

# Investigating the Banks Performance in Iran

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## Abstract

*In today's economic and competitive environment all organizations are trying to promote their performance. Financial and Credit institutions and banks play an essential role in this regard. Hence studying their performance is considered as a very significant subject. This research first investigates the importance of indicators influencing performance. It secondly ranks the performance of banks listed on Tehran stock exchange in a five year period (including 2006-2010) by using a financial, non-financial and a total performance index. The results reveal that regardless of the undeniable significance of banks' performance intangible aspects, the financial measures are still considered more important. The findings derived from regression tests also indicate that scale has no significant effect on total performance index.*

**Keywords:** Performance Evaluation, Private Banks, Privatized Banks, Financial Measures, Non-Financial Measures

**JEL classification:** G21

## 1- Introduction

Financial institutions are the most important agents whom the economic growth and prosperity of the countries belong with. Therefore, banks play an essential role in the financial system's economic development of each country. Banking profitability is a crucial subject helping banks to realize the current situations of the related industry. It also contributes to recognize the important factors influencing new decision makings and setting guidelines.

## 2- Literature Review

Performance evaluation systems play a key role in the assessment of achieving the desired objectives and strategies managers planned. Hence there should be some comprehensive measures designed to be accepted by managers and investors who can create value for the organization. Managers should be able to integrate knowledge, energies and abilities to achieve the long-term goals. Evaluation and

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comparison of financial institutions could have an important impact on investors and other stakeholders to make the correct decision. Consequently, there seems to be a requirement for this kind of research.

For banks, studying financial indicators in isolation does not yield a very effective strategy since their performance interlinks financial indicators with other invisible indicators. Regardless of continual use of financial ratios around banking performance, there should be a special attention paid to non-financial measures. Employee knowledge, the relationship with customers and innovation culture can bring success for each organization. In the last two decades, intangible assets shared almost 38 percent of this process (R.Dave and Bhatt, 2007).

Performance measurement is a topic largely discussed but seldom made a definition of. Performance, in both profit and non-profit organizations, can be defined as an appropriate combination of efficiency and effectiveness. However, there seems to be some inconsistency in the use of these terms in the existing literature on the subject matter. For the managers, these terms might be synonymous but each of these has their own distinct meaning (Kumar and Gulati, 2010). Drucker (1977) distinguished efficiency and effectiveness by associating efficiency to “doing things right” and effectiveness to “doing the right things.” Simply, an organization is effective to the degree to which it achieves its goals. In sum, effectiveness is the extent to which the policy objectives of an organization are achieved (Asmild et al., 2007).

Previous studies have measured bank performance from different aspects. Balanced Scorecard is introduced by Kaplan and Norton (1992) to motivate and measure business performance. The Scorecard with financial and non-financial (i.e., customer, internal business process, and learning and growth) provides a balanced picture of current operating performance as well as the drivers of future performance. Chen and Chen (2006) declare the companies aim at extending their operations and by using diverse performance evaluation measures so that there would be the capacity for evaluating the effectiveness and efficiency of business processes. Additionally, these performance management tools help better resource allocation and competition. Liu et al. (2009) consider that performance measurement systems play a critical role in helping companies achieve their predefined goals. Hence designing a comprehensive measure regardless of global competition and technological changes can be considered as a necessary item.

Performance was expressed primarily (if not only) in monetary terms, using accounting ratios, which were used to express utilization of tangible assets. The efficiency of the banking system has been one of the major issues in the new monetary and financial environment. The efficiency and competitiveness of financial institutions cannot easily be measured, since their products and services are of an intangible nature. Many researchers have attempted to measure the productivity and efficiency of the banking industry using outputs, costs, efficiency and performance.

R. Dave and Bhatt (2007) investigated the intangible aspects of banking performance in a period, including 1997-2006. They used 19 indices from an Indian bank called “Baroda.” The results revealed that accepting a comprehensive and total performance evaluation system, which considers all different aspects of banks, is

strongly suggested. They believe that analyzing some different intangible aspects can help a more comprehensive picture of banking performance achieved. Simple analysis of financial measures such as net income, capital adequacy and non-performing loans is not sufficient for this purpose. Aysan et al. (2007) used panel data to investigate banking sector's performance in Turkey over the period from 2006 to 2007. Their results revealed that efficiency change is negatively related to the number of branches. They also found a positive relationship between the loans ratio and the performance indices efficiency and efficiency change. This may be because of increased expenses, which lead to less efficiency. Interestingly they realized that return on equity is not statistically significant in explaining any of the efficiency measures. Kumar and Gulati (2008) measured the efficiency, effectiveness and performance of 27 governmental banks in India using a two-stage performance measurement method and data envelopment analysis. The total performance score was calculated by summing efficiency and effectiveness scores. The results showed that high efficiency does not necessarily describe high effectiveness. Delis and Papanikolaou(2009) investigated the determinants of bank efficiency. They found that the banking sectors of almost all sample countries show a gradual improvement in their efficiency levels. The model used shows that a number of determinants like bank size, industry concentration and the investment environment have a positive impact on bank's efficiency.

### 3-Empirical Model and Data

In this study within the category of listed banks on Tehran Stock Exchange, we defined two different groups:

- (1) Private banks ( banks that are funded by private funds),
- (2) Privatized government-owned banks ( banks, which were first funded by governmental funds but have been privatized after sometime.)

The model adopted in this study includes some of the common variables used in the earlier studies noted above to evaluate performance. For example, in evaluating the financial banks' performance, there are five groups normally used namely: Capital structure and solvency (CSS), management (MNGMT), Profit (PRFT), scale (SCLE) and growth. These classifications are considered by Liu (2009) as a measure of a bank's financial performance. Non-financial performance in this study is measured by some variables defined by R.Dave and Bhatt(2007). They include internal process fitness and customer behavior.

The two defined groups are classified as follows:

Bank Type	Bank Name						
	Eghtesad Novin	Parsian	Tejarat	Sina	Saderat	Karafarin	Mellat
Private	*	*		*		*	
Privatized			*		*		*

### **3-1- Research Variables**

The data used in this study were mainly obtained from several sources: Iran's Stock Exchange website, questionnaires distributed among experts and the official website of the central bank of Iran.

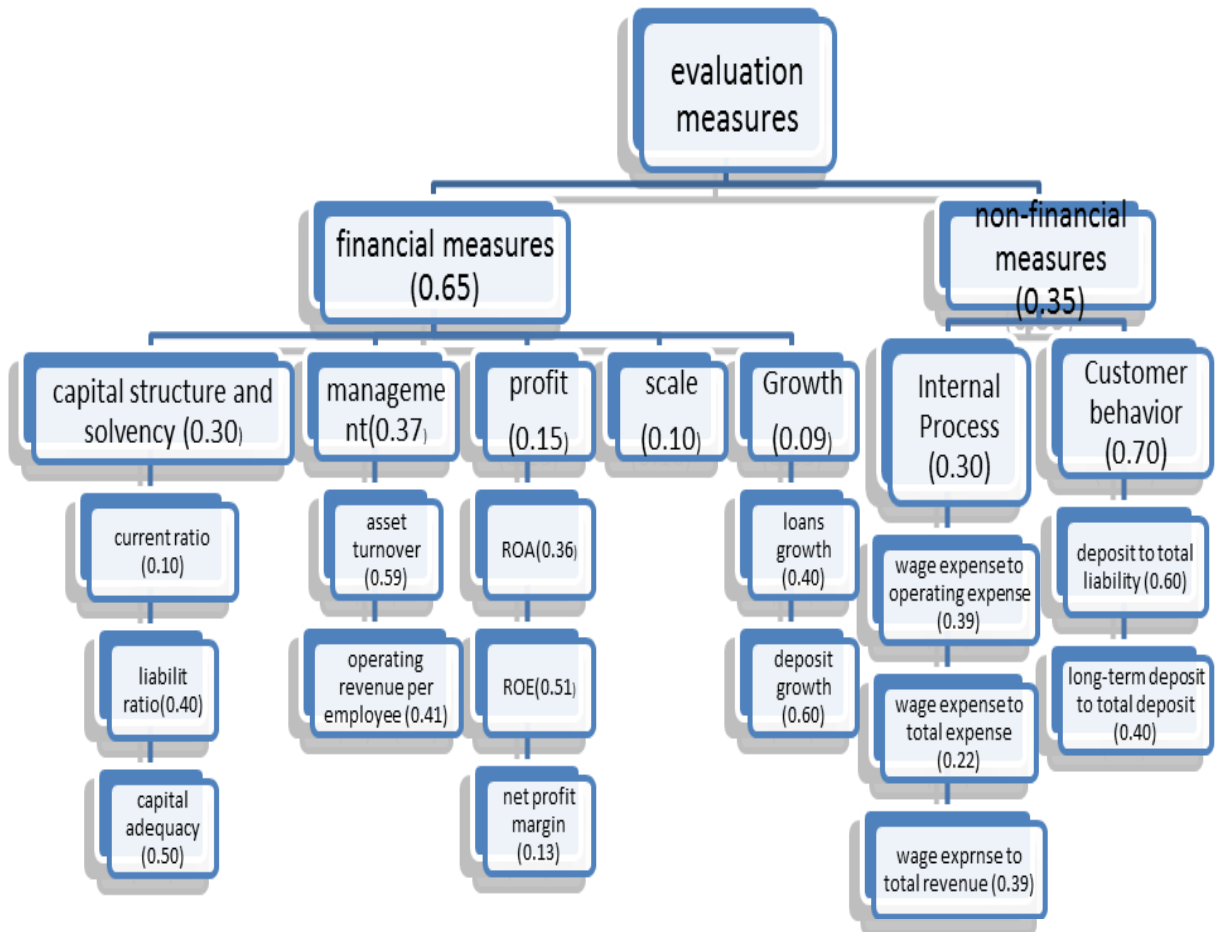
The data covers the period of 2006-2010. Performance measure is decomposed into financial and non-financial perspectives. Financial performance of a bank is dependent on its capital structure and solvency, management efficiency, profitability, scale and growth, all of which are evaluated based on different financial ratios derived from financial statements. Capital structure and solvency (CSS) is determined by three ratios, i.e., liability ratio, capital adequacy ratio, and the current ratio.

Management efficiency (MNGMT) is measured by asset turnover and operating revenue per employee. The size of a bank (SCLE) is defined by the logarithm total assets. The growth rates of both deposits and loans are taken into account when evaluating the growth of a bank. Several seemingly financial indicators also point towards the performance of intangible assets of a bank. For an organization like a bank, the customer behavior is a major indicator of the bank performance. The more is the value creation by a bank among the customers, the better the performance of the bank. In this study, non-financial performance of banks is measured through analyzing the following ratios: Internal process fitness: When it comes to internal business processes, the cost and productivity of employees can be good indicators of performance. We can judge about the attention paid to employees by rating the total payroll paid to total expenses, operating expenses and revenues. Internal process fitness reflects the efficiency of employees in generating revenue for banks. However, few banks make an attempt to analyze the underpinnings of such ratios and utilize the trend observations to evaluate their own performance.

### **3-2- Information Analysis**

In order to assign proper weights to each item, a questionnaire has been sent to 10 experts who were familiar with financial ratios and their content. They were also required to have a job history in banking. The collected questionnaires were analyzed using the Analytic Hierarchy Process (AHP) technique. This process is a structured technique for the treatment of complex decisions. The AHP provides a comprehensive and rational framework for structuring the decision problem for the representation and quantification of its components, to report the general objectives, and evaluate alternative solutions. It is used worldwide in a wide range of decision situations, in areas such as government, business, industry, health and education. The final weights calculated are displayed in chart 1.

Chart1- the assigned weights to each variable



The results reveal that despite the importance known for non-financial measures, financial ones are still considered more important. The higher the liability ratio, the more likely does the bank have troubles of repaying its customers, and hence the riskier is the bank in terms of capital structure and solvency. The negative multiplier (-1) relating to the ratio of liability to total assets takes into account the negative influence of the liability ratio on bank performance (Liu,2009). After computing the proper weight related to each category, the values of them for individual bank are standardized. Let  $X_{ijt}$  be the value of  $j^{\text{th}}$  factor of  $i^{\text{th}}$  bank at time  $t$ . The standardized value is calculated as:

$$Z_{ijt} = \frac{X_{ijt} - \mu_{jt}}{\sigma_{jt}},$$

$\mu_{jt}$  is the sample mean and  $\sigma_{jt}$  is the standard deviation of the  $j^{\text{th}}$  factor at  $t$ . Bank  $i$  is doing relatively well at the time  $t$  than the average in terms of  $j^{\text{th}}$  factor if the standardized value ( $Z_{ijt}$ ) is greater than zero, and is doing relatively worse if the value is less than zero (Liu, 2009).

### 3-3- Variable Calculation

The performance index of each financial characteristic is constructed by averaging standardized values through relevant factors with predetermined weights. The performance index represents the relative importance of each category: the more important a factor is in determining a bank's value, the greater its weighting in the index (Liu,2009).

#### 3-3-1- Financial Performance Indexes

According to the normalized value and the assigned weights, financial measures are calculated as follows:

$$E_{i1t} = w_1(-1)Z_{i1t} + w_2(+1)Z_{i2t} + w_3(+1)Z_{i3t}$$

$Z_{i1t}$ =the standardized ratio of liability to total assets for the  $i^{\text{th}}$  bank at time  $t$

$Z_{i2t}$ =the standardized risk-based capital ratio for the  $i^{\text{th}}$  bank at time  $t$ ,

$Z_{i3t}$  =the standardized current ratio for the  $i^{\text{th}}$  bank at time  $t$ .

Bank performance indexes for management ( $E_{i2t}$ ), profitability ( $E_{i3t}$ ), scale ( $E_{i4t}$ ), and growth ( $E_{i5t}$ ) were calculated similarly. Finally, the financial performance index of  $i^{\text{th}}$  bank at the time  $t$  is calculated as:

$$FE_{it} = \sum_{j=1}^5 W_j E_{ijt}$$

$w_1 = 0.30$ (CSS),  $w_2 = 0.37$  (MNGMT),  $w_3 = 0.15$ (PRFT),  $w_4 = 0.10$  (SCLE),  $w_5 = 0.09$ (GROWTH).

### 3-3-2- Non-Financial Performance Indexes

The employee satisfaction and their efficiency in generating revenue for related banks and the level of confidence to a given bank are proxies of non-financial measures as noted before. Similarly, the necessary steps to determine non-financial measures value are taken.

### 3-3-3- Total Performance Index

These measures are calculated using financial and non-financial indicators, regarding the weights assigned 0.65 and 0.35 respectively. Equation 3 is represented as follows:

$$TE_{it} = (0.65 * FE_{it}) + (0.35 * NFE_{it}) \quad (\text{Eq.3})$$

In the tables below, two groups of banks including private and privatized banks are ranked according to the indexes described before.

*Table 1- rankings based on financial performance index*

2006	2007	2008	2009	2010
Parsian	Eghtesad novin	Karafarin	Karafarin	Karafarin
Eghtesad novin	Parsian	Eghtesad novin	Sina	Sina
Karafarin	Saderat	Saderat	Saderat	Parsian
Saderat	Karafarin	Parsian	Parsian	Eghtesad novin
Tejarat	Tejarat	Mellat	Eghtesad novin	Saderat
Mellat	Mellat	Tejarat	Tejarat	Tejarat
Sina	Sina	Sina	Mellat	Mellat

*Table 2- ranking based on non-financial performance index*

2006	2007	2008	2009	2010
Sina	Sina	Sina	Sina	Sina
Karafarin	Karafarin	Karafarin	Karafarin	parsian
parsian	parsian	parsian	parsian	Karafarin
Eghtesad novin	Mellat	Mellat	Eghtesad novin	Eghtesad novin
Mellat	Eghtesad novin	Eghtesad novin	Mellat	Mellat
Tejarat	Tejarat	Tejarat	Tejarat	Saderat
Saderat	Saderat	Saderat	Saderat	Tejarat

*Table 3- rankings based on total performance index*

2006	2007	2008	2009	2010
Parsian	Parsian	Karafarin	Karafarin	Karafarin
Karafarin	Eghtesad Novin	Eghtesad Novin	Sina	Sina
Eghtesad Novin	Saderat	Saderat	Saderat	Parsian
Saderat	Karafarin	Parsian	Parsian	Eghtesad Novin
Mellat	Tejarat	Mellat	Eghtesad Novin	Saderat
Tejarat	Mellat	Tejarat	Tejarat	Tejarat
Sina	Sina	Sina	Mellat	Mellat

## 4-Regression Models

In the present paper, some different models are tested to investigate the effects of lagged financial and non-financial measures on the total performance of the current year. Two new variables measuring the size of a bank are introduced in the prediction regression analyses. They are BRANCH (the number of branch offices) and EPLEBR (the number of employees per branch office, in hundred). These models are defined as follows:

**4-1- The first model aims at investigating the effect of lagged financial -factors on the future total performance index (including scale as the logarithm of total assets).**

$$\text{ModelA1: TPit} = \alpha_0 + \alpha_1 \text{CSSi,t-1} + \alpha_2 \text{MANGMTi,t-1} + \alpha_3 \text{PROFITi,t-1} + \alpha_4 \text{GROWTHi,t-1} + \alpha_5 \text{SCALE}_{i,t-1} + \alpha_6 \text{INT.PRCS}_{i,t-1} + \alpha_7 \text{BEHAVIOR}_{i,t-1} + \epsilon_{i,t-1}$$

Table 4- Model TP1

R <sup>2</sup>	0.721066			
F	10.60171			
Durbin-Watson	2.238475			
Prob.	0.000021			
variable	Coefficient	t statistics	. prob	confidence level
CSS	0.17022	3.19515	0.0048	99%
MNGMT	0.16505	2.57976	0.0184	95%
PRFT	0.22445	2.73916	0.013	95%
SCALE	-0.0787	-1.5729	0.1323	-
GROWTH	-0.0093	-0.2478	0.8069	-
INT.PRCSS	0.19478	2.40971	0.0263	95%
BEHAVIOUR	-0.0265	-0.3903	0.7006	

The explanatory power of the adjusted R<sup>2</sup> explained 0.72% of the variation of total Performance. In both cases, the estimated coefficient of CSS, MNGMT, PRFT and Int.PRCSS were, as expected, positive and statistically significant at the 1 and 5 percent level. The results also reveal that scale (log of total assets) has no effect on current total performance index. This is consistent with Kumar and Gulati (2007) who found that large banks in comparison with small ones have worse performance because they can't be fully efficient.

**4-2- The second model investigates the effect of lagged financial factors (scale measured as the number of branch) on the current total performance index.**

Table 5- Model TP2

R <sup>2</sup>	0.685539			
F	9.097326			
Durbin-Watson	2.36252			
Prob.	0.000061			
variable	Coefficient	t statistics	Prob.	confidence level
CSS	0.218299	4.618607	0.0002	99%
MNGMT	0.157767	1.443035	0.1653	-
PRFT	0.255409	2.12607	0.0468	95%
SCALE	-0.00248	-0.21872	0.8292	-
GROWTH	-0.00908	-0.13021	0.8978	-
INT.PRCSS	0.227531	2.729533	0.0133	95%
BEHAVIOUR	-0.01864	-0.22524	0.8242	-

In this model, capital structure and solvency, profit and internal process fitness are statically significant. Among them, profitability owns the highest coefficient and thereby has the most effect on the dependent variable. As you can see on the table, the number of branches has no effect on total performance index. This is consistent with the findings noted by Aysan et al. (2007) who found the number of branches are negatively related to efficiency variation. It could be because of increasing the branch number and lower efficiency, they believe.

**4-3- The third model investigates the effect of lagged financial factors (scale measured as the number of employee per branch) on the current total performance index.**

$$\text{Model A3: } TP_{it} = \gamma_0 + \gamma_1 \text{CSS}_{i,t-1} + \gamma_2 \text{MANGMT}_{i,t-1} + \gamma_3 \text{PROFIT}_{i,t-1} + \gamma_4 \text{GROWTH}_{i,t-1} + \gamma_5 \text{EPLEBR}_{i,t-1} + \gamma_6 \text{INT.PRCSS}_{i,t-1} + \gamma_7 \text{BEHAVIOR}_{i,t-1} + \hat{u}_{i,t-1}$$

Table 6- Model TP3

R <sup>2</sup>	0.691203			
F	9.313968			
Durbin-Watson	2.418639			
Prob.	0.000052			
variable	Coefficient	t statistics	Prob.	confidence level
CSS	0.218791	4.921056	0.0001	99%
MNGMT	0.126648	1.871291	0.0768	90%
PRFT	0.257724	3.071392	0.0063	99%
SCALE	0.004639	0.630241	0.536	-
GROWTH	0.009093	0.229819	0.8207	-
INT.PRCSS	0.226128	2.760055	0.0125	95%
BEHAVIOUR	-0.01056	-0.14963	0.8826	-

In this model also capital structure and solvency, management, profit and internal process fitness are statically significant and EPLEBR has no effect on the total performance index.

## 5- Findings

Traditional performance measures are mainly concentrated on financial data, but it can't fully reflect performance in the new economy. Non-financial factors have become increasingly significant. This paper evaluates the performance index of seven banks listed on Tehran stock exchange for the years of 2006 and 2010. The performance indexes of financial and non-financial aspects as well as total performance index are constructed. Banks are divided into private and privatized banks according to the type of major sponsors of a bank when founded.

The results indicate that private banks are larger than privatized banks but it doesn't guarantee their better performance. As it's obvious from the different models expressed, internal process fitness has a positive relation with following total performance index. With better profitability, management and capital structure, banks will perform relatively better among competitors in the following year.

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