between the liquidity variable and ROA in positive direction and at 1% level statistically. The turbulence experienced in financial markets affects the liquid assets in the balance to increase their rates. Increasing the ratio of liquid assets in total assets increases the liquidity risk so it decreases the banks' source costs and affects the profitableness positively. On the other hand this source cannot be evaluated within high yielding asset groups including credits or securities, as well thus, these reasons can cause to impact the profitableness rates negatively. The period that was analyzed in this study, the case of Turkish economy and banking sector behaved inconsistently caused a positive relation between liquidity and return on assets.

In the framework of Expense Management, a negative and statistically reasonable 1% level relationship was realized between staff expenses and return on assets. When expenses increase banks' profitableness naturally decreases. The case of banks performs with high operating costs causes an effect of decreasing the profitableness. Staffs expenses are evaluated as a cost factor because of they are the biggest portion of the banks' operational expenses.

A negative and statistically reasonable 1% level relationship was realized between the ratio of banks' non-performing loans to total credits and return on assets. This result shows that the problems when occurred in paying credits back to banks affects the banks' return on assets negatively by banks perform their functions of financial intermediation. Provisions were allocated for non-payment loans and these provisions are deducted from net interest revenues, thus these causes to decrease the profit.

There is a meaningful relation between the risk management which means the ratio of total credits and receivable to total assets and Return on Assets in positive direction and at 1% level statistically. Statistically meaningfulness indicates that banks are able to convert the raise in the credits portfolio to profitableness.

There could not be found a statistically reasonable relationship between the ROA, which is a dependent variable and used for specifying the banks profitableness, and banks' size.

There could not be found a statistically reasonable relationship between inflation and return on assets. Inflation's effect to profitableness is associated with whether banks' cost increases faster than inflation or not. Banks in Turkey, decreased their functions of financial intermediation in analyzed period of inflations were high and instead of opening credit they implement a cash policy which financed the public institutes' need of borrowing.

There is no such a meaningful relationship between GDP growth increasing rate and return on assets. With economic growth, firms approach the overseas funds in order to finance their investments. Thus it could be possible to debt raised with different financial instrument like bond issues. So, this caused to decrease the relationship between economic growth and banks' return on assets. Additionally, the negative directed relation can be commented as economic growth will increase the competitiveness of the sector and the increased competitiveness may affect the profitableness negatively.

There is no relationship between concentration and return on assets. Intensive competition among banks can cause to decrease the credit interests from assets; to increase the deposit interest from liabilities and to narrow the interest margin due to increased actions. Concentration has naturally low impact on profitableness in a banking system, which invest public papers.

5. Conclusion

In this study, in Turkish Banking sector Return on assets (ROA) is analyzed through panel data analysis using internal, external and sectorial factors. Public capital operating in the Turkish banking sector, privately-owned domestic and foreign deposit banks, private equity groups were included in the sample. Return on Assets (ROA) regression results are examined for the period of 1990 – 1999 in the econometric analysis in which stata program was utilized.

In the analysis, return on assets as dependent variable; six independent unique to banks variables (size, capital, risk management, expense management, non-performing loan and liquidity); 2 variables (inflation and GDP growth) as macroeconomic variables and one variable as sectorial variables (concentration) were used. Return on Assets (ROA) analyze findings show that in the period of 1990 – 1999, there are statistically meaningful and in positive directed relationship between capital, risk management and liquidity and ROA; there are statistically meaningful and in negative directed relationship between expense management and non-performing loans and ROA.

Capital affects the Turkish banks' profitability positively. It could be possible to say that the banks that finance with equity or that has low borrowing curves are

having more profits. The most important function that Bank capital performs is to balance the possible or expected loss that was caused by having risk. Turkish banks should improve their capital structures primarily as increasing their equity rates in order to raise their profitableness. The most important condition of banking sector's growth is to preserve the capital of the organizations. The way of preserving and increasing the capital is to make profit. Strengthening the capital structure will make the saving owners and potential investors to trust the banks and facilitate to gather the source in convenience; therefore it will increase the return on assets.

In Turkish Banking System, liquidity is another important variable over profitableness. Liquidity is also observed and taken into account by regulatory authorities. In particularly, liquid reserves are considered as assurance factor in banking crisis periods. There are liquidity regulations in many areas from International rules and standards to national regulations. In this way, it is important liquidity indicators to be observed by regulatory and supervisory authorities and also by banks in order to increase the profitability.

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