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Determinants of Iranian bank profitability

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A B S T R A C T

Banks are the most important tool for preparing and supplying money in each country. In recent years, by institution of the new private banks and privatization of the governmental banks, banking competition has become very complex. This paper performs an empirical investigation to study the effects of different factors on return on assets and return on equities on 18 selected Iranian firms over the period 2002-2011. Using different regression models, the study studies the effects of total assets, debt ratio, etc. on return of assets (ROA) and return on equities (ROE) on selected eighteen Iranian banks as statistical community. The study considers total assets, ownership ratio, deposits to assets ratio, and loans to assets ratio as independent variables, and ROE and ROA as dependent variables. The results indicate that the private banks returns were better than governmental banks and the commercial banks' returns were better than special banks. There is a reverse relationship between logarithm of total assets and ownership ratio with profitability based on return of assets.

1. Introduction

During the past two decades, there have been growing competitions among existing banks as well as new rivals in the worlds and many researchers have become interested in learning more the performances of new rivals versus the old ones (Guru et al., 2002; Kosmidou et al., 2005). Vong and Chan (2006), for instance, investigated the effect of bank characteristics as well as macro-economic and financial structure variables on the performance of the Macao banking industry. They reported that the capital strength of a bank was of paramount importance in influencing its profitability. A well-capitalized bank was considered to be of lower risk and such an advantage could be translated into higher profitability. In addition, the asset quality, as measured by the loan-loss provisions, influenced the performance of banks adversely. Moreover, banks with a large retail deposit-taking network did not reach a level of profitability higher than the ones with a smaller network.

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Javaid et al. (2011) performed an investigation to give an analysis on the determinants of top 10 banks' profitability in Pakistan over the period 2004-2008. The focus was on the internal factors only. They applied the pooled Ordinary Least Square (POLS) technique to study the effect of assets, loans, equity, and deposits on one of the major profitability indicator return on asset (ROA). They reported some strong evidence that these variables had a strong impact on the profitability. However, they reported that higher total assets could not necessarily lead to higher profits due to diseconomies of scales. In addition, higher loans contribute towards the profitability but their effect was not significant. Equity and Deposits had also significant effect on profitability.

Molyneux and Thornton (1992) investigated the determinants of bank performances across eighteen European countries over the period 1986-1989. They replicated Bourke's methodology and reported that the results conform to the traditional US concentration and bank profitability studies. Kosmidou (2008) investigated the effect of bank-specific characteristics, macroeconomic conditions and financial market structure on UK owned commercial banks' profits, over the period 1995-2002.

Goddard et al. (2004) unified the growth and profit strands in the previous empirical literature. The growth regressions disclosed limited evidence of mean-reversion in bank sizes. Profit was an important prerequisite for future growth and banks that kept a high capital-assets ratio tend to grow slowly, and growth was linked to macroeconomic conditions. Demirgüç-Kunt and Huizinga (1999) demonstrated that differences in interest margins and bank profitability reflect different determinants such as bank characteristics, macroeconomic conditions, explicit and implicit bank taxation, etc. Foreign banks may have higher margins and profits than domestic banks in developing countries, while the opposite holds in industrial countries.

2. The proposed study

This paper performs an empirical investigation to study the effects of different factors on return on assets and return on equities on 18 selected Iranian firms over the period 2002-2011.

Using different regression models, the study studies the effects of total assets, debt ratio, etc. on return of assets (ROA) and return on equities (ROE) on selected eighteen Iranian banks as statistical community. The study considers total assets, ownership ratio, deposits to assets ratio, and loans to assets ratio as independent variables, and ROE and ROA as dependent variables. Table 1 shows details of some basic statistics.

Table 1
The summary of some basic statistics

Variable	No	Min	Max	Average	St. Deviation
ROA	172	-0.018	0.186	0.019	0.0227
ROE	172	-0.132	1.153	0.205	0.20223
Assets Logarithm	172	11.35	14.916	13.463	0.745611
Loan to Assets	172	0.003	2.558	0.59	0.250033
Deposits to Assets	172	0.003	3.315	0.667	0.317421
Ownership ratio	172	0.009	1	0.149	0.184925

Before the evaluation of relation between variables, the preliminaries of multi-variables linear-regression were evaluated. The normality distribution of each variable was evaluated with Kurtosis and kinetic coefficients. The result of normality evaluation for each variable was summarized on Table 2.

Table 2
The summary of

Variable	No	Kurtosis		Kinetic	
		Co.	St.	Co.	St.
ROA	172	3.134	0.185	17.137	0.368
ROE	172	1.512	0.185	2.985	0.368
Assets Logarithm	172	0.741	0.185	0.218	0.368
Loan to Assets	172	2.765	0.185	22.388	0.368
Deposits to Assets	172	2.975	0.185	27.486	0.368
Ownership ratio	172	2.404	0.185	6.25	0.368

The other preliminary for multi-variables linear-regression is linear independency of independent variables. For this reason, we have used correlation analysis. Table 3 shows details of the correlation ratios.

Table 3
Summary of Correlation Analysis

Variable	Assets Logarithm	Loan to Assets	Deposits to Assets	Ownership ratio
Assets Logarithm	1			
Loan to Assets	0.24	1		
Deposits to Assets	0.74	-0.389	1	
Ownership ratio	-0.557	-0.389	-0.458	1

Based on Table 3 results we concluded that there was a week relationship between loans to assets with assets logarithm, loan to assets with assets logarithm, ownership ratio with loan to assets with loan to assets and ownership ratio with deposits to assets. In addition, there is a meaningful relationship between ownership ratios with assets logarithm.

Let *Log(A)* be natural logarithm of total assets, *TLA* be the ratio of total liabilities on total assets, *TDA* be the ratio of total banks' available deposits on total assets and *TEA* be the ratio of total equities on total assets. There are two regression models associated with the proposed study of this paper as follows,

$$ROA = \beta_0 + \beta_1 \log(A) + \beta_2 TLA + \beta_3 TDA + \beta_4 TEA + \varepsilon , \quad (1)$$

$$ROE = \beta_0 + \beta_1 \log(A) + \beta_2 TLA + \beta_3 TDA + \beta_4 TEA + \varepsilon . \quad (2)$$

The proposed study of this paper has used panel data with fixed effect and the results of the regression analysis for Eq. (1) is as follows,

$$ROA = 0.221 + 0.015 \log(A) + 0.005 TLA + 0.001 TDA + 0.013 TEA + \varepsilon , \quad (3)$$

As we can observe from the results of Eq. (3), an increase of logarithm of total assets increases returns of assets positively. Similarly, there is a positive and meaningful relationship between the amount of liabilities and ROA such that an increase of one unit on the ratio of TLA increases ROA by 0.005. Finally, an increase of one unit on TDA and TEA will increase ROA by 0.001 and 0.013, respectively. The proposed study of this paper has applied panel data with fixed effect and the results of the regression analysis for Eq. (2) is as follows,

$$ROA = 2.573 - 0.171 \log(A) + 0.061 TLA + 0.011 TDA - 0.568 TEA + \varepsilon , \quad (4)$$

The results of regression analysis indicate that any increase of total assets will reduce return of equities as well as the ratio of total equities on total assets by -0.171 and -0.568, respectively. However, there are positive relationships between the ratios of total liabilities on total assets and the ratio of total deposits on total assets. In other words, an increase on the amounts of liabilities and banks deposits will increase return of equities. Fig. 1 demonstrates the trend of profitability based on ROA and ROE.

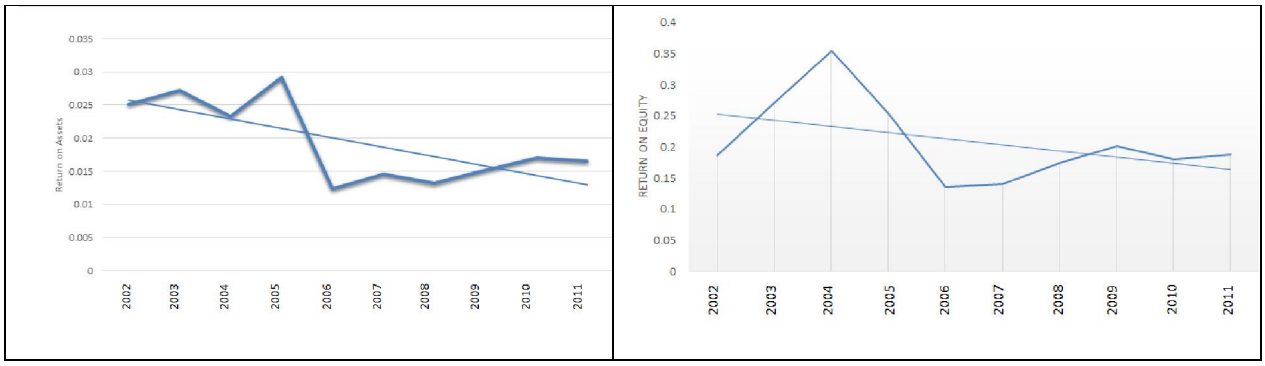
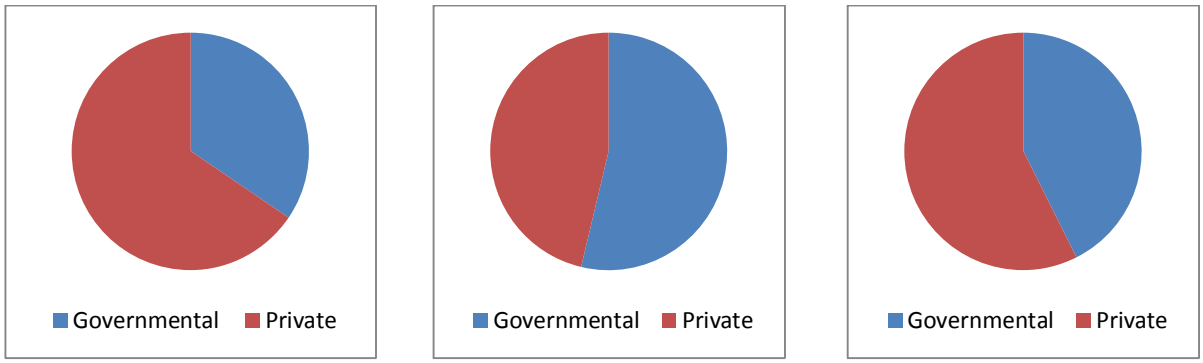


Fig. 1. The trend of return on assets and return on equities

As we can observe from the results of Fig. 1, there has been a decreasing trend on ROA and ROE from 2002 to 2011. The reason could be because of an increase competition in banking industry in Iran. In fact, during the past few years, there has been an increase on the number of private banks in Iran. This is because of deregulation in banking industry and emerging many new private banks on the market. We have also compared different characteristics of private and governmental banks and Fig. 2 shows details of our findings.



ROE TDA TLA

Fig. 2. Comparison of ROE, TDA and TLA for governmental versus private banks

As we can observe from Fig. 2, private banks have maintained higher return of assets and liabilities compared with governmental ones. However, governmental banks maintained more deposits compared with private ones. In Iran, we may also categorize banks in terms of commercial and specialized type banks. In our survey, commercial banks preserved higher ROA and ROE as shown in Fig. 2 as follows,

Fig. 2. Performance of commercialized banks versus specialized banks

3. Conclusion

In this paper, eighteen Iranian banks were studied as statistical community without any random sampling. The profitability of these banks was evaluated based on Rate of Assets (ROA) and Rate of Equity (ROE). The Logarithm of assets, loan to total assets ratio, deposits to total assets ratio and ownership ratio were selected as internal profitability criterion. The banks performance based on dependents and independents variables studied from 2002 to 2011 financial years. First, all of pre-assumptions of multi-variables linear-regression were evaluated. Based on these pre-assumptions multi-variables regression linear-regression was used to study the relationship between ROA/ROE and independent variables. Moreover, the banks' profitability's have been evaluated based on banks' ownership and banks' types of activities.

Our results showed that there were weak linear relationship between profitability and performance where R-Square values for ROA and ROE were 0.30 and 0.32, respectively. There was a reverse relationship between logarithm of total assets and ownership ratio with profitability. In addition, there was a direct relationship between the ratio of loan to assets and deposits to assets with profitability. We have also shown that the banking sector has become very competitive, there was a declining trend on the profitability of banks, and the main reason was the emergence of new rivals. Finally, in our survey, the commercial banks used less assets and created grater return. The especial banks must be paid loan to their especial customer with loss interest and the profitability of commercial banks was been better than specialized ones.

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