PROFITABILITY OF BANKING SYSTEM: EVIDENCE FROM EMERGING MARKETS

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Abstract

The aim of this study is to analyze the determinants of the bank profitability in emerging markets. Profitability is one of the main reasons for the existence of business enterprises, and business enterprises continue their operation by making profits. Banks are the business enterprises that aim to make profits similar to the others. In this regard, the profitability performance of the banks indicates the success of the banks' management. Hence it is one of the most important indicators for the investors. In this paper the profitability of banks and its determinants in Turkey as well as in eight different emerging countries are investigated. The determinants of bank profitability is analyzed with the data from 195 banks between the years 2005-2010 by using the panel data.

Keywords: Bank profitability, emerging markets, panel data

Introduction

Profitability is one of the main reasons for the existence of business enterprises, and business enterprises continue their operation by making profits. Banks are the business enterprises that aim to make profits similar to the others. In this regard, the profitability performance of the banks indicates the success of the banks' management. Hence it is one of the most important indicators for the investors. In this paper the profitability of banks and its determinants in Turkey as well as in eight different emerging countries are investigated.

In the literature the determinants of profitability of the banking system has been widely discussed. Studies on the determinants of profitability have focused either on a particular country or on a set of countries. In the literature, bank profitability, is generally measured by the return on assets (ROA) (Molyneux & Thornton; 1992; Athanasoglou et al., 2005) and/or the return on equity (ROE) (Berger, 1995; Abreu&Mendes, 2002) and the interest margin (Angbazo, 1997; Demirgüç-Kunt&Huizinga, 1999; Saunders&Schumacher, 2000; Kaya, 2002) and expressed as a function of internal and external determinants. Internal determinants are factors that are mainly influenced by a bank's management decisions and policy objectives. Such profitability determinants are the level of liquidity (Bourke, 1989), capital adequacy (Molyneux & Thornton; 1992; Goddard et al., 2004), expenses management (Bourke, 1989) and bank size (Berger et al., 1987; Bikker & Hu, 2002). On the other hand, the external determinants, both industry-related and macroeconomic, are variables that reflect the economic and legal environment where the credit institution operates.

Data

The aim of this paper is to examine the relationship between profitability and the banking characteristics, after controlling for economic and financial structure indicators. The intention is to decide which, among the potential determinants of performance, appears to be important.

The sample includes 195 commercial banks from 9 emerging countries. These emerging countries are chosen according to FTSE Advanced Emerging Countries index. The countries included in the research are Brazil, Czech Republic, Hungary, Malaysia, Mexico, Poland, South Africa, Taiwan and Turkey. The time period chosen for the analysis is the years between 2005-2010. In sample selection any bank which operated in a country included in the FTSE Advances Emerging Countries Index in 2005 and was classified as a commercial, and has consistent data for each of the years 2005-2010 inclusive was selected. Extreme values or very large unexplained changes in the values

of any of the variables were excluded. The bank level data of these 195 banks are derived from the balance sheet, income statement and ownership data as available from the EMIS database.

Methodology

In the analysis, panel data analysis is employed in order to examine the relationship between profitability and the banking characteristics, after controlling for economic and financial structure indicators.

In this study, the countries in the sample differ in terms of their economic background, their financial institutions, their reforms, and their social and political facilities. Therefore, all of these country specific variables affect the variables to be estimated.

Time series data on some countries cannot be obtained. Thus each group in the data set has different numbers of observations due to missing values. Accordingly, unbalanced panel estimations with bank and period fixed effects are performed by using panel least square methods.

In this study the empirical test is concerned with the determinants of interest margin and profitability of the emerging market deposit banks. The definition of the variables are given in Table 1 and the model formulated is:

$$P_{it} = \alpha_0 + \beta_1 LIQR_{it} + \beta_2 OEM_{it} + \beta_3 CAP_{it} + \beta_4 CR_{it} + \beta_5 SIZE_{it} + \beta_6 MNA_{it} + \beta_7 OWN_{it} + \beta_8 X_i + \varepsilon_{it}$$

where,

P_{it} is the profitability of bank i at time t. Two proxies, namely ROA and Net Interest Margin, are used for profitability
$LIQR_{it}$ is the measure of liquidity risk for bank i at time t
OEM_{it} is the measure of operating expenses management for bank i at time t
CAP_{it} is the measure of capitalization for bank i at time t
CR_{it} is the measure of credit risk for bank i at time t
$SIZE_{it}$ is the measure of bank size for bank i at time t
MNA_{it} is the measure of M&A variable for bank i at time t
OWN_{it} is the measure of ownership structure for bank i at time t
X_i is a set of control variables
β is a vector of parameters to be estimated
ε_{it} is the error term

Table 1: Definitions of the Variables

Dependent Variables	Definition
ROA	Before Tax Profits/Total Assets
NIM	Net Interest Income/Total Assets
Independent Variables	
LIQR	Bank Loans/Total Assets
OEM	Operating Expenses/Total Assets
CAP	Equity/Total Assets
CR	Non-Performing Loans/Total Loans
SIZE	LN(Total Assets)
MNA	M&A Activity Dummy
OWN	Ownership Structure Dummy
Control Variables	
CD	Country dummies
GDPGR	Annual GDP growth
INF	Annual Inflation

Hausman test results indicates that the fixed effects model is more superior to the random effects model for these two equations since the results of both tests are significant. Therefore fixed-effect panel data regression is used in the analysis.

Findings

The results of the unbalanced panel data regression of the return on asset and net interest margin variables are given in Table 2 and Table 3 respectively.

Table 2: Panel Data Regression Results for ROA Dependent Variable

Dependent Variable: ROA					
Method: Panel Least Squares					
Sample: 2005 2010					
Periods included: 6					
Cross-sections included: 195					
Total panel (unbalanced) observations: 1113					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
LIQR	1.046741	0.193871	5.399162	0	***
OEM	11.89276	2.347006	5.067205	0	***
CAP	16.49176	2.755742	5.984508	0	***
CR	-11.032102	1.30617	-8.446146	0	***
OWN	0.331057	0.738385	0.448353	0.649	
GDPGR	3.47946	3.55551	0.978611	0.2957	
MNA	-0.653028	0.765144	-0.853471	0.3936	
SIZE	0.1150523	0.028274	4.069234	0.0001	***
INF	11.15521	2.202132	5.065641	0	***
	Effects Specification				
Period fixed (dummy variables)					
R-squared	0.396371				
Adjusted R-squared	0.388675				
F-statistic	51.49987				
Prob(F-statistic)	0				
Durbin-Watson stat	1.871146				

Table 3: Panel Data Regression Results for NIM Dependent Variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.	
Dependent Variable: NIM					
Method: Panel Least Squares					
Sample: 2005 2010					
Periods included: 6					
Cross-sections included: 195					
Total panel (unbalanced) observations: 1121					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
LIQ	1.8667	1.474894	1.265650277	0.2059	
OEM	22.97492	3.056837	7.51591269	0	***
CAP	21.76873	5.07638	4.288238863	0	***
CR	-14.30007	4.42783	-3.22958876	0.0027	***
OWN	1.723097	3.22783	0.533825201	0.5936	
GDPGR	8.80236	10.18603	0.864160031	0.4202	
MNA	-3.191161	1.416498	-2.252852457	0.0245	**
SIZE	0.5141472	0.2522902	2.037919824	0.0292	**
INF	5.473826	1.204728	4.543619805	0	***
	Effects Specification				
Period fixed (dummy variables)					
R-squared	0.482065				
Adjusted R-squared	0.475509				
F-statistic	73.52881				
Prob(F-statistic)	0				
Durbin-Watson stat	1.823729				

The first bank-level variable is the liquidity risk variable which shows the ability of the bank to meet its liquidity needs for deposit outflows and loan increases. Thus, a large liquidity risk for a bank indicates a more risky bank. As expected the coefficient sign is positive for both ROA and NIM dependent variables, indicating that an increase in the liquidity risk results in an increase in the bank risk and profitability. The sign of this ratio is consistent with the results of similar studies carried out in the most developed stock markets (Jahankhani & Lynge, 1980; Mansur et al., 1993). This variable is significant for ROA equation but not significant for NIM equation.

Empirical results of this study show that there is a positive and significant coefficient on the operating expenses to assets ratio variable (OEM) in both ROA and NIM equations. The negative relationship between OEM and profitability is expected as many empirical studies have reported that operational expenses and profitability are negatively related (Demirgüç-Kunt and Huizinga, 1999; Bourke, 1989 and Athanasoglou, et al., 2005). The explanation for the positive sign could be that, the high expenditures may be used to increase the productivity which end up in high profitability (Molyneux & Thornton, 1992).

Another variable is the equity variable (CAP) described as the equity to total assets ratio. Berger (1995) and Demirguç-Kunt and Huizingua (1999) find a positive relationship between bank performance and capitalization. Consistent with the previous evidence, the positive relationship is confirmed whether we use interest margin or return on assets as a dependent variable and in all specifications. This may indicate that well-capitalized banks support lower expected bankruptcy costs for themselves and their customers, which reduce their cost of capital.

As expected credit risk (CR) coefficient is negative and significant for both ROA and NIM equations implying increased exposure to credit risk is associated with decrease in profitability.

Ownership structure variable (OWN) indicating whether the bank is foreign or domestic is found insignificant for both ROA and NIM equations. It implies there is no relationship between ownership structure and profitability in sample banks.

M&A variable (MNA) coefficient is negative for both ROA and NIM implying that there is a decrease in the profitability of the banks which involve in M&A activity. M&A variable is significant for NIM equation whereas it is insignificant for ROA equation.

Some researchers find that little cost saving can be achieved by increasing the size of the banking firm (Berger et al., 1987) and others report significant scale economies for banks who have large asset size. In this study the size variable (SIZE) has positive and significant coefficients on the net interest margins and return on asset equations. This suggests that larger banks tend to have higher profitability.

Among the macroeconomic variables, inflation (INF) is found to be positively and significantly related to both ROA and NIM in this study. This implies that, with inflation, bank income increases more than bank costs. The results are parallel to Demirgüç-Kunt and Huizinga (1999), Kaya (2002) and Abreu and Mendes (2002) that reported positive relationships between inflation and NIM and ROA.

Other macroeconomic variable GDP growth (GDPGR) is found insignificant for both ROA and NIM.

Conclusion

In this study profitability and its determinants for nine emerging countries including Turkey is investigated by using fixed-effect panel data regression. 195 banks from 9 advanced emerging market countries are analyzed between the years 2005-2010. The results reveal that operating expenses management, capitalization, credit risk, bank size and inflation are important determinants for both return on asset and net-interest margin dependent variables.

The empirical results suggest that for the permanence of profitability, there should be a strong capital structure in the sector. Also for the improvement of the profitability of commercial banks the human resource and service quality should be developed and credit risk should be decreased.

This empirical study can be improved by testing for different variables to increase the explanatory power. Since there are limited number of banks in each country, more countries can be included in the analysis to increase the sample size. Also, longer time period can be analyzed to obtain more accurate results.

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