Profitability and Transparency in the North Cyprus Banking Industry

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ABSTRACT

This study aims to determine the difference between the strengths and weaknesses of the commercial banks in North Cyprus that affects their profiting abilities by using bank-specific variables. The banks were examined by their ownership structures of Public, Private and Foreign. The data used is from a sample of 17 banks operating between the years 2001 and 2009. Three separate regression models were run to see the significant variables on bank profitability on all banks, private banks and foreign banks. Foreign banks showed a higher profitability on average along with a better asset management. Private Banks showed a better efficiency in operating expenses. All three groups of banks showed a significant level of liquidity that contributed to their profitability. In addition to this a regression was run to test if transparency has an impact on bank size with the data collected from 2010. It was concluded that with the additional information provided to the public, funds were added to the asset size. Transparency and bank size was found to have a positive relation.

Keywords: Ownership Structure, Profitability, North Cyprus, Transparency

ÖZ

Bu çalışma, Kuzey Kıbrıs'da bulunan ticari bankaların, bankalara özel değişkenleri kullanarak güçlü ve zayıf yönlerini ve karlılık üzerine etklerini belirlemeyi amaçlıyor. Bankalar mülkiyet yapılarına göre Kamu Bankaları, Özel Bankalar ve Yabancı bankalar olarak incelenmiştir. Işletilen örnek 17 bankadan 2001 ve 2009 seneleri arası veriler kullanılmıştır. Tüm bankalar, özel bankalar ve yabancı bankalar olarak üç ayrı model işlenmiştir. Yabancı bankalar,gelişmiş aktif yönetimi yanı sıra ortalama olarak daha fazla karlılık göstermiştir. Özel bankalar faaliyet giderleri üzerinde daha iyi yönetim yürütüğü görülmüştür. Her üç model, bankaların likidite derecesinin iyi olduğunu ve karlılığa katkı sağladığı görülmüştür. Buna ek olarak şeffaflığın banka büyüklüğünün üzerine etkisi 2010 senesinden toplanan verilerle incelenmiştir. Halkın daha fazla bilgilendirilmesinin, aktif büyüklüğüne tahvilat ilave ettiği sonucuna varılmıştır. Banka büyüklüğü ve şeffaflığın pozitif bir ilşkisi olduğu saptanmıştır.

Anahtar Kelimeler: Banka yapıları, Karlılık, Kuzey Kıbrıs, Şeffaflık

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LIST OF ABREVIATIONS

ROA	Return on Assets
ROE	Return on Equity
CAPL	Capital to Loans
NPAL	Non-performing Assets to Loans
OPIC	Operating Income to Operating Expense
IEXD	Interest Expense to Deposits
LATA	Liquid Assets to Total Assets
LBS	Bank Size
TRANS	Transparency

Chapter 1

INTRODUCTION

Banking is an essential function in a country's economy. The money flow contributed by banks helps the cycle expand and sometimes when needed contract. A better performing bank can provide a healthier benefit to the public. They can accommodate more desirable opportunities to customers, a wider selection of services and products and preferred circumstances for employee development. North Cyprus is categorized as a developing country and so their banking system has not matured to its highest standards yet.

Bank performance can differ according to their ownership structures. Previous studies have been conducted before to see how the structure of state-owned banks, privately-owned banks and foreign branch banks are reflected on how well they function. Havrylchky and Jurzyk (2006), Iannotta et al (2007) and Wen (2010) examined the relationship between bank profitability and ownership using different countries and methodologies. The foreign bank entry and how banks react is also important and was studied by Unite and Sullivan (2002), Havrylchky and Jurzyk (2006), Schäfer and Talavera (2007) and Claessens et al (2001).

1.1Aim of Study

The aim of this study is to see the difference between the profitability's of the public, private and foreign banks in North Cyprus and how they are affected. In addition to this the transparency levels of the banks were observed to see whether or not it has a relation with the bank's performance.

With the results of this study the banks in North Cyprus can observe in which areas their strengths and weaknesses are and plan their future management accordingly. We will be able to distinguish what should be focused on maximizing to increase the profitability of the banks with different ownership structures operating in the TRNC.

Chapter 2

LITERATURE REVIEW

2.1 Similar studies

The matter of ownership structure and profitability has been worked on in the previous years. Iannotta et al (2007) conducted a study between the years 1999 and 2004 on whether ownership structure makes a difference on the bank's profitability, risk and cost efficiency in the European Banking Industry. They used a total of 181 large banks from 15 European countries and categorized them according to their ownership concentration. The research was conducted by using variables like size, country and year effects, output, macroeconomic growth differentials and asset quality. Findings of this study were that ownership structure does not significantly affect the profitability of banks. However a high ownership concentration brings a more desirable quality of loans, an inferior asset risk and less insolvency risk associated with it.

In the case of China, Wen (2010) also carried out a similar study using two profitability ratios Return on Assets and Return on Equity of 50 banks in the years 2003, 2006 and 2008. It was also concluded that bank performance and ownership are not related.

Opposite to these, Micco et al (2004) did an overall study using the performance of 119 countries' banks with different ownership structures over the period of 1995-2002. They divided their data into two groups as developing and industrial countries. After testing they found that in developing countries, ownership and financial performance were highly related. Further on, public banks compared to foreign banks had lower profitability and higher costs. On the other hand, industrial countries' picture was different. Financial performance of banks had no association with their ownership concentrations.

Foreign banks were not found better performers when tested in India in the paper of Sensarma (2006). Public and private banks had a more successful execution of efficiency and productivity in the period of 1986 and 2000.

Cornett et al (2010) examined the period of 1989 to 2004 in sixteen Far East countries using cash flow and accounting based measures. Their outcome showed that compared to privately-owned banks, state-owned banks had more credit risk, earned less profit and had less core capital before 2001. In conjunction, the more involvement of the government the more the performance showed difference between public and private banks.

Crystal et al (2001) investigated whether foreign existence made a difference on the banking market and domestic banks in Latin America. They find that it is possible foreign ownership has a positive impact on developing banking sectors.

Unite and Sullivan (2002), Havrylchky and Jurzyk (2006), Schäfer and Talavera (2007) and Claessens et al (2001) examined the impact of foreign bank entry in the Philippines, Central and Eastern Europe and Ukraine respectively.

Unite and Sullivan (2002) found that foreign bank entry in the Philippines diminished the interest rate spread and profits of banks that are family owned. In addition to this they also found that the foreign entry lead to operating efficiencies increasing and downfall of loan quality.

Havrylchky and Jurzyk (2006), present an analysis of the changes in the profitability of foreign and domestic banks in Central and Eastern Europe using their data between 1995 and 2003. At the end of their testing they come up with the result that foreign banks are more profitable than domestic banks and even their parent banks. This gives us the answer of why they operate in another country. Other conclusions that were found from their testing were that the profits of foreign banks are sensitive to the macroeconomic conditions of their parent bank not the country they are active in.

Schäfer and Talavera (2007) study 160 banks in the period of 2003 to 2005. They came to the conclusion of while there is a positive relation with domestic bank profitability and foreign bank assets, the entry of foreign banks reduce the quality of domestic bank performance.

Claessens et al (2001) tested a wide range of banks in diversified countries between the period 1988 and 1995. They found that foreign banks in developing and developed countries made a difference. While they were more profitable in developing countries, they were less profitable in already established banking sectors.

Berger et al (2005) analyzed the banking industry of Argentina. They tested whether ownership makes a difference and how bank governance on bank-based determinants are handled in different industries.

Another way to observe banks performances is by using the CAMELS framework. Dash and Das (2010) used this framework on 50 banks in India. The data was collected accordingly and turned up with the results that on most of the CAMELS components both private and foreign banks prospered better than public sector banks. Public banks were incompetent compared to private and foreign banks in the areas of Earning and Profitability and Management.

2.2 Studies from the North Cyprus Banking Industry

Gunsel (2007) directed a study of predicting bank failure in North Cyprus using financial ratios of the CAMELS framework between the period of 1984 and 2002. She observed that deficient capital, weak asset quality, exceeding interest expenses,

incompetent liquidity and a small scaled bank size can all alter bank performance and lead to its failure.

Şafaklı (2007) analyzed the north Cyprus banking sector and the credit risk associated. The periods before and after the 2001 crisis where looked into and found that up to the pre-crises the credit risk had been accumulating. But with the improved legal, financial and administrative outlines in the post-crises years the risk was managed to be reduced. It was also found that banks had not been budgeting provisions for loan losses before the crisis and this was a pitfall in assessing credit risk.

Şafaklı and Altuner (2009) studied the North Cyprus banking sector before and after the crisis periods. The largest 10 banks were taken into consideration and analyzed using ratios and figures. They suggest that low inflation in the post crisis period gained the banks a higher profitability and the ability to perform better.

Chapter 3

The North Cyprus Banking Industry

The North Cyprus economy and financial market is tied to the Turkish economy because its official currency is Turkish Lira. As a result whenever the economy of Turkey is in trouble with the downfall of their macroeconomic essentials the North Cyprus economy also suffers (Gunsel, 2007). North Cyprus had a total of 13 banks in December 1989. Soon after, the banking sector started to grow and totalled 61 banks in 1997. Then reached its peak with 93 banks in September 2000. With the crisis the banks degraded and now are in the total of 47.[1]Before the current crisis, there were two eras of predicament in the North Cyprus banking sector. The first was in 1994 and was caused by the disintegration of the economic fundamentals in Turkey that lead to a currency crisis. Because of the mutual currency, North Cyprus was also affected. In that year, the Ministry of Finance took on the control of two banks the Everest Bank Ltd and the Mediterranean Guarantee Bank Ltd. Subsequently, both had to be salvaged by the government.

The second economic and financial crisis in North Cyprus was seen in the year 2000 and followed until the year 2002. The kickoff of the currency crisis during 2000 and 2001 altered the banking sector negatively and led to the shrinkage of the economy. The Cyprus Credit Bank Ltd, Cyprus Liberal Bank Ltd, Everest Bank, Kıbrıs Yurt

[1] Including off-shore banks http://www.kktcmerkezbankasi.org

Bank Ltd, and Cyprus Finance Bank Ltd, were all first put under the Saving Deposit Insurance Fund and then out of business by the year 2001. The bankruptcy of these banks was the beginning of a severe banking crisis in North Cyprus. The total loss from the five dissolved banks was reported at an estimate of 112 trillion TL. To conclude as a result of the crisis, ten banks were put out of business and two were taken over by another bank (Gunsel, 2010). With the last crisis that started in 2007, the Turkish banking sector was also affected.

Chapter 4

DATA AND METHODOLOGY

4.1 Data

For this study a sample of 17 banks in the North Cyprus banking industry was considered including 1 public bank, 12 private banks, and 4 foreign banks and data was collected from their annual financial reports for the period of 2001-2009.

Table 4.1: List of sample of banks selected[2]

Ownership Structure	Banks
Public Banks	Kıbrıs Vakıflar Bankası Ltd.
Private Banks	K.Türk Koop.Merkez Bankası Ltd.
	Türk Bankası Ltd.
	Limasol Türk Koop. Bankası Ltd.
	Asbank Ltd.
	Kıbrıs İktisat Bankası Ltd.
	Creditwest Bank Ltd.
	Yakın Doğu Bank Ltd.
	Şekerbank (Kıbrıs) Ltd.
	Akfinans Bank Ltd.
	Universal Bank Ltd.
	Viyabank Ltd.
	Kıbrıs Faisal Islam Bankası Ltd.
Foreign Banks	T.C.Ziraat Bankası
	Türkiye Halk Bankası A.Ş.
	HSBC Bank A.Ş.
	Türkiye İş Bankası A.Ş.

[2] http://www.kktcmerkezbankasi.org

4.2 Methodology

4.2.1 Evaluation

The framework that was used to evaluate the banks in North Cyprus is the CAMELS approach. This analysis consists of six components; Capital Adequacy, Asset Quality, Management, Earnings and Profitability, Liquidity and Sensitivity. In addition to this the size of the banks were also taken into consideration.

Capital Adequacy

Capital Adequacy is an indication of the bank's financial strength. In this study the ratio of total capital over total loans (Capital/Loans) was used to measure the capital of the banks. A large scale of bad debts (loan losses) can lead to a deterioration of capital.

Asset Quality

The asset quality of a bank measures the risk of its assets which in other words means its loans. Loans provide earnings to the bank and are their riskiest assets. The ratio of net non-performing assets to total loans (Non-performing Assets/Total Loans) was applied to measure the asset quality. The higher the non performing assets the riskier the bank's assets are because they have both the risk of not getting their funds back and they can be forced to put a loan loss provision aside which will be an obstacle for other investments.

Management Quality

Management plays the most important role to achieve a successful operation of a bank. Management quality is dependent on a wide scope of properties like the level of education, expertise of management, quality of monitoring etc. The ratio of operating expense to operating income (Operating Expense/Operating Income) and interest expense to deposits (Interest Expense/Deposits) are both used to value the management quality of the banks. The lower the expenses the better it is for the bank.

Earnings and Profitability

Earnings is the key measurement to see the big picture of how a bank is performing. High earnings mean more capital, a place in the competitive industry and furthermore opportunities that can be undertaken. The ratios employed for this component was the Return on Assets ratio and Return on Equity ratio. The ratio of net income to total assets (Net Income/Total Assets) shows how much profit the bank's assets are generating and how profitable it is before undergoing debt. The ratio of net income to total equity (Net Income/Equity) shows the profit generated from the bank's equity. In both cases a higher ratio means a better performance.

Liquidity

Liquidity is the evaluation of the bank's assets that can be sold with minimal loss of value and the ability of meeting immediate liquidity needs. The most liquid asset of a bank is cash. The ratio exercised was the liquid assets to total assets (Liquid Assets/Total Assets). This shows how ready the bank is to handle their liabilities and

liquidity needs. A higher liquidity ratio means that the bank is ready to face a liquidity risk which in other words is any unanticipated deposit runs and also they have the ability of meeting unexpected demands from creditors.

Sensitivity

The banks sensitivity to market risk has an important role in seeing its position and making the decisions in which areas of products should precautions be taken. Market risk is derived from investments. It is composed of interest rate risk, currency risk, equity risk and commodity risk.

Sensitivity to market risk was not analyzed in this study due to the lack of data.

Bank Size

Bank size which is also known as asset size shows the financial position of a bank in the industry. A larger bank size means the ability of overcoming any liquidity troubles, handling risk diversification, and having the capability of supplementary financing. It is believed that larger banks have a lower probability of failing.

4.2.2 Analysis

Unit Root tests were conducted on the variables to see if they were stationary and could be used in our model.

The regression was run on all of the banks aiming to see if capital adequacy, asset quality, management, liquidity and bank size has any influence on their performance.

The following regression model was estimated;

$$ROA = \alpha + \beta 1\ (CAPL) + \beta 2\ (NPAL) + \beta 3\ (OPIC) + \beta 4\ (IEXD) + \beta 5\ (LATA) + \beta 6\ (LBS) + \varepsilon t$$

Where;

ROA is the profitability of the bank

CAPL is capital adequacy level

NPAL is the indicator of asset quality

OPIC and IEXD both are measures of management quality

LATA is the pointer of liquidty

LBS is the size of the bank

The same model was applied to the private bank sector and foreign bank sector seperately to see if the results will differ when the ownership structures are reflected on the anlysis. The foreign bank sector when scrutinized shows multicollinearity

between the regressors. For this reason a vector autoregression estimate was carried out to make the model work.

Table 4.2 : Regression Analysis Results

	All Banks	Private Banks	Foreign Banks
	ROA		
Constant			
Coefficient	0.6782	-0.1572	-0.2887
Prob. Value	(0.0982)	(0.0001)	(0.0646)
T-Stat	[0.69055]	-4.1610	[-4.4667]
CAPL			
Coefficient	0.0012	0.0056	0.0071
Prob. Value	(0.0013)	(0.1720)	(0.0010)
T-Stat	[-0.8788]	1.3756	[7.1150]*
NPAL			
Coefficient	0.0408	-0.0027	0.1279
Prob. Value	(0.0133)	(0.8585)	(0.0231)
T-Stat	[3.0643]*	-0.1787	[5.5270]*
OPIC			
Coefficient	0.0083	0.0154***	-0.0391
Prob. Value	(0.0077)	(0.0667)	0.0113
T-Stat	[-1.2178]	1.8540	[-3.4466]*
IEXD			
Coefficient	0.0273	0.0191	-
Prob. Value	(0.0257)	(0.6005)	-
T-Stat	[1.0673]	0.5254	-
LATA			
Coefficient	0.037254	0.2058*	0.0199
Prob. Value	(0.0179)	(0.0000)	(0.0090)
T-Stat	[2.0734]	5.2529	[2.2023]**
LBS			
Coefficient	-0.00178	0.0001	0.0280
Prob. Value	(0.0008)	(0.9023)	(0.0072)
T-Stat	[-2.0819]	0.1230	[3.8407]*
R-Squared	0.5498	0.3485	0.8949
R-Squared Adjusted	0.4892	0.3098	0.8108
F-stat	9.0752	9.0063	10.6407
Prob. Values		(0.00000)	

4.3 Transparency Levels of Banks in North Cyprus

In addition to this an analysis was conducted to see if the bank's transparency has an effect on its performance. The bank was looked at how open it is in three areas; financial, ownership structure and disclosed information and management structure for the year 2010. For financial transparency, it was checked if financial reports like income statements, balance sheets, statements of cash flows, etc. were given. Whether the bank provides its owners, products and services and board of directors in details was checked to see the level of transparency in ownership structure and disclosed information. To see the openness in management structure and analysis, the bank was checked if it provides its risk management strategies along with its forecasts and investment plans for the future. The methodology was provided by Standard & Poor's methodology.

Table 4.3 : Transparency ratings of sample banks

	Final Ranking	Financial Transparency	Ownership Structure and Information Disclosure	Management Structure and Analysis
Kıbrıs Vakıflar Bankası Ltd.	6	8	7	3
K.TürkKoop.Mer.BankasıLtd.	6	8	7	4
Türk Bankası Ltd.	6	9	8	2
Limasol Türk Koop.Bankası Ltd.	3	4	4	0
Asbank Ltd.	2	4	2	0
Kıbrıs İktisat Bankası Ltd.	2	4	2	0
Creditwest Bank Ltd.	7	8	6	6
Yakın Doğu Bank Ltd.	1	0	3	0
Şekerbank (Kıbrıs) Ltd.	0	0	1	0
Akfinans Bank Ltd.	0	0	1	0
Viyabank Ltd.	1	1	1	0
Kıbrıs Faisal Islam Bankası Ltd.	0	0	1	0
T.C.Ziraat Bankası	10	10	10	10
Türkiye Halk Bankası A.Ş.	9	9	10	10
HSBC Bank A.Ş.	10	10	10	10
Türkiye İş Bankası A.Ş.	10	10	10	10

4.3.1: Does Transparency Matter?

Bank size was taken as the dependent variable and measured whether transparency, asset quality, interest expenses over deposits a ratio of management quality and capital adequacy for the year 2010. Transparency was taken as a dummy variable and put into a regression model. The banks with their final ranking above 5 was accepted as transparent and marked as 1 and the banks with a final ranking of below 5 was marked as 0 and was acquired as non-transparent.

The following model was estimated;

$$LBS = \alpha + \beta 1\ (TRANS) + \beta 2\ (NPAL) + \beta 3\ (IEXD) + \beta 4\ (CAPL) + \varepsilon t$$

Where;

LBS is the size of the bank

TRANS is the dummy variable

NPAL is an indicator of asset quality

IEXD is a measurement of management

CAPL is a determinant of capital adequacy

Table 4.4 : Transparency Regression Analysis Results

	LBS
Constant	
Coefficient	18.7644
Prob. Value	(0.0000)
T-Stat	24.2930
TRANS	
Coefficient	1.6429**
Prob. Value	(0.0110)
T-Stat	3.0507
NPAL	
Coefficient	-0.7897
Prob. Value	(0.8193)
T-Stat	-0.2340
IEXD	
Coefficient	4.9070
Prob. Value	(0.6982)
T-Stat	0.3981
CAPL	
Coefficient	-0.8581
Prob. Value	(0.1034)
T-Stat	-1.7759
R-Squared	0.5453
R-Squared Adjusted	0.3799
F-stat	3.2977
Prob. Value	0.0524

The regression analysis executed on bank size gave the result of transparency being significant at a 5% confidence level. This means the more transparent the bank is the more it will increase its size. We can say that being more open to public gives the customers a better confidence and attracts more people to the bank. Consumers are attracted to banks that give more details about their products, services and how they operate. If you are making an investment in that bank you would be more comfortable knowing how much risk they carry and how they are managing it. Foreign banks show a higher level of transparency which means they are more likely

to increase their bank size. 54.53% of the changes in bank size can be explained by the TRANS, NPAL, IEXD and NPAL. The other variables NPAL, IEXD and CAPL tested had no significance on bank size.

Chapter 5

EMPIRICAL RESULTS

5.1 Correlation Analysis Results

Unit root tests as shown in the appendix reveal that all of the variables under consideration seem to be stationary at their levels, which are said to be interested of order zero, I (0). This means that further analysis can be done by standard prometric procedures according to the assumptions of Classical Linear Regression Models.

The correlation analysis is carried out to see the relation between the independent and dependent variables. In our case ROA is the regressand where as CAPL, NPAL, IEXD, OPIC, LATA and LBS are the regressors. We can also see if there is a multicollinearity (positive relation between independent variables) problem with our used variables. The correlation was measured in 3 groups; all three sector banks, private sector banks and foreign sector banks.

Table 5.1: Correlation of Variables: All Sector Banks

	ROA	**CAPL**	**NPAL**	**IEXD**	**OPIC**	**LATA**	**LBS**
ROA	1.000						
CAPL	0.061	1.000					
NPAL	**-0.372**	-0.061	1.000				
IEXD	-0.041	0.112	0.101	1.000			
OPIC	0.047	0.255	0.078	0.069	1.000		
LATA	**0.334**	-0.080	-0.379	-0.035	-0.084	1.000	
LBS	-0.012	-0.149	-0.073	0.146	-0.084	0.007	1.000

Table 5.1 demonstrates the correlations between the variables are shown for all three public, private and foreign bank sectors. Bank profitability is positively correlated with CAPL, OPIC and LATA. This indicates that when the bank has good management over its net non-interest income, a high level of liquidity and sufficient amount of capital the bank will improve their profitability and stand better in the sector. On the other hand, profitability has a negative correlation with NPAL, IEXD and LBS. An influential amount of non-performing assets in the bank is an impediment for them to improve their ROA. Bank size and excessive interest expenses on loans and deposits can lead to the bank's profitability decline. When the correlations between the explanatory variables are scrutinized we can see that there is no high positive relation and we do not have a multicollinearity problem.

Table 5.2: Correlation of Variables: Private Sector Banks

	ROA	CAPL	NPAL	OPIC	IEXD	LATA	LBS
ROA	1.000						
CAPL	**0.090**	1.000					
NPAL	**-0.165**	0.158	1.000				
OPIC	**-0.048**	0.265	0.508	1.000			
IEXD	-0.182	0.124	0.261	0.576	1.000		
LATA	**0.132**	-0.124	-0.017	-0.055	-0.053	1.000	
LBS	**-0.113**	-0.718	-0.0556	-0.170	-0.195	0.148	1.000

In table 5.2 the correlation of the private sector bank variables are observed. Equivalent to the findings of all banks; the dependent variable is positively associated with CAPL, OPIC and LATA; whistle NPAL, IEXD and LBS has a negative relation. With the increase of capital, liquidity and distinguished management in non-interest income and expenses like employee wages, provisions and commissions bank profitability will be at a preferable level. Increase in interest expenses due to deposits and defaulting loans, and bank size will pull the availability of funds along with its profitability. Again we do not face the problem of multicollinearity.

Table 5.3: Correlation of Variables: Foreign Bank Sector

	ROA	CAPL	NPAL	OPIC	IEXD	LATA	LBS
ROA	1.000						
CAPL	0.040	1.000					
NPAL	-0.385	0.020	1.000				
OPIC	**0.050**	0.008	0.138	1.000			
IEXD	-0.009	-0.067	0.133	-0.255	1.000		
LATA	**0.560**	-0.119	-0.672	-0.158	-0.014	1.000	
LBS	-0.001	-0.023	-0.092	-0.049	0.280	-0.027	1.000

Table 5.3 shows the foreign bank sector variable correlations. CAPL and LATA is positively correlated with the profitability of the foreign banks. Their reputation and wide range of customers, brings a good capital amount and exceptional liquidity; this leads to the increase of their profitability. On the contrary; NPAL, OPIC, IEXD and LBS have a negative relation with the predictand. A big proportion of non-performing loans and bank size has the potential of decreasing profitability. Poor management conveys higher expenses than both interest and non-interest income. This also guides bank performance down. NPAL and the management measurement IEXD ratio both have high correlations with OPIC which also assesses management. This indicates that we have multicollinearity in our model and we will have to apply the Vector Autoregression analysis to make our model work.

5.2 Regression Analysis Results

Regression analyses have been conducted under four different stages for all banks. They are; Simple Ordinary Least Squares estimation (OLS), OLS with Random Effects, OLS with Fixed Effects, and Vector Autoregression Estimation (VAR).

As number of observations (or banks) is closer to the total population, Fixed effects estimations have been carried out as well. Results in Table 5 in the appendix show that three variables are now statistically significant; CAPL, IEXD and OPIC. The estimation results of Random Effects in Table 6 show that again the coefficient of three variables again are statistically significant but this time they are; NPAL, IEXD

and OPIC. Finally when VAR estimation is carried out (Lag Level 2) as can be seen in Table 7; NPAL, LATA and LBS becomes statistically significant for ROA at various lag levels.

All these estimations also show that by adopting fixed effects, random effects and VAR systems autocorrelation problem is eliminated, multicollinearity is reduced and R^2 of the model is considerably increased.

The simple regression analysis conducted on all banks gave the result of NPAL and LATA being significant both at a 1% level as can be seen in Table 4. This means that they affect our dependent variable. The asset quality shows a negative reaction. With the increase of non- performing assets the banks will face default risk and liquidity risk. Domestic banks have a higher level of non-performing assets than foreign banks.[3] This ratio showed significant differences in the years of crisis which is consistent with the previous study of Safakli (2007). The research supports this argument by showing that non-performing loans to total loans had the percentage of 20.90% in crises period 2001 and this level descended to 7.76% in the post-crisis year of 2005. The North Cyprus banking sector is not illiquid. This could be from the fact that most banks generate their income from short term assets and liabilities meaning customer deposits and commercial loans. As the liquidity in North Cyprus banks increase, their profitability also increases. Gunsel (2007) found the same results and related this to a less risk of failure. Overall, liquidity in foreign banks are

[3] See Appendix Graph 2 : Non-performing Assets to Loans : All Banks

better than public and private banks but because of their vulnerability to the outside conditions they have more rapid fluctuations in the crisis periods.[4]

The model variables that were not found significant in other words did not have any impression on our dependent variable ROA were; CAPL, OPIC, IEXD and LBS. 19.20% of the changes in ROA can be explained by our model variables; CAPL, NPAL, OPIC, IEXD, LATA and LBS which is low.

Random and Fixed affects showed more or less the same results. Both management ratios showed significance in both estimations. While interest expenses showed a negative affect, operatig expenses were managed better and had a positive impact. Fixed affect showed that capital also had a positive significance. Strong capital will bring a higher ROA. Random effect revealed that NPAL had a negative impact on ROA. Banks overall are affected negatively by the poor management of non-performing assets.

The VAR model also showed significance in NPAL and LATA like in simple regression, and additionally showed significance in LBS. Surprisingly, as the bank size in all banks increase the ROA decrease. This could be because of the bank being able to increase their assets but not being able to generate income from their additional assets.

[4] See Appendix Graph 3 : Liquid Assets to Total Assets : All Banks

The model shows that CAPL, IEXD and OPIC has no significance on ROA. In addition to this an improved rate of 54.98% of the changes in ROA can be explained by CAPL, NPAL, IEXD, OPIC, LATA and LBS.

The private banks regression model gave the outcome of OPIC and LATA being significant variables at 10% and 1% confidence levels respectively. ROA is prevailed by both of these variables. With OPIC considered, by banks minimizing their non-interest expenses like loan loss provisions and personnel expenses, and maximizing their non-interest income; management is boosting their profitability with the more available funds. Ianotta (2007) concludes in the opposite direction that Private Banks do not take their higher return leisure from their lower costs. They also are generating a surplus liquidity that allows them to perform better.

The model can explain that the 34.85% of change in ROA is caused by CAPL, NPAL, OPIC, IEXD, LATA and LBS. None of the variables CAPL, NPAL, IEXD AND LBS have an impact on ROA.

Foreign bank regression tests showed CAPL, LATA and LBS having a positive effect, and OPIC having a negative effect on profitability at lag one. NPAL also enforces a reaction on profitability in lag two. Foreign branch banks have the

advantage of their parent banks intervening and having a better reputation, this brings a strong background of capital.[5] Their wide scope of operating allows them to generate more liquidity from diversified services and their better management of non-performing assets brings better performance. Their set aside provisions allow them not to face the consequences of a declining performance and actually comes back as a positive in the following years. Net operating income showed that the branches of foreign banks were not increasing their profitability. Sensarma (2006) found the same results in the case of India and suggested that this could be from over paid employees, expensive technology and necessary rental costs on real estate.

The Vector Autoregression model showed that 89.49% of the changes in ROA can be explained by CAPL, NPAL, OPIC, LATA and LBS within the following two years. IEXD was not taken into account because of the multicollinearity potential it has with OPIC. They are both a measurement of management.

5.3 Analysis of Profitability Ratios

On average foreign banks are seen to be more profitable than domestic banks in both ROE and ROA.[6] This can be supported by the study of Havrylchyk (2006), Micco (2004) and Claessens et al (2001) as North Cyprus categorizes as a developing country. This could be because of the support supplied by parent banks when needed and that they are not mainly affected by the economic conditions of North Cyprus.

[5] See Appendix Graph 1 : Capital to Equity : All Banks
[6] See Appendix Figure 4: Average of Public, Private and Foreign Banks Profitability

Berger et al (2005) suggests that this could be from the better access to capital markets and upgraded technologies or the incompetent domestic banks operations.

Public banks show a significant difference in ROE on average compared to private banks. A stronger capital is most likely because of the government involvement. This is an opposing overview to Cornnet et al (2008) that found that state-owned banks did not have a strong core capital.

Chapter 6

CONCLUSIONS AND SUGGESTIONS

An analysis was conducted on ROA a bank profitability ratio to see if it is affected by CAPL, NPAL, OPIC, IEXD, LATA and LBS.

The higher proportion of non-performing assets will decrease the profitability of the banking sector as a whole. Domestic banks show a greater level of non-performing loans and provisions mismatch. As mentioned in Şafaklı and Altuner (2009) public and private bank sectors gives out more credit.[7] So they are exposed to more risk. Although private banks reveal a higher level of non-performing loans their profitability is not provoked. This is an indication that private bank management is taking precautions against defaulting risk. Foreign banks have the minimum of non-performing assets and this shows its affect on profitability as a positive. Foreign banks tend to have better provision ratios as observed by Claessens et al (2001)[8] and Crystal et al (2001).

Liquidity is a positive implementation on all three banking sector profiting. On average foreign banks are more liquid which is most likely because of the deposit

[7] The distribution of Credit by banks in North Cyprus was 50% by public banks, 45% by private banks and 5% by foreign banks. Source :TRNC Central Bank data DD 30.6.2001

[8] High provision ratios in Australia, Canada, Germany, Japan and the UK show no significance; while lower provision ratios in Austria, Denmark, France and Sweden have a significant affect.

demand they attract but because of their deeper interaction outside the country they experience more intense fluctuations from being exposed to more risk. This is not consistent with the findings of Commet et al (2008), but supports Crystal et al (2001) results as they find that foreign banks invest more in liquid assets.

Domestic banks can control their net operating income better than the foreign banks. While private banks are contributing to their profitability with their better management of non-interest expenses; the foreign branch banks are directing profitability to shrink with poor management. The same conclusion was discovered by Sensarma (2006). Bank size only has a positive enforcement on foreign banks.

Foreign banks on average are more profitable than domestic public and private banks. This could be because of their reputation, tax advantages and minimized defaulting risk. Most of the foreign banks in North Cyprus have their parent banks operating in Turkey. The same currency is used in both countries. This could also be another advantage because there is no currency risk.

Transparency has an effect on the bank size. The foreign banks share more information with the public and this increases their customers along with their assets. Further research could be conducted on this matter in the following years with annually collected data.

From these findings we can say that the domestic private banks can manage their expenses better than foreign banks. And foreign banks have a stronger structure, higher profitability on average and are better at protecting themselves against risks.

I would suggest that domestic banks could carry out a better management on their defaulting assets. They could try to set aside more provisions against their losses and do an in-depth investigation on clients. Public and private banks should try to diversify their services maybe seek for new products, share more of their financial position with the public and try to provide products and services that are more convenient to their customers. Consumers use their choice in easy, they want a bank that will not hassle them a lot. Liquidity levels of all three banking sectors should be kept at the same level and even if possible be increased. Foreign banks should try to reduce their operating expenses and increase their operating income. They pay a higher salary to their employees than domestic banks this could be slightly reduced. They could try to find a way to use their advanced technologies in a more efficient way and spend less on real estate.

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APPENDIX

Table 1: Panel Unit Root Tests for All Banks

	Levels		
Variables	LLC	IPS	M-W
ROA			
τ_T	-8.7644*	-0.4137	49.7529*
τ_μ	-7.8403*	-2.3706*	55.7218*
τ	-4.6790*	-	59.5249*
CAPL			
τ_T	-12.395*	-2.4174*	83.7776*
τ_μ	-15.003*	-5.6251*	89.1922*
τ	-8.8830*	-	124.787*
NPAL			
τ_T	-22.442*	-3.4442*	89.9462*
τ_μ	-43.543*	-18.178*	127.319*
τ	-46.552*	-	127.884*
OPIC			
τ_T	-24.063*	-3.6674*	108.095*
τ_μ	-7.1912*	-5.0222*	121.659*
τ	0.84528	-	58.7846*

IEXD			
τ_T	-23.203*	-2.4570*	65.6910*
τ_μ	-8.3672*	-3.5464*	114.336*
τ	-7.5210*	-	112.507*
LATA			
τ_T	-5.7865*	0.0217	77.6101*
τ_μ	-41.059*	-9.9664*	124.964*
τ	2.8547	-	9.2910
LBS			
τ_T	-6.0342*	0.3269	77.1299*
τ_μ	-13.336*	-9.7913*	117.233*
τ	10.2687	-	16.0216

Table 2: Panel Unit Root Tests for Private Banks

	Levels		
Variables	LLC	IPS	M-W
ROA			
τ_T	-6.0167*	0.0478	29.5176
τ_μ	-6.1040*	-1.7918*	38.577**
τ	-3.9647*	-	44.4317*
CAPL			
τ_T	-10.936*	-1.6253***	58.3312*
τ_μ	-9.3949*	-3.2955*	77.9929*
τ	-6.6309*	-	101.630*
NPAL			
τ_T	-22.968*	-2.9247*	62.1655*
τ_μ	-43.732*	-15.694*	118.998*
τ	-40.312*	-	115.936*
OPIC			
τ_T	-24.247*	-3.8397*	68.3066*
τ_μ	-9.0395*	-4.1575*	74.9975*
τ	-2.5700*	-	34.406***

IEXD			
τ_T	-20.540*	-1.5373***	26.3506
τ_μ	-9.2740*	-3.8369*	79.5579*
τ	-6.3698*	-	71.1901*
LATA			
τ_T	-6.2399*	-0.0654	38.4259**
τ_μ	-5.3221*	-2.0221**	62.9879*
τ	3.0217	-	5.98747
LBS			
τ_T	-5.0970*	-0.1879	63.9917*
τ_μ	-12.052*	-11.265*	86.5428*
τ	9.3073	-	15.6300

Table 3: Panel Unit Root Tests for Foreign Banks

	Levels		
Variables	LLC	IPS	M-W
ROA			
τ_T	-6.3126*	-0.7403	18.2404**
τ_μ	-4.1230*	-1.3575***	14.3255***
τ	-2.2081**	-	12.0508
CAPL			
τ_T	-12.138*	-1.8540**	23.6495*
τ_μ	-7.8502*	-3.3127*	9.34326
τ	-7.0284*	-	21.9909*
NPAL			
τ_T	-2.5447*	-1.2075	22.2796*
τ_μ	-27.898*	-10.600*	6.13035
τ	-38.045*	-	8.43119***
OPIC			
τ_T	-5.1836*	-0.4908	21.3677*
τ_μ	-3.5948*	-1.6496**	23.1899*
τ	1.7923	-	15.1899***

IEXD			
τ_T	-10.928*	-2.6258*	38.8667*
τ_μ	0.3408	-0.6028	31.0435*
τ	-3.6119*	-	34.7712*
LATA			
τ_T	0.0649	-0.0060	27.4618*
τ_μ	-59.239*	-16.571*	38.857*
τ	0.0183	-	3.14476
LBS			
τ_T	-3.4695*	0.6506	13.1111
τ_μ	-2.2704**	-0.1873	19.7151**
τ	8.5220	-	0.38582

Note for all three models:

ROA represents return on assets; CAPL represents the ratio capital/loans; NPAL represents the ratio non-performing assets/loans; OPIC represents the ratio operating income/operating cost; IEXD represents the ratio interest expense/deposits; LATA represents the ratio liquid assets/total assets; LBS represents bank size. τ_T represents the most general model with a drift and trend; τ_μ is the model with a drift and without trend; τ is the most restricted model without a drift and trend. Optimum lag lengths are selected based on Schwartz Criterion. * denotes rejection of the null hypothesis at the 1% level. * * denotes rejection of the null hypothesis at the 5% level. * * * denotes rejection of the null hypothesis at the 10% level. Tests for unit roots have been carried out in E-VIEWS 6.0.

Table 4: Regression Analysis of All Bank Sectors

Dependent Variable: ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.0180	0.0213	-0.8442	0.3999
CAPL	0.0007	0.0013	0.5122	0.6093
NPAL	-0.0390	0.0111	-3.5031	0.0006
OPIC	0.0066	0.0066	1.0028	0.3176
IEXD	-0.0032	0.0223	-0.1460	0.8842
LATA	0.0487	0.0168	2.8958	0.0044
LBS	-0.0002	0.0008	-0.2597	0.7955

R-squared	0.1920	Mean dependent var	0.0153
Adjusted R-squared	0.1588	S.D. dependent var	0.0324
S.E. of regression	0.0297	Akaike info criterion	-4.1497
Sum squared resid	0.1289	Schwarz criterion	-4.0110
Log likelihood	324.450	Hannan-Quinn criter.	-4.0934
F-statistic	5.7838	Durbin-Watson stat	0.9400
Prob(F-statistic)	0.000020		

Table 5: Fixed Effects of All Sector Banks

Depedent Variable ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006224	0.017158	0.362723	0.7174
CAPL	0.002387	0.001272	1.876383	0.0630
NPAL	-0.017072	0.010447	-1.634062	0.1048
IEXD	-0.041725	0.022211	-1.878632	0.0627
OPIC	0.020305	0.005982	3.394160	0.0009
LATA	-0.014773	0.014370	-1.027993	0.3060
LBS	0.000637	0.000670	0.951248	0.3434
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.695462	Mean dependent var		0.015294
Adjusted R-squared	0.620576	S.D. dependent var		0.032399
S.E. of regression	0.019957	Akaike info criterion		-4.811666
Sum squared resid	0.048590	Schwarz criterion		-4.197656
Log likelihood	399.0925	Hannan-Quinn criter.		-4.562245
F-statistic	9.286900	Durbin-Watson stat		1.604874
Prob(F-statistic)	0.000000			

Table 6: Random Effects of All Sector Banks

Depedent Variable ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.007498	0.018586	-0.403433	0.6872
CAPL	0.000846	0.001253	0.675046	0.5007
NPAL	-0.035230	0.010223	-3.446051	0.0007
IEXD	-0.062060	0.020220	-3.069314	0.0026
OPIC	0.022650	0.006076	3.727804	0.0003
LATA	0.011466	0.014505	0.790466	0.4305
LBS	0.000537	0.000696	0.771561	0.4416

Effects Specification		
	S.D.	Rho
Cross-section random	0.016420	0.4037
Period random	0.000000	0.0000
Idiosyncratic random	0.019957	0.5963

Weighted Statistics			
R-squared	0.198552	Mean dependent var	0.005743
Adjusted R-squared	0.165616	S.D. dependent var	0.024484
S.E. of regression	0.022365	Sum squared resid	0.073027
F-statistic	6.028373	Durbin-Watson stat	1.345764
Prob(F-statistic)	0.000012		

Unweighted Statistics			
R-squared	0.082366	Mean dependent var	0.015294
Sum squared resid	0.146412	Durbin-Watson stat	0.671233

Table 7: Vector Autoregression Estimates of All Banks

	ROA
ROA(-1)	0.511252 (0.09491) [5.38678]
ROA(-2)	0.067827 (0.09822) [0.69055]
CAPL(-1)	0.002123 (0.00154) [1.37947]
CAPL(-2)	-0.001164 (0.00132) [-0.87885]
NPAL(-1)	-0.049211 (0.01760) [-2.79539]
NPAL(-2)	0.040841 (0.01333) [3.06439]
IEXD(-1)	0.027579 (0.04459) [0.61846]
IEXD(-2)	0.027374 (0.02565) [1.06737]
OPIC(-1)	-0.001306 (0.00772) [-0.16924]
OPIC(-2)	-0.008299 (0.00681) [-1.21776]
LATA(-1)	0.037254 (0.01797) [2.07343]
LATA(-2)	-0.008530

	(0.01584)
	[-0.53833]
LBS(-1)	0.001028
	(0.00097)
	[1.05783]
LBS(-2)	-0.001785
	(0.00086)
	[-2.08194]
C	0.001066
	(0.02167)
	[0.04917]
R-squared	0.549888
Adj. R-squared	0.489296
Sum sq. resids	0.053439
S.E. equation	0.022668
F-statistic	9.075273
Log likelihood	289.7924
Akaike AIC	-4.618360
Schwarz SC	-4.268050
Mean dependent	0.020244
S.D. dependent	0.031720

Determinant resid covariance (dof adj.)
Determinant resid covariance
Log likelihood
Akaike information criterion
Schwarz criterion

Table 8: Regression Analysis of Private Bank Sector

Dependent Variable: ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.1572	0.0378	-4.1610	0.0001
CAPL	0.0056	0.0041	1.3756	0.1720
NPAL	-0.0027	0.0153	-0.1787	0.8585
OPIC	0.0154	0.0083	1.8540	0.0667
IEXD	0.0191	0.0364	0.5254	0.6005
LATA	0.2058	0.0392	5.2529	0.0000
LBS	0.0001	0.0008	0.1230	0.9023

R-squared	0.3485	Mean dependent var	0.0144
Adjusted R-squared	0.3098	S.D. dependent var	0.0364
S.E. of regression	0.0303	Akaike info criterion	-4.0947
Sum squared resid	0.0925	Schwarz criterion	-3.9208
Log likelihood	228.1116	Hannan-Quinn criter.	-4.0242
F-statistic	9.0063	Durbin-Watson stat	0.8504
Prob(F-statistic)	0.000000		

Table 9: Vector Autoregression Estimates of Foreign Bank Sector

Dependent Variable: ROA

	ROA
ROA(-1)	0.256152 (0.12641) [2.02631]
ROA(-2)	0.028326 (0.10542) [0.26871]
CAPL(-1)	0.007148 (0.00100) [7.11499]
CAPL(-2)	0.000299 (0.00103) [0.29045]
NPAL(-1)	0.009385 (0.03282) [0.28594]
NPAL(-2)	0.127868 (0.02314) [5.52699]
OPIC(-1)	-0.039057 (0.01133) [-3.44662]
OPIC(-2)	-0.016514 (0.01289) [-1.28072]
LATA(-1)	0.019911 (0.00904) [2.20235]
LATA(-2)	0.006620 (0.00795) [0.83318]

LBS(-1)	0.027958 (0.00728) [3.84069]
LBS(-2)	-0.011896 (0.00638) [-1.86348]
C	-0.288687 (0.06463) [-4.46672]
R-squared	0.894876
Adj. R-squared	0.810776
Sum sq. resids	0.001333
S.E. equation	0.009426
F-statistic	10.64069
Log likelihood	99.60746
Akaike AIC	-6.186247
Schwarz SC	-5.567723
Mean dependent	0.021179
S.D. dependent	0.021669

Determinant resid covariance (dof adj.)	3.36E-14
Determinant resid covariance	7.94E-16
Log likelihood	248.3927
Akaike information criterion	-12.17090
Schwarz criterion	-8.459763

Table 10: Regression Analysis for Transparency: All Bank Sector

Dependent Variable: LBS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.7644	0.7724	24.293	0.0000
TRANS	1.6429	0.5385	3.0507	0.0110
NPAL	-0.7897	3.3757	-0.2339	0.8193
IEXD	4.9070	12.327	0.3981	0.6982
CAPL	-0.8581	0.4832	-1.7759	0.1034

R-squared	0.5453	Mean dependent var	0.0144
Adjusted R-squared	0.3098	S.D. dependent var	0.0364
S.E. of regression	0.0303	Akaike info criterion	-4.0947
Sum squared resid	0.0925	Schwarz criterion	-3.9208
Log likelihood	228.1116	Hannan-Quinn criter.	-4.0242
F-statistic	9.0063	Durbin-Watson stat	0.8504
Prob(F-statistic)	0.000000		

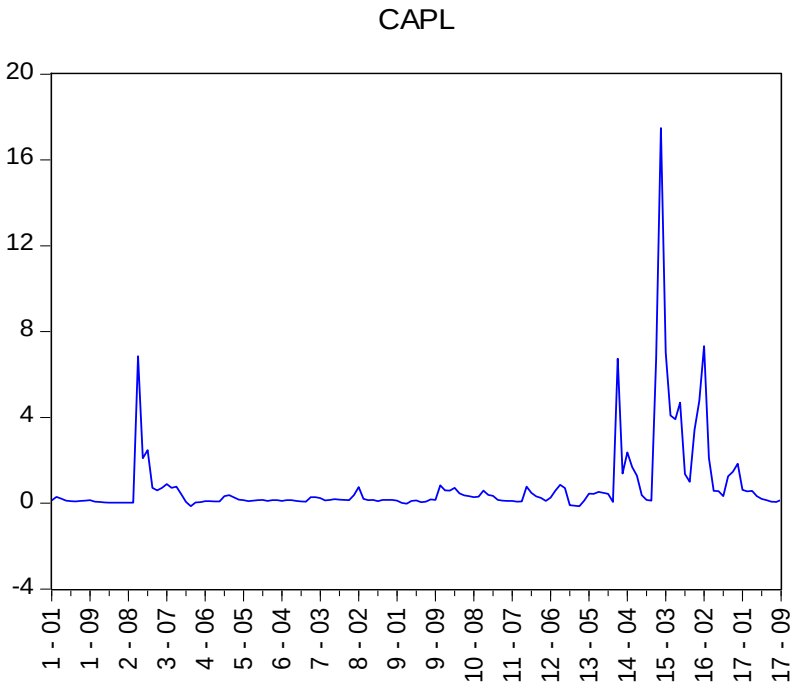


Figure1: Capital to Equity : All Banks

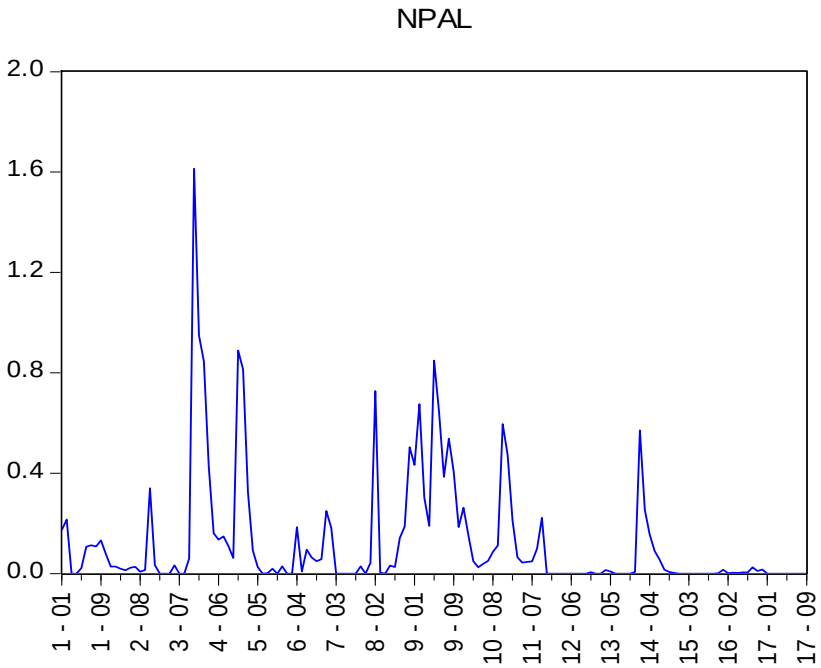


Figure 2: Non-Performing Assets to Total Loans: All Banks

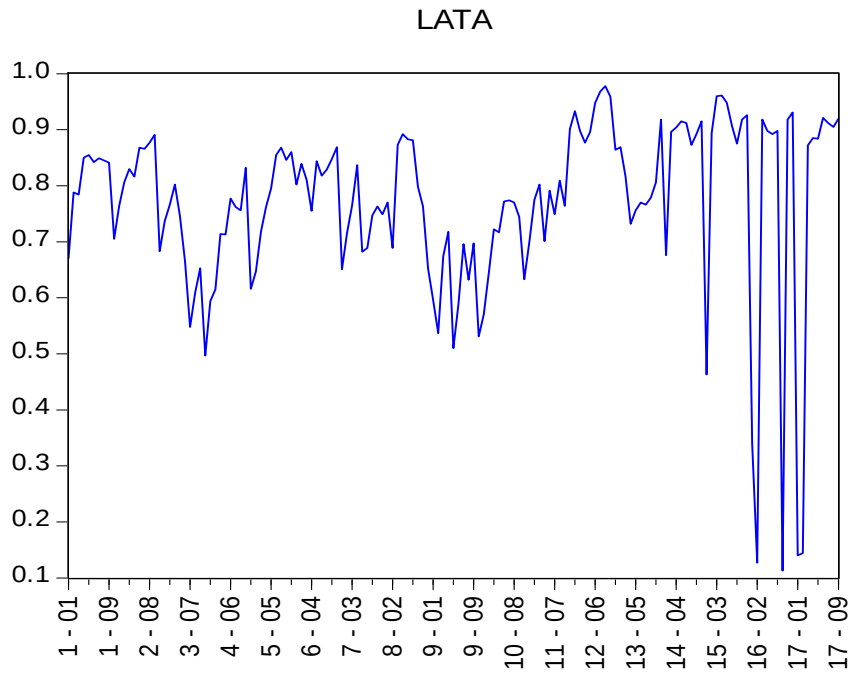
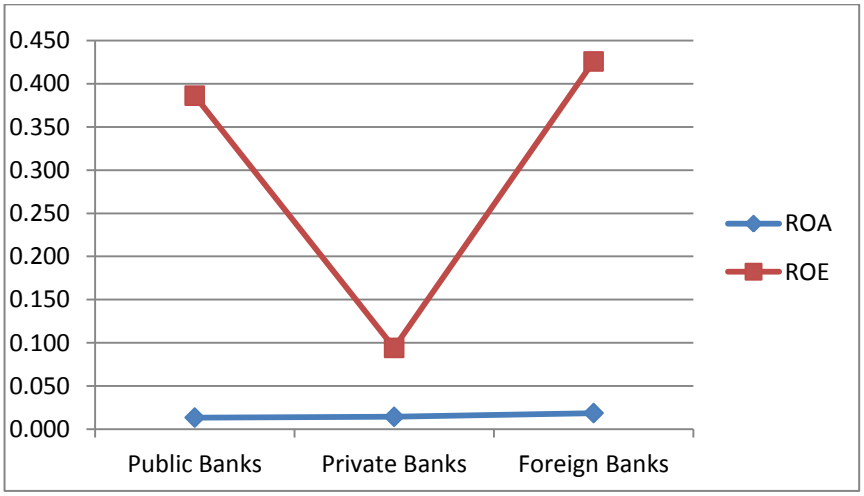


Figure 3: Liquid Assets to Total Assets: All Banks



	ROA	ROE
Public Banks	0.013	0.386
Private Banks	0.014	0.094
Foreign Banks	0.019	0.426

Figure 4: Average of Public, Private and Foreign Banks Profitability

Transparency Framework:

Financial Transparency

- Does the bank provide financial information quarterly?
- Does the bank discuss its accounting policy?
- Does the bank provide accounts according to the local accounting standards?
- Does the bank provide accounts alternate to internationally recognized accounting methods?
- Does the bank produce consolidated financial statements?
  a. Financial Partnerships
  b. Non-Financial Partnerships
- Does the bank provide financial statements?
  a. Income Statement
  b. Balance sheet
  c. Statement of Owner's Equity
  d. Statement of Cash Flows
  e. Suspense Accounts
- Financial Statements adjusted to inflation
- Independent Auditing Reports
  a. Does the bank disclose the name of its auditing firm?
  b. Does the bank reproduce the auditors' report?
  c. Does the bank disclose how much it pays in audit fees to the author?
  d. Does the bank disclose any non-audit fees to auditor?

Ownership Structure and Information Disclosure

- Details on the bank's management strategy, aim and goal
  a. Does the bank discuss its corporate strategy?
  b. Does the bank report details of the kind of business it is in?
  c. Does the bank provide details on its products and services?
  d. Is an overview of trends in its industry given?
- The bank's legal and administrative structure
  a. Are the board of directors given? Executive or outside director?
  b. Is the board of director member's names, backgrounds and experiences given?
  c. Are details about the board of directors roles explained?
  d. Are there reviews of board meetings?
  e. Is there an audit committee? Other internal audit function?
  f. Is there a remuneration/compensation committee?
  g. Is there a nomination committee?
  h. Is there a strategy, investment and finance committee?
  i. Are details about the lower management structure given?

j. Information about the organizational structure given?

Management Structure and Analysis

- Managements' analysis and remarks
  a. Does the bank report basic earnings forecast of any kind? In detail?
  b. Does the bank give an output forecast of any kind?
  c. Does the bank provide information about its investments
  d. Does the bank provide information about its financial position
  e. Does the bank report efficiency indicators (ROE, ROA, etc.)?
  f. Does the company disclose its plans of its investment plans for the future years?
- Risk Management
  a. Total credit risk? Is a report provided in detail?
  b. Detailed information about non-performing loans, amount and probability of being paid back.
  c. Information about risk management
  d. Information on exchange risk
  e. Banks liquidity position and use of funds
  f. Information on value at risk (market and exchange risk)