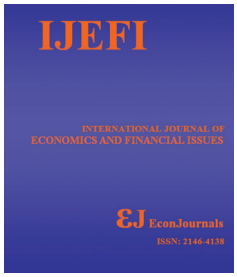

International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2017, 7(5), 128-136.

Performance Assessment of Banks listed on Tehran Stock Exchange based on CAMEL Indicators

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ABSTRACT

Choosing efficient and appropriate approaches to assess bank's financial performance is one of the most important issues having attracted bank analysts and researchers' attention in recent decades. CAMEL is one of the important approaches proposed to survey financial performance of banks, which includes five indicators of capital adequacy, assets quality, management quality, earning quality, and liquidity. Therefore, this study aims to assess the influence of CAMEL indicators on banks' financial performance. In this regard, the study statistical population consists of 14 listed banks on Tehran stock exchange during the period 2010-2015. This study has been conducted using a multivariate regression and panel data. The study has one main hypothesis and 5 subsidiary hypotheses. Analysis findings indicated that capital adequacy and assets quality have a significant positive influence on financial performance of banks and liquidity has a significant negative impact on financial performance of banks, while management quality and earning quality indicators has no significant influence on banks' financial performance.

Keywords: Capital Adequacy, Assets Quality, Management Quality, Earnings Quality, Liquidity Quality, Bank's Financial Performance
JEL Classifications: G1, G2

1. INTRODUCTION

Banks and finance and credit institutions, on the one hand, seek to attract deposits from their clients, and on the other hand they try to lend the collected funds to the applicants with a proper rate in order to make suitable return and profit for the shareholders. Therefore, banks like other non-profit institutions try to maximize their shareholder wealth (Lee and Yang, 2014). To evaluate the financial performance of financial organizations, a wide range of financial reporting indexes of the organizations can be studied and investigated, but greatly important criteria to determine the adaptability and health of financial organizations are ones that measure their cash ability, profitability, and liquidity. Basel Committee on Banking Supervision (BCBS) has suggested CAMEL model criteria to assess financial organizations performance. CAMEL is a simple and proper model for financial evaluation and management measure of banks (Khanifar et al., 2014). CAMEL is an evaluation model of non-bank credit institutions and banks performance that assesses five areas of financial and management performance. These areas include capital adequacy, assets quality, management quality, earning quality, liquidity quality. Thus, CAMEL rating system assesses and evaluates key aspects of capital adequacy, assets quality, management, earnings, and liquidity according to the defined standards (Molla, 2011).

Adequate and proper capital is one of the required conditions to maintain bank system health. Banks and credit institutions should always establish a suitable ratio between the available capital and risk to guarantee their activities persistence and constancy. There is a relationship between assets quality of financial institutions and their financial performance. Facilities value of a bank is relative to its collaterals liquidity value, while its investment value is dependent on the market capitalization. Banks should use a stable agent in their portfolio in order to keep the assets quality and consider a schedule and appropriate resources to decrease their

value. Given the determinant role of management in institutes and organizations success, knowledge, proficiency, competence, and accuracy of financial institutes management are of particular importance and receive considerable weight in comparison to other variables in most indicator ratings. Earnings quality and gaining process in a financial institute are greatly related to the debts and assets management quality in the institution. Financial institute earnings should be accompanied by profitability, in a way that support assets growth and improve the ability to reserve in the organization in order that it results in the increase of shareholders' equity value. Good earnings performance causes depositors, investors, lenders and public sector to trust banks more. Liquidity is the ability of a bank to obtain cash in order to meet the essential or current needs. Banks should have adequate liquidity to satisfy depositors and facilities receivers' demands in order to win public confidence. Hence, financial institutions need to have an effective debt and assets management system to minimize the maturity inconsistency of debts and assets and optimize return on them (Muhmada and Hashima, 2015).

In the present study, the effect of CAMEL indicators on financial performance of banks is assessed. Thus far no institution or professional institute has rated banks and it is not identified whether there is any relationship between financial performance of banks and CAMEL indicators or not. Bank shareholders also require comprehensive data on a bank rate in comparison to other similar banks. Hence in this research, first CAMEL indicators are calculated in per bank annually using related formulas, and then the effect of these indicators on the bank financial performance is evaluated. Therefore, the main question is whether CAMEL indicators have any significant effect on financial performance of banks listed on Tehran stock exchange.

2. THEORETICAL BASES

2.1. Financial Performance of the Bank

Investors in stock market always want to obtain high profit. They buy a stock which, from their perspective, is the best and has the most profit and return. It can be determined through performance assessment system that how much managers activities have occurred according to the shareholders aims, or in other words, how much their goals and shareholders' interests are in the same direction, and how much the managers could have been successful in making wealth and value for shareholders. The criteria for assessing firms' performance are usually divided into two groups of traditional criteria and value-based criteria. Using traditional criteria for evaluation such as firm incomes, earnings per share, return on equity (ROE), return on assets, cash flow and so have been common in capital market over continuous years until the value-based criteria was proposed to investigate companies performance (Bahrami, 2013). Today, one of the most important financial issues in firms is the measurement of their performance. Since the performance assessment of companies is the base for much decision-making inside and outside of the firm, it is of high importance. Decision-making regarding investments, increasing firms' capital, agency relationship, and many other decisions are all based on performance assessment. Proper performance is the chief tool which can raise bank earnings and develop it in different dimensions. Therefore, it is admirable that, in present highly competitive market, based on clauses 2 and 3 of 44th Principle of Constitution, and likely due to the membership of Iran in the World Trade Organization and consequently the establishment of foreign banks in Iran, and given the privatization of many pubic banks as well as inconsiderable difference in banking interest in resource attraction part and private and public banks low consumption, banks require to find proper strategies in order to maintain their clients. The only solution for that is to assess the current condition and investigate the approaches to meeting identified challenges according to main goals of banks establishment (Tabatabaei, 2011).

With the development of banks and financial institutions in today competitive environment, only institutions and banks can continue to operate which are pioneer in making value for their clients. Satisfying clients' needs and creating a desirable image in their minds require proper financial performance and great financial power (Muhmada and Hashima, 2015). Banking performance assessment is an effective measure for the accuracy of economic activities in the economics. Today, banking industry importance in country economics is well known and clear. Competition growth and new opportunities to business for banks and financial institutions have involved them to use new modern tools and technology in order to manage the credit. Rating models provide the required data on credit effective management for banks. In Iran, banks performance assessment has not considered important due to most banks nationalization, their few number, and a rather exclusive market for banks until two recent decades. But given the growth of such institutions as well as the privatization of most banks, it seems that banks performance measurement and rating is of highly importance (Eslami et al., 2011). ROE rate is one of financial ratios which is obtained from the division firm n*et* income by equity. ROE indicates the acquired earnings from per Rial of the bank capital (Jahankhani and Fard, 1995).

2.2. CAMEL Indicators

As banks like other for-profit institutions seek to maximize their interest, using financial criteria for their performance is essential. On the other hand, banks' activities structure is in a way that they face with different risks such as non-collection risk, thus performance assessment of the bank is a complex issue and has been discussed and studied by international financial institutions and thinkers over the years. CAMEL model is the strategy offered by international financial institutes including Bank for International Settlements (BIS) and BCBS after years of study and investigation. Credit degree, profitability, and liquidity are among the most important criteria to determine competence and to assess activities of a financial institute. Thus BCBS in BIS has necessitated using CAMEL indicators to assess financial institutions. These indicators are as follows Eslami et al., 2011.

- Capital adequacy (C)
- Assets quality (A)
- Management quality (M)
- Earning quality (E)
- Liquidity quality (L).

Therefore, in CAMEL rating system, key aspects of capital adequacy, assets quality, management, earnings, and liquidity are assessed and evaluated according to the defined standards. CAMEL variables are considered as important indicators of operational and financial performance. There is no general agreement that which variable measures CAMEL conditions more properly. This is partly due to the fact that Federal Deposit Insurance Corporation, a pioneer of using the approach, has not defined measurement units to be used. In the previous studies, types of measurement units have been used for CAMEL variables, and the present study has taken a similar approach based on the preceding studies (Javaheri, 2014).

Five areas of indicators can be defined briefly as follows.

2.2.1. Capital adequacy (C)

Adequate and proper capital is one of the required conditions to keep banking system health. Every bank and credit institution should always establish an appropriate ratio between the capital and existing risk in the assets (Javaheri, 2014).

For a long time ago, banks have been facing with different risks due to granting facilities and loans. Committees on Banking Supervision in BIS operating in Basel, Switzerland issued the criteria for determining minimum capital for banks' activities in the 1988 Agreement. It's evident that great changes have occurred in financial markets from then until now. For example, the development of credit risk concepts and models has facilitated new financial tools designing and pricing strategies that is resulted in financial markets accurate development (Capital Adequacy Regulation, 2003).

Capital adequacy ratio is a measurement of banks and financial institutions' performance health and Financial Stability. Banks should have adequate assets in order to cover the risk resulting from their activities and be careful to prevent losses from being imposed on the depositors. Accordingly, they should have minimum desirable capital to cover the operational risks (Bahrami, 2013).

2.2.2. Assets quality (A)

There is a relationship between assets quality of financial institutions and their financial performance. Facilities value of a bank is related to its collaterals liquidity value, while its investment value is correlated to the market capitalization. Banks assets should apply a stable agent in its portfolio in order to retain the assets and consider due resources and a schedule to reduce their value (Eslami et al., 2011).

As banks should decide regarding the assignment of deposited funds, this decision forms the level of credits risk and their default risk. Therefore, this aspect of bank assessment goals can be achieved by investigating banks' assets quality including loans and securities. Nonperforming loans and overdue maturities in financial statement, reserve capital to cover potential losses, and bank profitability are among the required statistics which can be obtained from the bank balance sheet (Tabatabaei, 2011).

2.2.3. Management accuracy (M)

Given the determinant role of management in institutes and organizations success, knowledge, proficiency, competence, and accuracy of financial institutes management are of particular importance and receive considerable weight in comparison to other variables in most indicator ratings (Javaheri, 2014). Assessment approaches of a bank are related to its management. To study the management quality of banks, there are some criteria for administrative skills, ability, obeying the monetary and banking regulations, dominance over business environment changes, and the conversion of threats into opportunities (Eslami et al., 2011).

2.2.4. Earnings quality (E)

Earnings quality and gaining process in a financial institute are highly related to the debts and assets management quality in the institution. Financial institute earnings should be accompanied by the profitability, in a way that support assets growth and improve the ability to reserve in the organization in order to result in the increase of shareholders' equity value. Good earnings performance causes depositors, investors, lenders, and public sector to trust banks more (Bahrami, 2013).

2.2.5. Liquidity (L)

Liquidity is the ability of a bank to obtain cash in order to obviate essential or current needs. Banks should have adequate liquidity to meet depositors and facilities receivers' demands in order to win public confidence. Therefore, financial institutions need to have an effective debt and assets management system to minimize the maturity inconsistency of debts and assets and optimize return on them (Bahrami, 2013). Liquidity control is one of the important tasks and responsibilities of the bank management. Using short-term funds in long-term investments causes the bank to face with this risk that investment account owners may request their funds receipt and the bank is compelled to sell its assets (Tabatabaei, 2011).

3. IMPACT OF CAMEL INDICATORS ON BANKS PERFORMANCE

Banks should have sufficient capital to cover the risks resulting from their activities in order to prevent the investors from losses. Capital quality is the main and determinant factor in identifying banks and financial intermediaries' ability to face with the fluctuations and adversity effective in balance sheet items. Thus, this ratio growth empowers the bank in adverse economic situations. Banks having a higher capital to assets ratio have appropriate safety and security even in economic crises and events, losses or debts repayment. As a result, higher ratio of capital adequacy allows the bank to choose more proper investments and also increase the bank risk- taking power. Therefore, the higher ratio of capital adequacy drives banks to accept more risks in their assets portfolio by increasing the payment of credits, facilities, and loans in order to maximize the expected returns and to increase bank earnings. Accordingly, there is likely a positive relationship between the ratio of capital adequacy and the bank profitability (Muhmada and Hashima, 2015).

The assets quality of financial institutions is related to their financial performance. Facilities value of a bank is correlative to its collaterals liquidity value, while its investment value is dependent on the market capitalization. Banks should use a stable agent in its portfolio and consider a schedule and proper resources in order to compensate for their value reduction. Assets quality indicates the degree of leverage and facilities in banks. The less this ratio is, the more will be the leverage in the bank capital. If the leverage degree in capital structure is not increased beyond its optimized limit, it raises bank value and improves bank performance. Overgrowth of leverage also increases the danger of bankruptcy and can have a negative influence on bank performance (Khaleghi and Baghoomian, 2016).

Knowledge, proficiency, competence, and accuracy of financial institutions management are particularly important and receive considerable weight compared with other variables in most indicator ratings, considering the determinant role of management in institutions and organizations success. The ability of bank board of directors and chief executive officer to identify, measure, supervise and control over bank operation hazards, establish health and stability in it, improve efficiency of the operation, and also to obey banking system regulations can guarantee the bank survival and its activity permanence as well as gaining general trust in the bank and improve the financial performance. As a result, the essential factors of bank management on expenses control have a remarkable influence on the bank profitability (Muhmada and Hashima, 2015).

Earnings quality and gaining process in a financial institute are greatly relative to the debts and assets management quality in the institution. Financial institute earnings should be accompanied by the profitability, in a way that support assets growth and improve the ability to reserve in the organization in order to increase shareholders' equity value. Banks which raise the interest revenue to average facilities awarded ratio use their resources in a more optimized way and thus improve their performance.

Liquidity is one of banks' empowerment factors to repay short-term debts and obligations on time. Liquidity is used to assess the bank ability to meet the cash needs in short-term. But it should be noted that liquidity growth retains some of the company assets in parts which make little return. Accordingly, over increase in liquidity reduces profitability degree and ROE (Muhmada and Hashima, 2015).

4. LITERATURE REVIEW

Prasad and Ravinder (2012) rated the banks of India in a study entitled banks analysis using CAMEL model. They chose CAMEL model to assess banking performance and measured the important bank parameters such as capital adequacy, assets quality, management, earnings, and liquidity. The sample consists of 20 Indian banks. The research was conducted during a 5-years period from 2005 to 2010. The findings indicate each bank rate in terms of per parameter. Andra bank has the highest position and banks of Baroda, Indus, and Panjab lie respectively after that. State bank of India is in the lowest place.

Rehana and Saba (2012) compared the financial performance of Islamic banks with the commercial and conglomerate banks of Pakistan. They surveyed 3 groups of banks including Islamic banks, Islamic bank branches, and ordinary commercial banks respectively and used 2 primary and secondary data resources. The researchers gathered the primary data by interviewing with the professional bankers. As the primary data was not enough to answer, they apply the secondary data resource which was gathered through annual, 6-months, and 3-months financial statements of the Islamic commercial banks and the ordinary commercial banks, the database of India state bank, the database of Karachi stock exchange, etc. Statistical findings show that there is a significant difference between the three kinds of bank regarding CAMEL ratios.

Stančić et al. (2014) conducted a study named the impact of board of directors and ownership structure on banks profitability: Evidence from Southeast Europe. The study was carried out in the period 2005-2010 and 74 commercial banks were tested by unbalanced data approach. The results indicated that the size of boards of directors has a negative and significant influence on the banks profitability and ownership centralization and the bank size has a significant impact on the commercial banks profitability.

Lee and Yang (2014) have conducted a research named the relationship between income diversification and bank performance, given the bank financial structure. They studied 29 Asian banks data from 1995 to 2009 and investigated a total of 2372 data by a panel data approach. The findings showed that, unlike American and European countries, there is a significant relationship between the bank income diversification and the bank performance, in other words the income diversification improves the bank performance.

Muhmada and Hashima (2015) have done a survey named performance assessment of banks based on CAMEL indicators. The study assessed the performance of banks including domestic and foreign banks in Malaysia using capital adequacy, assets quality, management competence, earnings quality, and liquidity (complete) in a fiscal year from 2008 to 2012. Using a regression analysis, the study findings showed that capital adequacy, assets quality, earnings quality, and liquidity have a significant influence on Malaysian banks performance. The results of this research are greatly important for investors to assess the bank performance since it can determine future banking system direction in Malaysia.

Tabatabaei (2011) assessed and studied Shahr bank performance in comparison with other banks in country. To determine the intended parameters and indicators in order to achieve this aim, banks rating system invented by the Banker by which all banks in the world are evaluated in every year was used. The statistical population consists of country private and public banks and all banks listed on stock exchange which have issued data were studied as the sample. The results indicated that Shahr performance is better compared to other banks performance regarding capital adequacy and assets quality ratios, but it is not a significant difference. Concerning management quality, earnings, and liquidity, the bank performance is less than other banks performance, but it is not a significant difference.

Bahrami (2013) conducted a study named the impact of banks rating according to CAMEL indicators on stock return. This survey investigates two hypotheses. The impact of bank rate on stock return and the impact of bank rate falling on stock return are studied respectively in in the first and the second hypotheses. In these hypotheses, CAMEL indicators including capital, assets quality, management quality, earnings, and liquidity are considered as independent variables and the bank stock return is the dependent variable. Testing the hypotheses by means of a regression analysis during the period 2007-2011 shows that there is a negative and rather weak relationship between banks rates calculated based on CAMEL model and the bank stock return.

Chavoshi et al. (2014) investigated interior factors effective on bank branches financial facilities awarded (Case of study: Parsian Bank branches in Tehran). In the study, profitability is the dependent variable and deposits degree, financial facilities awarded degree, liquidity management indexes, expenses management are the independent variables. According to the findings, variables such as expenses management and facilities awarded have a highly positive and significant relationship with facilities awarded variable in comparison to other variables. Finally, given the results, some practical strategies to increase banks profitability, particularly Parsian bank, are suggested.

Khanifar et al. (2014) studied and compared the financial performance of private and public commercial banks based on CAMEL model during the period from 2006 to 2009. The sample consists of 8 commercial banks (4 public banks and 4 private banks) which are selected by a judgmental method. The results showed that the private banks performance was better than the public banks in terms of liquidity and earnings, and that public banks performance is better in terms of management quality. In addition, the findings of the first hypothesis indicated that there is no significant difference between the private and public banks performance.

5. METHOD AND STATISTICAL POPULATION

This is an applied research in terms of its goal and a descriptive study base on a multivariate linear regression analysis concerning its methodology. The required data are gathered through the compact disc of Tadbir Pardaz and Codal site. The data is analyzed by means of Eviews software. The statistical population consists of banks listed in Tehran stock exchange in the period from 2010 to 2015. Given the limited number of banks listed on stock exchange, there is no need to sampling and the whole statistical population is investigated. Therefore, 14 banks are studied during the mentioned period and given the 6-years period, a total of 84 banks years are assessed.

Considering the theoretical bases and literature review, the hypotheses are formulated as follows:

1. The main hypothesis
   - CAMEL indicators have a significant impact on the bank financial performance.
2. Subsidiary hypotheses
   - Capital adequacy has a significant effect on the bank financial performance.
   - Assets quality has a significant effect on the bank financial performance.
   - Management quality has a significant effect on the bank financial performance.
   - Earnings quality has a significant effect on the bank financial performance.
   - Liquidity has a significant effect on the bank financial performance.

Regression equation of the hypothesis which is formed based on Muhmada and Hashima study (2015) is as the following equation 1:

$$ROE_{i,t}=\beta_0+\beta_1 CA_{i,t}+\beta_2 AQ_{i,t}+\beta_3 MQ_{i,t}+\beta_4 EQ_{i,t}+\beta_5 LQ_{i,t}+\beta_6 INS_{i,t}+\beta_7 SIZE_{i,t}+\beta_8 BSIZE_{i,t}+e_{i,t} \quad (1)$$

Where ROE is bank financial performance, CA is capital adequacy, AQ is assets quality, MQ is management quality, EQ is earnings quality, LQ is liquidity, INS is institutional shareholders, SIZE is the size of bank, BSIZE is the size of board of directors, and $e_{i,t}$: Is error.

6. WAY OF THE VARIABLES MEASUREMENT

6.1. Independent Variables

In the present study, CAMEL indicators are the independent variable. These indicators are calculated as follows:

1. Capital adequacy (CA): Capital adequacy is calculated by the equation 2.

$$\text{Capital adequacy}=\frac{\text{Primary capital (main)}+\text{complementary capital (subsidiary)}}{\text{Risk weighted assets}} \quad (2)$$

Bank's main capital includes paid capital, legal reserve, other reserves (except for revaluation reserve of fixed assets and bank stock), stock premium, and retained earnings. Complementary capital includes bad debts provision, revaluation reserve of fixed assets, and reserve resulting from revaluation of stock.

One other component of capital adequacy is assets that lie in the denominator. As each bank assets have different risk coefficients, asset items are divided into risk degrees 0, 10, 20, 50, and 100. Capital adequacy has been extracted from board of directors' reports. In cases in which some banks have not issued capital adequacy in their board of directors' reports, it is calculated using the above formula. It should be stated that banks calculate their capital adequacy ratio and reveal it in the board of directors' reports.

2. Assets quality (AQ): Assets quality is calculated by the equation 3.

$$\text{Assets quality}=\frac{\text{Bank assets}}{\text{Equity}} \quad (3)$$

3. Management quality (MQ): Management accuracy is calculated using the following equation 4.

$$\text{Management quality} = \frac{\text{Total expenses}}{\text{Total earnings}} \quad (4)$$

4. Earnings quality (EQ): Profit and profitability is calculated using the equation 5.

$$\text{Earnings quality} = \frac{\text{Earnings of loans interest}}{\text{Average loans amount}} \quad (5)$$

5. Liquidity (LQ): Liquidity is calculated by the equation 6.

$$\text{Liquidity} = \frac{\text{Cash} + \text{short} - \text{term investments} + \text{debts}}{\text{Short} - \text{term debts}} \quad (6)$$

6.2. Dependent Variable

In the present study, banks are dependent variable that is calculated according to ROE by the equation 7.

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Shareholders equity}} \quad (7)$$

6.3. Control Variable

1 Institutional shareholders (INS): It means a total of stock belonging to institutional shareholders. Institutional shareholders is a total of firm stock that belongs to banks, insurance institutes, social security organization, pension funds, public institutions, investment companies, and holding companies.
2 The size of bank (SIZE): It is calculated by logarithm of total bank assets.
3 The size of board of directors (BSIZE): It is calculated through natural logarithm of the total number of board of directors' members.

7. FINDINGS

7.1. Descriptive Statistics and Variables Correlation

To understand the statistical sample and study variables more, descriptive statistics summary of the study variables is calculated. Table 1 shows an overview of the variables descriptive statistics.

In a regression model, if the correlation between independent variables is high, it may leads to the manipulation of results. The above mentioned correlation means strong correlation, i.e., more than 0.50. As it is observed in Table 2, there is no correlation more than 0.50.

7.2. Test to Determine Type of Data

To test the data, we should first identify that it is Panel Data or compositional data. F Limer test is used to achieve this goal. If its $P < 0.05$, data type will be panel, if not, data type will be compositional. As you see in the Table 3, P value of F Limer test has been <0.05 and data type is panel. After determining the type of data, their fixed and random effects should be identified. Hausman test is used to identify these effects. In this test, if $P < 0.05$, effects will be fixed, and if not, the effects will be random.

7.3. Hypotheses Test

The results of regression model analysis are shown in Table 4.

F-statistic is used to investigate total P value of the model. Considering the calculated F-statistic probability in Table 4 (model P value 0.0000), it is identified that the model has been significant, and at least one of the regression model coefficients is not zero. Estimated Durbin Watson value is equal to 2.046. As the measured value is between 1.5 and 2.5, this value indicates that there is not the first type autocorrelation among the remainders. The adjusted R-squared value in measured results of the regression model is equal to 0.574 that indicates about 57% dependent variable behavior is explained by the independent and control variables which shows a rather strong relationship between the independent and control variables and dependent variable.

Given that P value of control variable of bank size (SIZE) is equal to 0.0010 that is less than 0.05, thus there is a significant relationship between control variable of bank size and dependent variable of bank financial performance (ROE). Considering that control variable coefficient of bank size is negative and equal to 0.093, therefore, there is a significant negative relationship between bank size and bank financial performance, and the increase in bank size reduces bank financial performance. P value of control variables of institutional share ownership (INS) and board of directors size (BSIZE) is more than 0.05, thus institutional share ownership and board of directors size do not have any significant effect on financial performance of bank.

7.4. Results of the First Subsidiary Hypothesis Test

7.4.1. First subsidiary hypothesis

Capital adequacy has a significant effect on financial performance.

Considering that the P value of independent variable of capital adequacy (CA) related to the first subsidiary hypothesis is equal

Table 1: Descriptive statistics of the variables

Variable name	Emblem	Mean	Median	Maximum	Minimum	SD	Skewness coefficient
Bank financial performance	ROE	0.171	0.17	0.457	−0.445	0.128	−1.293
Capital adequacy	CA	10.328	9.125	24.71	2.122	2.95	0.891
Assets quality	AQ	14.573	14.007	27.83	5.381	3.241	0.409
Management quality	MQ	0.12	0.092	0.319	0.04	0.066	1.175
Earnings quality	EQ	0.578	0.43	2.108	0.145	0.428	1.87
Liquidity	LQ	1.155	1.095	1.957	0.476	0.222	1.82
Institutional share ownership	INS	0483	0.42	0.96	0.07	0.289	0.088
Bank size	SIZE	18.938	19.062	21.296	16.146	1.315	−0.222
Board of directors size	BSIZE	5.25	5	7	4	0.942	0.613

SD: Standard deviation

Table 2: Results of correlation coefficient test

	CA	AQ	MQ	EQ	LQ	INS	SIZE	BSIZE
CA	1							
AQ	−0.45							
MQ	−0.19	−0.12	1					
EQ	−0.03	0.03	−0.29	1				
LQ	0.12	−0.17	−0.16	−0.22	1			
INS	−0.10	0.05	0.47	−0.31	−0.18	1		
SIZE	−0.20	0.32	0.2	−0.17	0.08	0.23	1	
BSIZE	0.48	−0.38	−0.41	0.16	0.17	−0.40	0.03	1

Table 3: Results of F Limer and Hausman tests

Hypothesis	Results of F Limer test			Results of Hausman test		
	Statistic	P	Result	Statistic	P	Result
Study hypothesis	3.650	0.0000	Panel	20.035	0.0000	Fixed effects

Table 4: Results of regression model P value test

Variables	Model coefficients	t-statistic	P value
Fixed value of model (α_0)	1.73	2.489	0.0155
Capital adequacy (CA) - independent variable of first subsidiary hypothesis	0.017	2.819	0.0064
Assets quality (AQ) - independent variable of second subsidiary hypothesis	0.011	3.54	0.0008
Management quality (MQ) - independent variable of third subsidiary hypothesis	0.017	0.066	0.9473
Earnings quality (EQ) - independent variable of fourth subsidiary hypothesis	0.009	0.286	0.7754
Liquidity (LQ) - independent variable of fifth subsidiary hypothesis	−0.111	−2.019	0.0478
Institutional share ownership (INS) - control variable	−0.132	−0.332	0.7409
Bank size (SIZE) - control variable	−0.093	−3.469	0.001
Board of directors size (BSIZE) - control variable	0.01	0.281	0.7789
Model R^2	0.682	P value of the model	0
Model adjusted R^2	0.574	Durbin Watson	2.046
Model goodness of fit (F-statistic)	6.341	Observation number	84

to 0.0064 and its value is <0.05, thus the model results show that, for a 95% confidence Interval, there is a significant relationship between the independent variable of capital adequacy (CA) and the dependent variable of bank financial performance (ROE). In general, it can be stated that this hypothesis is accepted, and capital adequacy has a significant effect on the bank financial performance. Given that the independent variable coefficient of capital adequacy is positive and equal to 0.017, thus the relationship between the independent and dependent variables is positive. It can be concluded that the increase in banks' capital adequacy raises ROE and improves the bank financial performance. In other words, increasing banks' capital adequacy ratio enhances ROE and bank financial performance.

7.5. Results of the Second Subsidiary Hypothesis Test

7.5.1. Second subsidiary hypothesis

Assets quality has a significant effect on financial performance.

Considering that the P value of independent variable of assets quality (AQ) related to the second subsidiary hypothesis is equal to 0.0008 and its value is <0.05, thus the model results show that, for a 95% confidence Interval, there is a significant relationship between the independent variable of assets quality (AQ) and the dependent variable of bank financial performance (ROE). In general, it can be stated that this hypothesis is accepted, and assets quality has a significant impact on the bank financial performance. Given that the independent variable coefficient of assets quality is positive and equal to 0.011, thus the relationship between the independent and dependent variables is positive. It can be concluded that the increase in banks' assets quality raises ROE and improves the bank financial performance. In other words, increasing banks assets quality enhances ROE and bank financial performance.

7.6. Results of the Third Subsidiary Hypothesis Test

7.6.1. Third subsidiary hypothesis

Management quality has a significant effect on financial performance.

Considering that the P value of independent variable of management quality (MQ) related to the third subsidiary hypothesis is equal to 0.9473 and its value is more than 0.05, thus the model results show that, for a 95% confidence Interval, there is no significant relationship between the independent variable of management quality (MQ) and the dependent variable of bank financial performance (ROE). In general, it can be stated that this hypothesis is not accepted, and management accuracy does not have any significant impact on the bank financial performance.

7.7. Results of the Fourth Subsidiary Hypothesis Test

7.7.1. Forth subsidiary hypothesis

Earnings quality has a significant effect on financial performance.

Considering that the P value of independent variable of earnings quality (EQ) related to the fourth subsidiary hypothesis is equal to 0.7409 and its value is more than 0.05, thus the model results show that, for a 95% confidence Interval, there is no significant

relationship between the independent variable of earnings quality (EQ) and the dependent variable of bank financial performance (ROE). In general, it can be stated that this hypothesis is not accepted, and earnings quality does not have any significant impact on the bank financial performance.

7.8. Results of the Fifth Subsidiary Hypothesis Test

7.8.1. Fifth subsidiary hypothesis

Liquidity has a significant effect on financial performance.

Considering that the P value of independent variable of liquidity (AQ) related to the fifth subsidiary hypothesis is equal to 0.0478 and its value is <0.05, thus the model results show that, for a 95% confidence interval, there is a significant relationship between the independent variable of liquidity quality (AQ) and the dependent variable of bank financial performance (ROE). In general, it can be stated that this hypothesis is accepted, and liquidity has a significant impact on the bank financial performance. Given that the independent variable coefficient of liquidity is negative and equal to 0.011, thus the relationship between the independent and dependent variables is negative. It can be concluded that the increase in banks' assets quality reduces ROE and decrease the bank financial performance.

8. CONCLUSION AND SUGGESTIONS

The present study, with the assessment of CAMEL indicators effect on the banks financial performance, seeks to provide a new step in researches related to banks financial performance evaluation in Iran. The study has one main hypothesis and 5 subsidiary hypotheses. The findings of the first subsidiary hypothesis analysis confirmed the hypothesis. Therefore, it can be stated that capital adequacy has positive and significant impact on bank financial performance, capital adequacy increases through the growth of capital or the reduction in assets risk that both factors enhance the bank financial resources and thus raise financial performance of banks listed in stock exchange.

Accordingly, considering capital adequacy ratios that contain types of important financial hazards is thoroughly useful. The results of the second subsidiary hypothesis analysis confirmed the hypothesis. Therefore, it can be stated that assets quality has positive and significant impact on the bank financial performance, assets quality shows the degree of leverage and facilities usage in the banks, and that the less this ratio is, the more will be leverage in the bank capital structure. Thus, considering leverage ratio that is obtained from the division of the bank assets by its shareholders' equity can show the balance between assets growth rate in comparison to capital increase rate. Therefore, the increase in assets quality enhances the bank financial performance.

The findings of the third and fourth subsidiary hypotheses analysis did not confirm the hypotheses regarding the banks listed in Tehran stock exchange. This is due to the fact that although a main number of banks has got private and listed in Tehran stock exchange, main part of their stock are hold by the government, Social Security Organization, dependent institutions on the government, etc. As a result, management quality in these banks has not have any significant impact on financial performance due to the public clients. In addition, interest rate of facilities is determined by the Central Bank, and banks have limited opportunities to compete in this regard, and commercial banks have similar interest rate. The results of the fifth subsidiary hypothesis analysis confirmed the hypothesis. It may be indicated that liquidity has a significant negative impact on the bank financial performance since liquidity growth retains some of the company assets in parts which make little return. Accordingly, overgrowth in liquidity reduces profitability degree and ROE.

It is suggested to the members of board of directors and banks managers to notice capital adequacy and assets quality in order to increase their financial performance and try to improve their financial performance by enhancing these criteria. Further, given over increase in liquidity leads to the reduction of banks financial performance, determining the optimized level of liquidity by banks is suggested to the financial managers. It is also advised financial analysts and investors to pay close attention to the criteria of capital adequacy, assets quality, and liquidity, when they decide to purchase, sell or maintain a stock.

The present study findings are in accordance with the researches by Muhmada and Hashima (2015). Kabir study (2003) shows that increase in capital to total assets ratio raises banks profitability. Khoshnoudi et al. study (2012) indicated that increase in debt to assets ratio raises financial Vulnerability of the banking part and decreases the bank financial performance. Muhmada and Hashima survey (2015) states that capital adequacy, assets quality, earnings quality, and liquidity have a significant effect on Malaysian banks performance.

The following suggestions are offered for further future researches:

- In the present study, ROE is used in order to measure banks financial performance. It is suggested that other criteria such as stock return, Tobin's Q ratio, etc. are used to assess banks financial performance in future researches.
- It is suggested that researchers investigate the impact of CAMEL indicators on other accounting and financial variables such as stock risk, conservatism and interest management.
- It is suggested that researchers rate banks according to CAMEL indicators and assess the effect of these rates on banks financial performance in future studies.

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