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Effective Factors on Bank Profitability in Iran

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Abstract

Not only in Iran, but throughout the world, banks and banking industry are considered as very important parts of the economy. This study seeks to investigate the impact of the internal characteristics of banks, the structure of the banking industry and the economic situation of Iran on the profitability of the banking system of Iran by exploring the theory of the Structuralism school concerning the impact of structure on profitability. To this end, data relating to 18 private and public banks of Iran during 2003 to 2012 are analyzed by using panel data methods. First, the profitability of the banking system is calculated using relevant indicators; and then, the impact of various internal, structural and environmental factors on bank profitability is evaluated. The results show that internal factors - the amount of capital and the size of the bank - have a positive impact on profitability. Besides, structural factors including market share and concentration are shown to have a positive impact on profitability whereas ownership appears to have no significant impact. Furthermore, inflation and economic cycles – among environmental factors – exhibit a positive impact on profitability.

Keywords: *The banking industry of Iran, Profitability, Return on assets, Structuralism theory*

JEL Classifications: *C23, D22, L22, L25*

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1. Introduction

Banks as intermediary funds are considered a key element of financial markets besides investing institutions such as insurance and the stock market. At present, due to the insufficient development of the capital market, banking is of extraordinary importance in the economy of Iran. The role of financial markets (banks) in financing various economic sectors is incomparably stronger than the capital market (stock exchange) (Shadkam, 2001). Thus, regarding their prominent role in the economy, evaluating the performance of banks can be of tremendous importance. The activity sphere of banks can be divided into three parts: Resource mobilization, Resource allocation and providing services. Therefore, examining and identifying the performance of banks in any of these tasks can discover the strengths and weaknesses of banks. In as much as banks seek profit like other economic enterprises, recognizing effective factors is essential for achieving this important goal.

Factors affecting the profitability of banks are divided into two general categories: Internal and External factors. Internal factors are under the control of bank management whereas external factors are beyond the control of management and are influenced by the macro environment. As a result, internal factors mainly reflect management policies and tactics that emerge in the areas of resource allocation, management of assets and liabilities, cash management and cost management (Owni, 2008). Since a profitable bank has more power for countering negative market shocks, it is essential to pay attention to the profitability index as one of the indicators of performance appraisal in banks and the importance of its role in decision makings related to resource mobilization, financing and resource allocation. Therefore, banks should attain the ability to boost competitiveness and adapt to changes in the macro environment by analyzing factors associated with the profitability of bank branches (Owni, 2008).

In recent decades, identifying effective factors in bank profitability has become a focus of attention by many economists and financial engineers in the economic literature. Despite the state of the banking network in Iran, this issue has received little attention. However, after the Third Development Plan of Iran, the emergence of private banks and increased competition in this arena, especially because private banks do not tend to participate in less profitable activities and opportunities, it is necessary that banks prepare for tackling the challenges ahead by assessing momentary activities and functions and by identifying their strengths and weaknesses. This study was carried out

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in the framework of Structuralism theories based on the contingency of performance on market structure, market conduct, internal organization and external conditions in order to determine factors affecting the profitability of banks in Iran and explore the role of internal factors (capital and the size of bank), market structure (degree of concentration, ownership and market share) and macroeconomic conditions (inflation and the business cycle) in profitability of the banking system. This study is comprised of five sections. The theoretical foundations will be presented shortly. Then, a literature review is provided in the form of studies conducted in Iran and abroad. Section Four contains the findings of the study; Section Five refers to the experimental results and the last section provides recommendations.

2. Theoretical Foundations

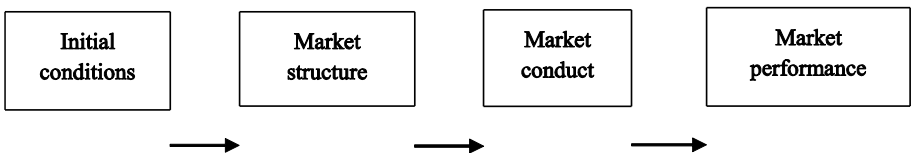
Is the direction of causality among elements of the market from structure to performance, or vice versa? Is it the change of structural elements that change performance indicators or is it the change of market performance that leads to changes in the structure and size of market structure and its variables? There is no consensus among economists on this debate. Some support the first, others promote the second. In response to the above questions, market elements and the direction of causality between them are explored from the perspective of different schools. Any market has three elements: Performance, Conduct and Structure. The shape and type of an organization depends on the nature and connection of these elements. However, researchers have not yet agreed on the relationships and the direction of causality among these elements. Market structure characterizes the organizational characteristics of a market and helps specify the relationships among these properties. Market structure is one of those organizational characteristics that can be used to determine the nature of competition and pricing in a market.

Among the most important organizational aspects of a market are the focus of vendors, the focus of buyers, entry conditions and the degree of goods diversity. Market conduct is one of the three dimensions and is in fact a model employed by firms to adapt to market conditions. Any decision or policy employed by a firm to pursue its activities in the market can be attributed to the conduct dimension. Firm conduct can be studied in areas such as policies, production, prices, cooperation or competition with other firms, and policies for promoting sales. Economic performance is the product and result of the economic activity. Economic performance has many dimensions due to the

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diversity of activities by enterprises. The performance of enterprises as the employer of manpower is studied in the theory of labor economics and their performance in the field of production management and organization is studied in discussions on management organization and production engineering. The deviation of price from marginal cost is another aspect of enterprise performance. The greater the price is compared to marginal cost, the more profitable the economic activity is; hence the questions: Why do enterprises have different performances? Why are some more profitable and with better performance than others (Khodadad Kashi, 2010)? Why does competition prevail in some markets and industries whereas cooperative and competitive conduct does in other markets? Influential factors in shaping the performance of the market can be determined by answering these questions. Many attempts have been made in the literature of economics to explain market performance by its structure. Of course, this is only one aspect of the case. There are many articles that promote and support the reverse of the idea. The earliest discussions and studies on the relationship between the three elements of market originally began with authors who were in fact among the founders of the school of 'structuralism'. The basic principles and foundations of this school were formed by Mason (1939) and his students. Mason stressed the importance of structure of the three elements of market. Structuralism argues that the direction of causality is from structure to conduct and then culminates in performance.

Figure 2.1: Direction of Causality from the Perspective of Structuralism



Market structure and the conduct of enterprises in the market in totality comprise the market performance of enterprises and the overall performance of the market and industry. Market structure is in turn influenced by a range of initial conditions. For example, on the part of the supplier, initial conditions that affect market structure include the location and type of material and its type of ownership, the nature of the technology employed, and the power of the unions. On the part of the user, factors such as the price elasticity of demand, availability of substitute products and the growth rate of demand affect market structure (Khodadad Kashi, 2010). If the direction of causality

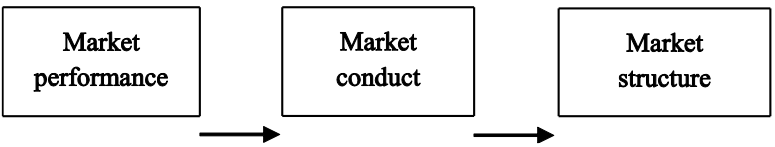
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is from initial conditions to market structure, market conduct and performance, then we need to look for theories that can predict market performance by observing initial conditions and market structure. The view of structuralists, i.e., the SCP approach, can be represented in the form of a simple formula:

Market Performance = f (External and internal conditions of organization, market conduct, market structure)

In the above corollary formula, explanatory variables or the independent variables are on the right side and performance variables on the left side. In opposition to the structuralism school, there is the Chicago-UCLA school. This school was formed since the late 50's in the field of industrial economics by Stigler (1957) in the University of Chicago. From the 70's onward, it reached its pinnacle by the efforts of such famous economists as Brozen, McGee, Demsetz, Posner and other authors who had opposing views to structuralists. Most theorists of this school are active at the University of Chicago and UCLA. Unlike structuralists, the advocates of this school conceive of the direction of causality to be from performance to conduct and structure (see Figure 2-2). According to this school of thought, market structure and the conduct of enterprises depend on relative performance (one aspect of performance).

Figure 2.2. Direction of Causality from the Perspective of the Chicago School



In the framework of this school, we have:

Market Structure= f (External conditions, Market Performance, Market Conduct)

In addition to these two theories, there are other schools with their specific conception of the direction of causality between elements of the market: Behaviorism is one of them. Behaviorists argue that the conduct pattern of enterprises is the main factor in shaping market performance. They believe that market performance is not so much dependent on market structure as on

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the conduct pattern of enterprises. Entry School was founded between the years 1975-1982 by economists such as Baumol, Baily and Willig. Like the Chicago scholars, Behaviorists do not consider a significant role for market structure in determining market performance. According to Entry School, the potential entry of external enterprises into the industry is the most important factor in determining the outcome and performance of the market. If there are no barriers to entering the market, enterprises that were already operating in the industry are forced to produce at optimum competitive levels.

3. Empirical Studies Conducted

This section presents studies conducted on the effect of structural elements (market concentration, share and ownership), internal characteristics of banks (capital and the size of the bank) and environmental factors (inflation and economic cycles) on banks' profitability:

In a studt, Dietrich and Venznyrd (2010), investigated the factors affecting the profitability of banks during and before the crisis by using 372 commercial banks of Switzerland for 1999-2009 period. The results of this study show that there is a large difference between profitability of banks, total growth of loans, costs of credit finance and type of trade. Banks that are more efficient, are more profitable. Average growth of loan has a positive impact on bank profitability. Financing costs have a negative impact on profitability. Banks which rely on interest income are compared to other banks (those that have not such condition) less profitable. In the case of exogenous and macroeconomic variable the study concludes that, tax has a negative and reverse effect on the profitability of banks in Switzerland. Business cycle has an impact on bank profit, during all the years considered and is in the direction with business cycle. Interest rate structure which is determined with the differences of 5 and 2 interest rate, has a positive effect on bank profitability in Switzerland in the whole period especially during crisis. Ramlal (2009) investigated the determinants of banking, industry and macroeconomic profitability of the banking system of Taiwan based on panel data estimations using quarterly data from March 2002 to December 2007. Results show that among the variables used in the model, credit risk has the greatest effect on profitability. In other words, nearly 1 percent (٪) change in credit risk causes about 94٪ change in the profitability.

Drakeh and et al (2005) examined the effect of macroeconomic variables and regulation and self- regulation factors on bank productivity in Hong Kong

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for the 1995 to 2001 period. Results indicate that high levels of technical productivity for some institutions, have a significant oscillation in productivity levels and also circumstance factors on the size of various banks and surprisingly financial sectors, Hong Kong's annexation to china, unexpected financial events and South East Asian financial crisis during 1997-98 do not have a considerable effect on relative productivity.

Brock and Short (1979) examined the relationship between interest rates of 60 banks and the concentration of the internal banking market. Based on the available evidence, this paper indicates that a greater concentration leads to higher interest rates. However, relatively smaller values of the concentration variable show that great changes in the concentration of banks cause a slight reduction in interest rates. Bourke & Philips (1989) in their study examined the profitability of banks in 12 countries in Europe and North America with regard to influencing internal and external determinants. Because of problematic differences in the comparison of banks from different countries, they introduced the concept of added value. This study confirmed the hypothesis that risk aversion of the banks was at a great degree of market power. Molyneux and Thornton (1992) examined the determinants of bank performance in 18 European countries between 1986 and 1989. This study replicated Bourke's method with an emphasis on large-sized banks. Their study confirmed a positive relationship between profitability and bank size. Steinherr and Huveneers (1994) in their study investigated two types of systems: systems based on databases and systems based on market. They differentiated between public banks and private banks and examined the effects of structural variables and the rules and regulations in the variability of bank performance and concluded that public banks can achieve an optimal exchange of risk and return by accurately controlled and high-capacity data collection. Based on this empirical study, they also found that these factors, as the relationship between economic growth and financial variables indicates, are very important. In another study Guru, Staunton and Mugam (1999) analyzed the determinants of profitability in Malaysian commercial banks based on a sample of 17 commercial banks of Malaysia. The results of this research showed that, among internal factors, management commitment is a distributor of high significance for bank profitability and that, among external factors, market interest rate has a negative impact and inflation has a positive effect on bank profitability. Lara and Mesquita (2003) in their study titled "the relationship between capital structure and profitability" investigated the relationship between profitability and measures of capital structure including

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short-term debt ratio, long-term debt ratio and equity in a sample of 70 enterprises in Brazil between 1995 and 2001. Using multivariate regression models, they arrived at a positive relationship between profitability on the one hand and short-term debt ratio and equity on the other. Also, they concluded that there is a negative relationship between profitability and long-term debt ratio.

In his study titled "The effect of capital structure on profitability" Abor (2005) investigated the relationship between measures of capital structure and the profitability of a sample of companies in Ghana between 1998 and 2002. The results of this study showed that there is a positive relationship between short-term debt to asset ratio and profitability as well as between total leverage ratio and profitability, but there is a negative relationship between long-term debt to asset ratio and profitability. Bereger, Hasan and Zhou (2006), by studying the effect of ownership on bank performance in China, concluded that public banks are less profitable and the entrance of external banks increases the efficiency of the banking system.

Namazi and Shirzadeh (2004) investigated the relationship between capital structure and profitability in companies listed on the Tehran Stock Exchange. The sample consisted of 108 companies from various industries. Data relating to debt to assets ratio and return on assets ratio were collected and tested annually and focally in a 5-year period. Correlation coefficient was used to test the hypotheses. The results show there is a positive relationship in general between capital structure and corporate profitability. However, this relationship is statistically weak (Arbabian and Safari Graily, 2009). Sajjadi et al (2007) studied the effect of six factors (type of industry, size, longevity, capital to assets ratio, leverage, and cost of advertising) on the profitability of companies listed on the Tehran Stock Exchange. Profitability is defined in terms of three standards: return on assets, adjusted return on assets, and return on capital. The results indicate that variables such as size, capital to assets ratio and leverage have an impact on profitability. However, industry type, longevity and cost of advertising have no effect on profitability. Also by considering the criterion of return on capital, the type of industry and the size of enterprise have an impact on profitability. However, capital to assets ratio, leverage and the cost of advertising have no effect on profitability. Mohammadi (2009) in his study examined the effect of capital management on corporate profitability in a sample of companies listed on the Tehran Stock Exchange. This study used gross profit to total assets ratio as a measure of corporate profitability; the variables of debt collection cycle, inventory

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turnover cycle, creditors' payment cycle and cash conversion cycle as measures of working capital management; and the variables of firm size, sales growth, financial assets to total assets ratio, and debt to total assets ratio as control variables. The results of this study showed that there was a significant inverse relationship between corporate profitability ratios on the one hand and debt collection cycle, inventory turnover cycle, creditors' payment cycle and cash conversion cycle. In other words, managers can increase their profitability within reasonable limits by limiting the debt collection cycle and inventory turnover cycle.

4. The Selected Model and Features of Variables

The present study seeks to investigate the factors affecting profitability as an indicator of performance in the banking industry. The statistical population is comprised of the performance of state and private banks of Iran during the years 2003 to 2012. Relevant data are collected from annual official issues of the Central Bank of Iran and the Iran Statistics Center. Following studies in the field, this study divides the factors affecting profitability into three categories:

1- Internal characteristics of banks including asset size and capital size,

2- Market structure including the degree of concentration, ownership and market share,

3- Variables including inflation and economic cycles that make it possible to examine the impact of macroeconomic conditions on the performance of the banking system.

A review of the literature on bank profitability shows the functional form for profitability analysis is linear. Short and Bourke studied several functional forms and found that the linear model is as good as any other functional form due to its simplicity. In support of the linear form, Wiliams, Molyneux and Thornton evaluated the linear model in their studies on bank profitability and reached the same conclusion.

In the present study, a multiple linear regression model is used to investigate the functional relationship between the selected variables according to the following estimation equation:

$$Y_{it} = c_i + \sum_{j=1}^{J} \beta_j x_{it}^j + \sum_{l=1}^{L} \beta_l x_{it}^l + \sum_{m=1}^{M} \beta_m x_{it}^m + \varepsilon_{it}$$

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Whereby:

Y_{it} : Profitability index of bank *i* in time *t*,

x_{it}^{j} **:** Internal characteristics of the bank,

x_{it}^{l} : Market Structure,

x_{it}^{m} : Macroeconomic conditions, and;

ε_{it} : Disturbance term; represents the factors that can affect profitability but are not included in the model.

4.1. Features of variables

A: Calculating the dependent variable

To examine the performance of the banking industry, this study uses return on total assets (ROA) ratio which indicates management efficiency in the use of resources for profitability.

ROA = (net profit / average total assets)

Return on total assets can be demonstrated in another form known as the DuPont formula which shows the relationship between profit margin and total asset turnover.

ROA = (net profit/ net sales) × (net sales /average total assets)

As a result:

ROA = (Net profit margin × total asset turnover)

This study uses the ROA ratio (the ratio of profit after tax to total assets) among the four criteria of commercial banks' profitability, including profit before tax as a percentage of total assets (return on total assets ratio), profit after tax as a percentage of total assets, profit before tax as a percentage of total equity (return on equity), and profit after tax as a percentage of total equity.

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B: Calculating independent variables

The model used in this study is based on structuralism theories in which the size of capital, the size of assets, the degree of concentration, ownership, market share, inflation, and economic cycles are defined as explanatory variables. Each method is defined and discussed below in its own right:

4.2. Internal characteristics of banks

Based on studies, capital and asset size of a bank are among internal factors that can affect the performance of that bank. To examine the impact of internal factors on profitability, this study uses bank assets and the size of bank.

- Bank assets can affect the profitability of a bank through different channels (Santomer, 2002). Bank assets can affect the lending capacity of a bank. Since performance is related to the conversion of inputs to outputs, the profitability of a bank will change under the influence of changes in equity. Bank assets as mentioned in balance sheet liabilities (resources) are measured in the form of the following equation: total assets minus liabilities. The bank assets variable is entered into the model as one of the explanatory variables since it is expected to have a positive relationship with bank profitability.

- Size is another factor that can affect the bank performance. Size can be defined in terms of the presence or absence of economies of scale. The presence of economies of scale in an industry means that by producing in larger scales, we can reduce the costs of that enterprise. In this study, the total assets of a bank are used as a substitute for the size of a bank. The total assets of an enterprise include all the valuable material and spiritual paraphernalia. These assets are classified into two general categories: Tangible assets (real estate, machinery, equipment, etc.), and intangible assets: (reputation, product patents, etc.). In the case of banks, their total assets represent the size of the bank and it is clear that the greater is the total value of assets, the greater is the size. This study uses the logarithm of total assets - for the sake of consistency between this variable and other financial ratios in the regression model - to measure the impact of the size of the bank on profitability.

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- Based on a study by Hughes, Mester & Moon (2001), studies that examine the relationship between the size and performance of the banking system regardless of the composition of banks' portfolios, report a negative relationship between size and bank performance. However, taking the risk of various activities into account, very dissimilar results have been reported; for instance, Smirlock (1985) reported a significant positive relationship between bank size and performance.

4.3. Market structure

In any market, structural variables are often identified and evaluated to examine the nature of competition and monopoly. The structure of a market refers to the arrangement of its components as a whole. The degree of concentration by buyers and sellers, difference in goods, economies of scale and market conditions are among the determining factors of market structure. A high degree of concentration or many barriers to the entry of new enterprises can lead to the formation of a monopoly in that market. Market structure is very important because of its impact on market performance (price, profit, market efficiency and productivity). The concentration index, ownership and market share of banks are used to examine the impact of market structure. Indicators used to measure market structure are as follows:

- Concentration is one of the most important aspects and dimensions of market structure and shows the degree to which the market is close to or away from competition. Concentration reflects the distribution of market among different enterprises and represents its two aspects: the number of enterprises and inequality in the distribution of market share among enterprises. One of the most useful indicators for measuring concentration is the Hirschman-Herfindahl Index. This index considers the data relating to all enterprises and is equal to the sum of squared shares of all enterprises active in the industry:

$$=\sum_{i=1}^{N}\left(\frac{q_i}{q}\right)^2=\sum_{i=1}^{N} S_i^2 H$$

This index considers more weight for larger enterprises. This research uses the Hirschman-Herfindahl concentration index to explore the impact of concentration on the performance of banking enterprises based on bank deposits, which is calculated as follows:

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$$\mathrm{IMC_{it}} = \left(\frac{\text{Total deposits in bank i in year t}}{\text{Total deposits in commercial banks in year t}}\right)^2$$

Concerning the impact of concentration on profitability, we can refer to studies by Miller (1995), Shaffer (1989), Bosanko and Thakor (1992), and Stiglitz, Murdock and Hellman (2000).

- Ownership is another issue that can affect the performance of the banking system. The relationship between ownership and performance has been evaluated in studies by Barth et al. (2004) and Short (1979). By investigating the effect of ownership on bank performance in China, Hasan, Berger and Zhou (2006) concluded that public banks are less profitable and the entrance of external banks can increase the efficiency of the banking system and the growth of the economy. Based on the results of their study Hejazi et al (2008) reported a negative relationship between performance and state ownership in the banking industry of Iran. They used dummy variables to express the effects of ownership. Its value was considered zero for state banks and one for private banks.

Market share is one of the structural factors that can affect the profitability of banks. The share of the market is in the country's whole banking system and can be used as a criterion of competition among banks. Therefore, a change in market share can be effective in the potential profit of banks. The criterion of deposits from the total deposits of commercial banks can be expressed as the criterion for a bank's market share.

4.3. Macro-economic characteristics

Inflation rate and economic cycles are the other explanatory variables for expressing the impact of macroeconomic conditions on bank profitability and can affect the performance of the banking system. (Revell, 1979, Bicker & Hu., 2002, Demirguc & Huizinga, 2004) used the consumer price index (CPI) as an expression of inflation and Gross Domestic Product (GDP) to express economic cycles.

5. Experimental Results of the Model

The present study seeks to investigate the factors affecting profitability as an indicator of performance in the banking industry. The statistical population is

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comprised of the performance of state and private banks of Iran during the years 2003 to 2012. Relevant data are collected from annual official issues of the Central Bank of Iran and the Iranian Statistics Center. This study employs several variables, including capital, size (assets) of the bank, degree of concentration, ownership, market share, inflation and economic cycles. First, the variables are tested. Then, a model is developed. And finally, the E-views software and the Excel software are used for estimating the model based on the suggested pattern. We analyze the results obtained according to estimated coefficients.

5.1. Tests of stationarity

In order to ensure the veracity of regression, it is necessary to examine the stationarity of variables. To this end, we used the Im. Pesaran and Shin Test (IPS). Based on the results of the tests, it was observed that all variables are at the stationary level. In other words, the variables are I (0).

5.2. Hausman test

The Hausman test is used for determining an appropriate method for estimating the pattern. This test can help us to select a convenient way for estimation: either the fixed effects method or the random effects method. The rejection of the null hypothesis in this case implies that the fixed effects method is accepted. The results of this test and the probability of confirming the null hypothesis are presented in table (5-1). Comparing collected statistics with the statistics obtained from the critical values table, it can be concluded that the appropriate method for estimating the model is the fixed effects method since the null hypothesis is rejected. Based on the results obtained, the fixed effects method is used for estimating the pattern.

Table 5.1: Hausman Test Results

Prob.	Statistic	Type of test
0.000	8.35	Hausman test

Source: Research findings

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As it can be seen, Hausman test results indicate that the fixed effects method is preferred over the random effects method for estimating the pattern. The null hypothesis (the presence of random effects) cannot be accepted at a 95 percent confidence interval model and the model for both parts of the study features fixed effects. The confirmation of the presence of fixed effects means that the difference of parameters for different banks in both parts is shown in their intercepts and not in the disturbance term.

5.3. F- Limr test results (Pool or Panel Placement Test)

In the panel data approach, we use F-Limr (Chow) test to determine whether the data fusion (Pool) method or the Panel Data method should be used for estimating the model. This test is calculated based on F-statistic. There are two modes in this case: the data are either of the Panel type or of the pool type, whereby the intercepts are equal.

Table 5.2: F-Limr Test Results for Main Patterns

Prob.	Statistic	Type of test
0.000	14.07	F test (Bound)

Source: Research findings

Thus, since the F in 95% confidence level and the obtained F-statistic is 14/07, so the null hypothesis base on pool data is rejected. Thus in this study the panel data model is implied.

5.4. Model estimation results

After determining the appropriate method for parameter estimation, in this section we describe the results of the estimated model intended for banks. The investigation determined that the fixed effects model is fit for estimating the model. On this basis, the results of estimating the model are presented in Table (5-3):

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Table 5.3: Model estimation results

Variable	Coeeficient	T Statistic	Prob.
Capital of the bank	0.12	10.98	0.000
Size of the bank	0.57	2.65	0.007
Concentration	0.09	9.05	0.000
Ownership	-1.13	8.58	0.000
Market share	1.21	11.59	0.000
Inflation	0.64	15.33	0.000
Economic cycles	0.21	17.19	0.000
C	5.41	6.72	0.000

R-squared: 088	F-statistic: 19.23
Adjusted R-squared: 0.89	Prob.: 0.000

Source: Research findings

As the results show, the internal characteristics of banks - that is, capital and size (assets) of a bank - have a positive impact on profitability. So, with a one percent increase in bank capital, profitability increases 0.12 % and a one percent change in the level of bank assets changes profitability by 0.57 %. On the other hand, indicators of market structure have a significant positive impact on bank profitability. So, a one percent increase in concentration and market share increases profitability for 0.09 % and 1.21%, respectively. The negative coefficient of the dummy variable of ownership indicates that state banks have a lower profitability. In other words, one of the ways to increase profitability is the privatization of banks. Indicators of macroeconomic conditions also have a positive effect on the profitability of banks so that a one percent increase in inflation increases profitability by 0.64 % and a one percent change in GDP changes profitability by 0.21 %.

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6. Conclusions and Recommendations

The coefficients of variables in the model under study confirm the research hypotheses and their effects on the profitability of the banking industry in Iran:

1- The amount of capital has a positive effect on bank profitability. Among the explanatory variables in the study period, the amount of capital affects profitability positively. A bank with a proper capital enjoys stability and can easily resist problems such as deferred debts and other shocks to the economy or prevent the development of excessive shocks. The amount of capital also affects the bank's lending capacity. As a result, the profitability of a bank is positively affected by capital.

2- Size of the bank has a positive effect on bank profitability. The total assets of a bank affect the bank's profitability positively and significantly. The relationship between the size (total assets) of a bank and profitability is positive and significant. This confirms the existence of economies of scale caused by production in the banking industry of Iran.

3- Concentration has a positive effect on bank profitability. Concentration is another explanatory variable of the banking market structure which, in this study, is expressed by the Hirschman -Herfindahl index and has a significant positive impact on bank profitability. With a decrease in concentration, loan rates decrease and interest rates increase. This will result in reduced profitability. Also, an increase in the number of banks increases the probability of receiving loans by inadequate customers and therefore decreases the bank profitability.

4- Ownership has a negative impact on bank profitability. Ownership is used as a variable to explain the market structure of the banking industry. A negative coefficient suggests that ownership can explain the difference in performance of private and public banking systems. The entrance of private banks therefore can increase the profitability of the banking system.

5- The market share of a bank has a positive effect on its profitability. Based on research findings, the market share of a bank has a significant impact on the profitability of that bank.

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6- As factors beyond the control of banks that reflect macroeconomic conditions, inflation and economic cycles have a positive effect on bank profitability.

Suggestions

Based on the findings of this study, bank characteristics and market structure can affect the performance of the banking system. Therefore, it is necessary to pay particular attention to the impact of market structure, market conduct and internal characteristics of the bank on its performance in the formulation of policies relating to the internal management of banks - such as making decisions about the amount of capital and determining strategies to increase market share either by increasing the number of branches or the use of equipment related to electronic banking, and combining bank sources and uses - as well as in policies relating to the regulation of the banking market. Since the increase of the market share in the banking industry increases its profitability, banking policies should be determined in a way as to increase the share of banks in the industry. Banks should take action to increase their market share through the efficient use of resources and manpower.

Regarding the role of deposits in mobilizing financial resources and their importance in banking activities, it is necessary to develop and expand deposits in a variety of ways so that different tastes are encouraged to deposit. In this way, the share of deposits increases among other means of bank financing. In this regard, one of the problems is the lack of attention to the composition of bank assets and expenses such that, in the last few years, the banking industry has sunk into a declining phase of profitability because of providing excessive loans and facilities in the form of directed credits or other facilities. In other words, despite the fact that participation in investment projects in this industry is profitable, losses arising from directed credits and loans have led to an extensive loss in the entire banking industry. In this regard, it is necessary to explain that the uncontrolled expansion of loans, facilities and directed credits only apply to banks with state ownership since directed credits do not belong to private banks. Therefore, it seems that the privatization of banks, increasing bank capital, reducing loans and credits, and increasing participation in investment projects can play important role in increasing the profitability of the banking industry.

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References

Santomer, A. M. (1980). "Regulating of Bank Capital and Portfolio". *Journal of Finance*. Vol. 35, No .5, pp: 1235-1250.

Abivasani, Mohsen, (2008). "Analysis of Strategies to Increase Profitability in the Banking System", Proceedings of the *Nineteenth Conference on Islamic Banking, Tehran, Banking Institute*.

Abor, J., (2005). "The Effect of Capital Structure on Profitability", *Journal of Risk Finance*, pp 438-445.

Ali Madad, Mostafa, (2002). "Understanding International Accounting Standards", Proceedings of the *Fourteenth Conference on Islamic Banking*, Tehran, Banking Institute.

Alper, D., A., Anbar. (2011). "Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey," *Business and Economics Research Journal* Vol. 2, No. 2, pp 139-152.

Ashrafzadeh, Hamidreza and Nader, Mehregan, (2008). *Panel Data Econometrics*, Ta'avon Research Institute, Tehran, first edition.

Athanasoglou, P., Sophocles, N., and Matthaios D. Delis. (2008). "Bank-specific, Industry-specific and Macroeconomic Determinants of Bank Profitability", *International Finance Markets, Institutions &Money*. No 18, pp: 121-136.

Bagheri, Hassan, (2006). "Factors Influencing the Profitability of Commercial Banks", *Journal of Financial Research*, Year Eight, Issue twenty-one, spring and summer.

Bain, J.S., (1951). "Relation of Profit Rate to Industry Concentration". Vol. 65, Pp: 293-324.

Ballantine, J. W, F.W. Cleveland and C.T. Koeller, (1993). "Profitability, Uncertainty, and Firm Size", *Small Business Economics* 5, pp 87-100.

Barth, J.R., Caprio, G., Levine, R., (2004), "Bank Supervision and Regulation: What Works Best?" *Journal of Finance Intermediation*. 13(2), pp: 205-248.

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Ben Naceur, S (2003). "The Determinants of The Tunisian Banking Industry Profitability: Panel Evidence", *Journal of Banking and Finance*, Vol. 21, P 55-87.

Berger, A.N. (1995). "The Relationship Between Capital and Earnings in Banking", *Journal of Money Credit and Banking* 27; pp: 432-456.

Berger, Allen. Iftekhar Hasan, Mingling Zhou, (2006). "Bank Ownership and Efficiency in China: What Will Happen in World's Largest Nation?" Online at http://mpra.ub.uni-muenchen.

Bernanke, B. & Gertler, M. Hilchrist, S., (1996)."The Financial Accelerator and the Flight to Quality". *The Review of Economics and Statistics* 1:1-16

Besanko. D. & A. V. Thakor, (1992). "Banking Deregulation: Allocation Consequences of Relaxing Entry Barriers", *Journal of Banking and Finance* 16:909-32.

Bicker, J. A., and H. Hu, (2002). "Cyclical Patterns in Profits, Provisioning and Lending of Banks and Procyclicality of the New Basel Capital Requirements". *BLN Quarterly Review* 221, 143-175.

Bikker,J. & K. Haff, (2002). "Compotion, Concentration and Their Relationship: An Empirical Analysis of Banking Industry". *Journal of Money, Credit and Banking*, 35, 2191-214

Bourke, Philips, (1989). "Concentration and Other Determinants of Bank Profitability in Europe. North America & Australia". *Journal of Banking and Finance*. Vol. 13, No.1, pp: 65-79.

Darabi, Roya and Ali Molayee, (2011). "The Effect of Inflation, Liquidity, Preservation of Capital and GDP on Mellat Bank Profitability", *Journal of Financial Exchange Analysis*, Issue 10, summer.

Dermiguc-kunt, A., and H. Huizinga, (2004). "Marker Discipline and Deposit Insurance". *Journal of Monetary Economics* 51, pp: 375-399.

Dietrich, Andreas and Wanzenried, Gabrielle, (2010). "Determinants of Bank Profitability Before and During the Crisis: Evidence from Switzerland" *Journal of International Financial Markets*, Institutions and Money

Drake, Leigh and J. B. Hall, Maximilian and Simper, Richard, (2005). "The Impact of Macroeconomic and Regulatory Factors on Bank Efficiency: A Non-parametric Analysis of Hong Kong's Banking System". *Journal of Banking and Finance* 30, 1443-1466

[Downloaded from jme.mbri.ac.ir on 2026-10-30]

Goudarzi, Atousa and Vahid Razbidy, (2008). "The Effect of the Development of Electronic Banking on the Profitability of Iranian Commercial Banks", *Journal of Iranian Economic Research*, tenth year, Issue 35, summer 2008, pp. 111-140.

Guru, B; J. Staunton, and Mugam, (1999). "Determinants of Commercial Bank Profitability in Malaysia". *Working Paper*.

Guzman, M., (2000). "Bank Structure, Capital Accumulation and Growth: A Simple Macro-Economic Model". *Economic Theory* 16:421-55.

Hejazi, Rezvan; Ali Asghar Anvari and Mina Moghaddasi, (2008). "Analyzing the Productivity of the Export Development Bank of Iran and Productivity Growth of its Branches using Data Envelopment Analysis ", *Journal of Technology Management*, Volume 1, Issue 1, Fall and Winter, pp. 39-50.

Hellman, T.F., K. Murdock, & J. Stiglitz, (2000). "Liberalization, Moral Hazard in Banking and Prudential Regulation: Is Capital Requirements Enough? "*American Economic Review* 90(1), 147-65.

Hosseini, Seyyedeh Faezeh, (2008), "Effects of Changes in Interest Rates on Deposits and Bank Loans on the Profitability of Bank Saderat Iran", *Master's Thesis, Islamic Azad University*, Science and Research.

Hughes, J.P., L. J. Mester, C. G., Moon, (2001)."Are Scale Economies in Banking Elusive or Illusive? Evidence Obtained by Incorporating Capital Structure and Risk-Taking into Models of Bank Production."*Journal of Banking and Finance* 25, 2169-2208.

Khodadad Kashi, Farhad and Pari Jafari Leilab, (2012). "Assessing the Impact of the Structural Elements on the Performance of the Iranian Banking Industry", *Journal of Economic Studies*, Issue 98, pp. 69-90.

Khodadad Kashi, Farhad, (1998). "Market Structure and Performance: Theory and Practice in the Industrial Sector of Iran", *Institute for Trade Studies and Research*, Tehran.

Khodadad Kashi, Farhad, (2010). *Industrial Economics: Theory and Practice*. Samt Publications.

[Downloaded from jme.mbri.ac.ir on 2026-10-30]

Kyriaki Kosmidou (2009). "The Determinants of Banks' Profits in Greece during the Period of EU Financial Integration", *Managerial Finance*, Volume 34, P 146-159.

Lara, J.E. and J. M. Mesquita, (2003), "Capital Structure and Profitability: The Brazilian Case", *Academy Of Business and Administration Sciences Conference*, July.pp 11-13.

Merton H., (1995). "Do The M&M Propositions Apply to Banks?"*Journal of Banking and Finance*, June (19), 483-489.

Mohammadi, M., (2009). "The Effect of Working Capital Management on the Firms Profitability in Tehran Stock Exchange ". *Journal of Management* 14. Pp 14-50.

Molyneux, P. and J. Thornton, (1992). "Determinants of European Bank Profitability: a Note", *Journal of Banking and Finance*, 16(6), pp 1173-1178.

Mousavis, Seyed Abbas, (1379). "Riba (Usury)-free Banking: From Theory to Practice", Proceedings of the *Twelfth Conference on Islamic Banking*, Tehran, Banking Institute.

Namazi, M. and J. Shirzadeh, (2004). "The Survey of Capital Structure with Profitability in Firms of Tehran Stock Exchange". *The Iranian Accounting and Auditing Review* 42, pp 75-94.

Owni, Leila, (2008). "Identifying Effective Factors in the Profitability of Commercial Banks", *Master's Thesis, Islamic Azad University*, Science and Research.

Panayiotis P. Athanasoglou, N. Sophocles Brissimis, and D. Delis, Matthaios, (2008). "Bank-specific, Industry-specific and Macroeconomic Determinants of Bank Profitability", *International Finance Markets, Institutions & Money* No. 18, pp: 121-136.

Pasiouras, Fotios and K. Kosmidou, (2006). "Factors Influencing the Profitability of Domestic and Foreign Commercial Banks of European Union", *Research in International Business and Finance* 21(2007) 222-237.

Perry, P., (1992). "Do Banks Gain or Lose From Inflation". *Journal of Retail Banking*. Vol. 14, No. 2 (Summer), pp: 25-30.

Pesaran, Im.K. and Y. Shin, (1997). "Testing for Unit in Heterogeneous Panels". University of Cambridge Department of Applied Economics. *Working Paper,* Amalgamated Series 9526.

[Downloaded from jme.mbri.ac.ir on 2026-10-30]

Rahmani, Teimur (2001). *Macroeconomics*, Vol. 2, Baradaran publications: Tehran, Seventh Printing.

Ramlall, Indranarain (2009). "Bank-Specific, Industry-Specific and Macroeconomic Determinants of Profitability in Taiwanese Banking System: Under Panel Data Estimation", *International Research Journal of Finance and Economics*, ISSN 1450-2887 Issue 34.

Salami, Habibullah and Hossein Talachi Langroodi, (2002). "Productivity Measurement in Bank Units: A Case Study: Bank Keshavarzi Iran," *Journal of Agricultural Economics*, tenth year, Issue 39, fall, 2002, p. 7.

Sayyed Noorani, Seyed Mohammadreza; Hossein Amiri, and Adel Mohammadian, (2011). "Causality Relationship between Bank Capital and Profitability with an Emphasis on Regulatory Aspects of Capital Structure", *Journal of Research in Economic Growth*, second year, Issue Six, spring 2012.

Short, B. K., (1979). The Relation between Commercial Bank Profit Rates and Banking Concentration in Canada, Western Europe, and Japan", *Journal of Banking and Finance*, No. 3, 209-219.

Smirlock, M. (1985). "Evidence of the (none) Relationship between Concentration and Profitability in Banking" *Journal of Money, Credit and Banking*, 17(1), pp. 69-83.

The Central Bank of the Islamic Republic of Iran, Economic Reports and Balance Sheets (2003-2012).

VanHoose, D., (2007). "Theories of Bank Behavior Under Capital Regulation". *Journal of Banking and Finance* 31, pp: 3680-3697.

Williams, D., M. Lioyd, Phil, Molyneux, and Thornon, (1994). "Market Structure and Performance in Spanish Banking". *Journal of Banking and Finance*. Vol. 18, No. 3, pp. 433-443.

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