Journal of Money and Economy
Vol. 17, No. 4, Fall 2022
pp. 437-456
DOI: 10.29252/jme.17.4.437

Original Research Article

The Impact of Banking Health Indicators on Return on Risk-Weighted Assets (RORWA) index in Commercial Banks: Evidence from Iran

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Received: 18 March 2022 Approved: 07 March 2023

The purpose of the present research is to introduce and calculate the Return on Risk-Weighted Assets Index (RORWA) in Iranian commercial banks and to investigate the impact of banking health indices on this index. RORWA is more accurate than other risk-adjusted indicators like RAROC or RORAC. Also, newer banking health indicators have been chosen to examine the impact of these indicators on the Return on Risk-Weighted Assets Index (RORWA), which are more contemporary. The statistical population of this study is 16 Iranian commercial banks listed on the Iran Stock Market from 2012 to 2021. The method used in the research is the Ordinary Least Squares (OLS) Regression using the data of the last 9 years of mentioned banks and also based on the statistical significance tests performed, the type of data is Panel Data. First, yearly data have been collected, and then we used Eviews software to analyze the information and test the hypotheses stated in the research. The results show that five of the six banking health indicators, including Capital Adequacy, Asset Quality, Management Quality, Earning Quality, and Systematic Risk, affect RORWA and their relationships with each other are direct. But Liquidity Quality does not affect RORWA index.

Keywords: RORWA, Banking Health Indicators, Commercial Banks, CAMELS, Risk-adjusted indicators
JEL Classification*:* G21, G32, G33, E59

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[DOI: 10.61186/jme.17.4.437]

1 Introduction

Banks play a key role in the Economy, and the failure of banks to perform their duties properly causes economic crises. Evaluating the performance of banks is important because of their impact on economic growth and the development of financial markets (Hosseini et al. 2019; Tehrani and Bigdelo, 2020; Soleimani et al., 2020). Due to the prominent role of banks in the economy, regulatory bodies such as the central bank and governments try to prevent disruption and fluctuation in their activities by monitoring their performance; because the instability in the financial performance of banks will create significant financial and social consequences. This fact highlights the importance of financial health (Seyedi et al., 2019). Therefore, measuring the performance of banks and the tools used can be of considerable importance. There are many performance indicators in the banking sector, but the downside to their generality is that they do not reflect the impact of various risks. So they cannot be the criterion of action and decision alone (Abdollahi Poor et al., 2021).

There are many traditional indicators to evaluate the performance of banks, such as Return on Assets (ROA), Return on Equity (ROE), Return on Capital (ROC), or Price to Earning (P/E), but one research has shown that these indicators are not complete and cannot accurately show the actual performance of banks (Saha et al., 2016). That's why we have to switch to risk-Adjusted performance metrics like RAROC and RORWA, however, based on a similar recent study, RAROC is not the most accurate and suitable indicator when the supervisory capital in less than zero but RORWA does not have this problem. So it will be more efficient and more accurate than other risk-adjusted ratios.

In this study, we have tried to cover this weakness to some extent by introducing the Return on Risk-Weighted Assets Index (RORWA). The concept of Return on Risk-Weighted Assets is important because, unlike other performance indicators, the impact of credit risk is seen in it; In this regard, it is more accurate and can help managers and stakeholders of bank reports in a more accurate analysis. Today, almost all banks and financial intermediaries have developed Return on Risk-Weighted Assets models to assess the profitability of their various business lines (Abdollahi Poor et al., 2021). On the other hand, in the next step, the factors affecting this index will be examined in the form of banking health indicators to create a deeper view of this index and the factors affecting it for clarifying through which levers can improve this index.

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One of the distinguishing features of this research is the calculation of the Return on Risk-Weighted Assets (RORWA) index to evaluate the performance of commercial banks listed on the Iran stock exchange and OTC. In this article, we seek to see how banking health indicators affect the Return on Risk-Weighted Assets Index (RORWA) index. Banking health indicators are mainly defined in the form of CAMELS indicators. We tried to use newer and more accurate proxies for CAMELS indicators, which have been less used in previous researches and are more contemporary. These indicators are introduced in the following parts.

In other words, the importance of this research could be described based on two viewpoints. First, RORWA is a risk-adjusted performance indicator in banks and at the same time is more accurate than other risk-adjusted indicators like RAROC or RORAC, because the denominator of this ratio is never negative, while when return and capital are negative in a bank, latter ratios will be positive, which is a huge misinformation. Second, contemporary indices for CAMELS indicators were chosen. To clarify, there are several measurements to evaluate the CAMELS indicators, and this study, it has been tried to use six new and less-common variables for these six CAMELS model variables which are described in the third part of this study (Research Hypotheses)

The following parts of this study is including a Literature review, Research hypotheses, Methodology, Results and discussion, and Conclusion.

2 Theoretical Framework and Literature Review

Due to the topic announced in this study, we have to review two types of articles; The first one is the research that has been done in the field of performance evaluation indicators and of Return on Risk-Weighted Assets (RORWA), which is due to the novelty of the subject, there are a small number of related articles in Iran, and the second is the research that has been done in the field of CAMELS indicators and its importance. Therefore, this section is mainly focused on international studies.

Given the main focus of this study on the Return on Risk-Weighted Assets Index (RORWA) performance appraisal index, it seems that reviewing other performance appraisal indices can help to understand the difference between this economic index and other earnings indices. Therefore, first, a general introduction to these indicators is given. Considering the level of significance and novelty of RORWA ratio and its calculation method in this research, in the second step, while introducing this index in more detail separately, the criteria by which this index can be calculated will be introduced. In the final

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step of this section, CAMELS indicators are explained according to the conceptual model of the research, and its relationship with the independent variable of the research is expressed.

2.1 Performance Evaluation indexes and RORWA

To examine financial performance indicators, we can first provide explanations about the types of these indicators. Financial performance indicators are generally divided into three general categories; the first is traditional indicators, which include balance sheet management indicators and management efficiency indicators (Tomuleasa, 2019). Management efficiency indicators measure the performance and success of a bank in generating profit and income compared to a specific situation and they provide a clear picture of the stability and financial health and performance of the bank (Abdollahi Poor et al., 2020). These indicators include Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and Gross Profit Margin (GPM) (Tomuleasa, 2019). Non-Interest operating Income (NIOI) is also a necessary tool for measuring the management efficiency index (Tomuleasa, 2019).

The second category is traditional and market-based indicators. Traditional and market-based indicators examine and measure how the stock market values a bank's operations in comparison with their estimated accounting and economic value (Abdollahi Poor et al., 2020). Market-based indicators include Total Share Returns (TSR) and Price to Earnings ratio (P/E) (Tomuleasa, 2019). The results of a study examining the performance of 12 European and American banks from 2001 to 2013 show that Return on Equity (ROE), Return on Assets (ROA), Return on Capital (ROC), and Price to Earning (P / E) do not provide accurate information about banks, given that they are the most widely used indicators for evaluating the performance of managers. This article shows us that these indicators have major limitations. For example, Price to Earning (P / E) does not take into account the risks in the banking system or cannot determine the difference between the business models of different types of banks. There is Earning in the P/E denominator and when this parameter is zero, this ratio becomes meaningless. For this reason, the article uses other methods, including the use of risk-adjusted indicators. The article points out that points out that to achieve the best performance, special attention should be paid to risk management so that the potential losses due to performance do not become a problem for the bank. (Saha et al., 2016). Therefore, each of the traditional and market-based indicators has weaknesses in evaluating the performance of the bank.

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The third category is risk-adjusted economic indicators, which include the Risk-Adjusted Return on Capital (RAROC), the Return on Risk-Adjusted Capital (RORAC), the ratio of Risk-Adjusted Return on Risk-Adjusted Capital (RARORAC), and the ratio of Return on Risk-Weighted Assets (RORWA) (Tomuleasa, 2019). Risk-adjusted economic indicators measure the amount of risk involved in creating financial return along with various dimensions (Abdollahi Poor et al., 2021). To evaluate the performance of banks, Efficiency-based indicators are used more than economic indicators due to the difficulty of calculating these indicators. Therefore, economic indicators such as Risk-Adjusted Return on Capital (RAROC) and Return on Risk-Weighted Assets (RORWA) have received less attention (Saha et al., 2016).

In a study, it was first found that banks listed on the Iran stock market are not in a good position in terms of the RAROC index. While the average RAROC for these banks was -9.24, the maximum ratio for these banks is barely more than zero. Meanwhile, in the fiscal year 2019, 12 of the 21 banks surveyed have identified net profits. Second, it became clear which of CAMELS' indicators affects this risk-adjusted economic ratio. This study showed that it is possible to improve Risk-Adjusted Return on Capital (RAROC) in banks. For example, reducing the capital adequacy ratio will increase this index numerically. The quality of management also has an inverse effect on this ratio according to the selected metrics (ratio of expenses to bank revenues). Also, the profit quality and the liquidity quality have a direct impact on this index. It is possible to improve the Risk-Adjusted Return on Capital in banks by improving the short-term debt coverage ratio (Abdollahi Poor et al., 2020). However, one of the parameters in the denominator of the Risk-Adjusted Return on Capital (RAROC) equation is a parameter called regulatory capital, which can be negative, and when the numerator and the denominator are negative at the same time, the total deduction is positive while not reflecting the actual condition of the bank. When the regulatory capital was negative, the base capital was used to calculate this ratio according to the instructions of the central bank. One of the reasons we seek to examine the interest rate to evaluate the performance of banks is that the denominator of the Return on Risk-Weighted Assets Index (RORWA) ratio cannot be negative in any way and can better reflect the real conditions of the bank.

RORWA evaluates banks' balance sheet to show how to better control and manage it and displays the costs of existing risks by demonstrating the bank's ability to reduce loan-loss provision based on the risk-adjusted in the bank.

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Return on Risk Weighted Assets or RORWA is the annual net income available to common shareholders divided by total Risk-Weighted Assets. Annual net income is obtained from the sum of Net Interest Income, Financial Margin, and Fees Commissions, and other revenues and the subtraction of two parameters of Operating expenditure and Loan-loss provision. In addition to these benefits of RORWA ratio in the internal management of banks, RORWA shows how the bank piles up against its most important competitors from different regions (Tomuleasa, 2019). RWA is the division of risk-weighted assets into total assets.

Dicanio and Montesi (2021) Sought to show the amount of damage caused by covid 19 to the banking systems of five European countries and the United States. In this research, the authors tried to evaluate the performance of banks by various economic indicators, including Return on Risk-Weighted Assets (RORWA). The results suggest ways to make safer the banking systems of the countries under study.

The Return on Risk-Weighted Assets (RORWA) is a ratio that can be analyzed to evaluate net income fluctuations to survey potential losses and capital needs in a bank. Another application of the RORWA index is that when large shocks occur in the bank, regulatory buffers can be checked by calculating this index (Basel, 2010), or in stress conditions, this index can be used to measure potential losses and default risk (Ayadi et al., 2012).

In a study, first introducing the importance of Risk Weighted Assets (RWA) and the Return on Risk-Weighted Assets (RORWA) and RWA density are discussed and then how they are calculated and the relationship between these two indices; finally the effect of RWA density on improving the performance of European banks in 2012-2014 is examined (Brie and Freon, 2016). In another study, a bank's performance was optimized to increase the accuracy of bank managers' decisions by a mathematical model based on RORWA and profitability assessment (Mokhov and Katernoga, 2020).

2.2 Banking Health Indicators and CAMELS

CAMELS model is one of the effective methods to evaluate the performance of banks by comparing important indicators including Capital adequacy, Asset quality, Management quality, Earnings quality, Liquidity quality, and market risk Sensitivity that show the results of banks' performance (Motamedi, 2012; and Al-abedallat, 2019).

In a study, CAMELS model was used to analyze the financial and operational condition of the State Bank of India and its subsidiaries for the

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period 2012-2015. The results showed that Hyderabad Bank of India is the best bank in the country in terms of capital adequacy ratio and management quality. This study suggests further studies and calculations of these ratios using financial statement information for future research. Also, the financial performance of Islamic banks in Bangladesh was examined using CAMELS indices. The results showed that in all three Islamic banks of this country, the performance of these banks in terms of capital adequacy, management performance, and asset quality has been better than other banks (Sharma, 2017).

In a research published in 2019, the importance and introduction of CAMELS indices and their impact on bank performance have been evaluated and the effect of CAMELS indices on the performance of 11 Jordanian banks has been evaluated using multiple linear regressions from 2003 to 2017. The capital adequacy of banks has been measured and in the end it has been concluded that using CAMELS indicators is one of the best things to evaluate the performance of Islamic banks (Al-abedallat, 2019).

In this study, it has been tried to evaluate the performance of banks and the impact of these indicators on the profitability of banks by introducing CAMELS indices. This study examines the financial information of banks using the Threshold panel regression during the years 1384 to 1393. The results show that capital adequacy values above the threshold of 10.23% have a positive and significant effect on the profitability of commercial banks in Iran, while values of capital adequacy below the threshold of 10.23% have a negative and significant effect on the profitability of banks. Also, the impact of other banking health indicators on the profitability of banks has been evaluated (Fattahi et al., 2017).

The lowest capital adequacy proposed in Basel II and III standards is 8 and 10.5% respectively. In a study that evaluates 26 commercial banks operating in Vietnam seeks to investigate Capital Adequacy Ratio (CAR), and to achieve this goal, it uses the two-stage DEA method and the information on the banking system of Vietnam during the years 2016 to 2020. The results show that more than 98% of the surveyed banks comply with the minimum Capital Adequacy Ratio (CAR) standard in Basel II. But it is further stated that more than 75% of banks should adopt more appropriate strategies to reach the optimal level (Nguyen and Luong, 2021).

In a research, it has been tried to determine the effect of Net Profit Margin (NIM) and return on assets (ROA) on Capital Adequacy Ratio (CAR) to achieve this goal, the information from the Indonesian banking system and multiple linear regression have been used. The capital adequacy of Indonesia's

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banking system experienced a significant decrease in 2018, and this was due to the performance growth of the country's banks this year. One of the reasons that have caused the Capital Adequacy Ratio (CAR) of the investigated banks to decrease is the increase in risk-weighted assets (RWA), which is also caused by the Net Profit Margin (NIM) and return on assets (ROA) parameters. The results show that the effect under investigation is quite significant (Putri et al., 2021).

According to the theoretical framework and research background, the results of some research confirm each other and on the other hand, the results of some other are contradictory. Although in most previous studies, especially domestic studies, the effect of CAMELS indices on various indicators of financial performance evaluation has been examined, the effect of CAMELS indices on the return on risk-adjusted assets has been less evaluated. Therefore, in this study, the effect of CAMELS indices on RORWA is evaluated in accordance with the information constraints of banks' financial statements, while calculating RORWA for commercial banks accepted in the Iran stock market.

3 Research Hypotheses and Model

One of the best ways to improve the performance of banks is to use the Return on Risk-Weighted Assets (RORWA) index. A study is obtained by calculating the RORWA of 121 European banks. The Return on Risk-Weighted Assets calculation seeks to manage banks' balance sheets according to income and expenses. After the great banking crisis of 2008, the importance of using RORWA and paying attention to banking health indicators became more and more. Declining banks customers trust around the world, including the European Union, has led bank managers to consider evaluating benchmarks to improve bank performance, one of the most important indicators of which is RORWA. In the RORWA denominator, there is a very important parameter called Risk Weighted Assets (RWA) that shows the role of risk in this index. Calculating RORWA has many benefits for banks, including balance sheet management and risk-taking, measuring the return on income and costs based on accepted risk, showing how to reduce loan losses and examine the bank's position relative to competitors (Sinn, 2013).

CAMELS model is mainly used for ranking banks based on quantitative criteria to measure the financial health of the bank and the quality of its management (Datta, 2012).CAMELS analysis is one of the best ways to evaluate the performance of banks by examining financial information, which identifies the way to improve the performance and weaknesses of the bank

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and shows the position of the bank in the banking industry compared to its competitors. One of the advantages of the CAMELS model is that it efficiently evaluates the performance of banks and predicts the risks in banks. In a report, by examining a number of important ratios, the performance of an Iranian bank has been evaluated by comparing the results with the ratios of other banks based on the information obtained from the financial statements of an Iranian bank. These results can help managers a lot in decision-making and control situations (Rostami, 2015; Ahmadian, 2013).

As mentioned above in previous sections, in this study, the impact of CAMELS indices on RORWA is investigated. Below, the six hypotheses of this paper are mentioned, and then based on the conceptual model, variables and their theoretical background are explained

H1: Capital Adequacy Ratio (CAR) directly affects Return on Risk-Weighted Assets (RORWA) in Iranian commercial banks.

H2: Earning Assets to Total Assets Ratio (EATAR) directly affects Return on Risk-Weighted Assets (RORWA) in Iranian commercial banks.

H3: Cost Revenue Ratio (CRR) directly affects Return on Risk-Weighted Assets (RORWA) in Iranian commercial banks.

H4: Net Interest Margin (NIM) directly affects Return on Risk-Weighted Assets (RORWA) in Iranian commercial banks.

H5: Debt Coverage Ratio (DCR) directly affects Return on Risk-Weighted Assets (RORWA) in Iranian commercial banks.

H6: Systematic Risk directly affect Risk-Weighted Assets (RORWA) in Iranian commercial banks.

The conceptual model of the research is shown in Figure 1.

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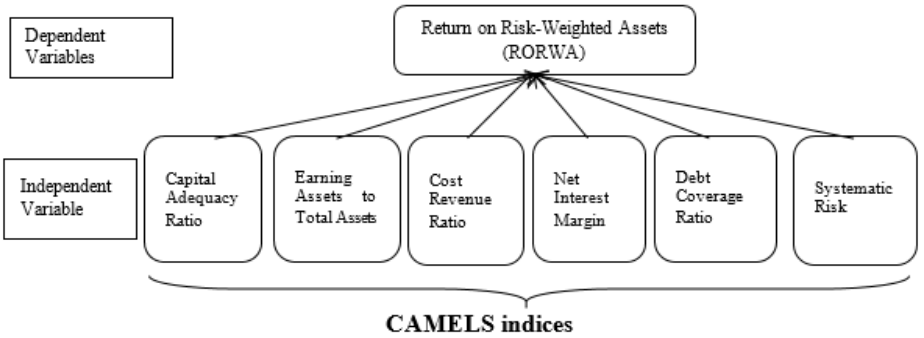

Figure 1. Research Model

There are several measurements to evaluate the CAMELS indicators, and in this study, we use six variables for these six CAMELS model variables. These variables are Capital Adequacy Ratio (CAR) which is equal to the sum of the tier 1 capital and tier 2 capital divided by Risk Weighted Assets (RWA) for measuring the quality of capital, Earning Assets to Total Assets Ratio (EATAR) for calculating the quality of assets, Cost Revenue Ratio (CRR) which is equal to total revenue to total costs for evaluating management quality, Debt Coverage Ratio (DCR) which is equal to cash assets on short-term debt to measure Liquidity circumstance. Cash assets include the sum of cash balance, the value of participation bonds, and bank receivables from other banks, and short-term debt includes debts to other banks, debts to the central bank, short-term savings deposits, and sight deposits, Net Interest Margin (NIM) for calculating earnings quality which is equal to the difference between operating income and operating expenses to the total loans and finally Systematic Risk is obtained by dividing the total assets of the bank by the total assets of the banking network (Rostami, 2015; Al-abedallat, 2019).

Past studies have shown that it is possible to improve the Risk-Adjusted Return on Capital (RAROC) in banks. Therefore, it can be concluded that the calculation of Return on Risk-Weighted Assets (RORWA) can be effective in improving the performance of banks. In addition, considering that the regulatory capital is present in the denominator of the RAROC equation and the regulatory capital can be negative in nature, it can be difficult to define this ratio, and despite the negative parameters of the numerator and

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denominator, the total fraction can be positive. While the conditions of the bank are inappropriate. But in the ratio of Return on Risk-Weighted Assets (RORWA), the denominator, risk-weighted assets (RWA) can never be negative, so the analysis of this ratio will be more efficient and accurate. For this reason, by using six variables in the CAMELS model, we can examine the Return on Risk-Weighted Assets (RORWA) and seek to evaluate the performance of banks using it.

4 Methodology

The data of this research are collected using the data of financial statements and explanatory notes and notes related to the risk of banks listed on the Tehran Stock Exchange and OTC by accessing historical data related to the statistical population of the research through the comprehensive information system of publishers website, and without interfering with the data, we review and analyze this information. The statistical population of this research includes banks listed on the Iran Stock Exchange and OTC. Order in data dissemination and reporting format stability in banks are the main reasons for choosing these banks as the statistical population of the research. In Iran, four banks belong to military organizations and have been merged in recent years, and naturally, there is no accurate financial information about them in the last 3 years. There is another bank that is a development bank and cannot be considered a commercial bank, so we will examine the performance of 16 commercial banks in the Iranian banking system. The research period is 10 years including the fiscal year ending March 2012 to the fiscal year ending March 2021. Necessary information about all variables is available for all years under review. Therefore, the selection of the statistical sample is non-random and non-probabilistic. In this research, in addition to the mentioned cases, books, authoritative international and domestic scientific research articles, doctoral dissertations and master's theses from creditable universities have been used to collect data. EVIEWS and SPSS softwares were also used to classify and analyze the data.

The measuring instrument is reliable because the financial statements of banks are audited and approved by an independent auditor and this information is published by the competent regulatory authorities and their accuracy can be verified. On the other hand, it will have sufficient validity due to the identification of indicators for each of the variables in this study that these indicators have been used in the theoretical foundations and literature and the background of the subject and the relevance of that indicator to the variable has been confirmed.

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The main method of data analysis is the use of multivariate regression analysis. In this research, descriptive statistics have been used to describe samples and variables by statistical and dispersion indicators. In inferential analysis, multivariate linear regression was used to test the research hypotheses to determine the relationship between variables.

Multivariate linear regression is presented as Equation 1. Therefore, according to the dependent and independent variables (Figure 1), the regression model is expressed as Equation 1 in this study (Ramli, 2015; Zakhirov, 2018).

$$RORWA_{i,t} = \beta_0 + \beta_1 CAR_{i,t} + \beta_2 EATAR_{i,t} + \beta_3 CRR_{i,t} + \beta_4 NIM_{i,t} + \beta_5 DCR_{i,t} + \beta_6 SM_{i,t} + \varepsilon_{i,t} \quad (1)$$

In Equation (1), i is the index of the bank counter and t is the index of the time counter, thus:

$RORWA_{i,t}$ = Return to Risk-Weighted Assets for bank number i at time t

In Equation 1, other indicators instead of the usual CAMELS indices have been used. In this equation, we have used Earning Assets to Total Assets Ratio (EATAR) instead of Asset Quality (AQ), which, as its name implies, is equal to Earning Assets to Total Assets Ratio. The Cost Revenue Ratio (CRR) has also been replaced by Management Quality (MQ), which is equal to the total income to the total expenses of the bank. In Equation 1, Net Interest Margin (NIM) is used instead of Earning Quality (EQ), which is equal to the difference between operating income and operating expenses to the total asset. And instead of Liquidity Quality (LQ), we used Debt Coverage Ratio (DCR), which is equivalent to Cash Assets on short-term debt. Cash assets include the sum of cash balance, the value of participation bonds, and bank receivables from other banks, and short-term debt includes debts to other banks, debts to the central bank, short-term savings deposits, and sight deposits and Systematic Risk is obtained by dividing the total assets of the bank by the total assets of the banking network (Rostami, 2015; Al-abedallat, 2019).

The Return to Risk-Weighted Assets is calculated through Equation 2 for banks listed on the Iran Stock Exchange and the OTC (Tomuleasa, 2019).

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$$RORWA = \frac{Net\ Income}{Risk\ weighted\ Assets} \quad (2)$$

In Equation 2, Net Income is calculated as the deduction of all expenses from the bank's income, the amount of which can be extracted from the banks' financial statements (Hosseini et al., 2018).

5 Results and Discussion

In this section, the data are analyzed and the effect of independent variables on the dependent variable is described. First, the research variables were calculated using EXCEL spreadsheet software, and then the data were analyzed as panel data using SPSS and EVIEWS software.

Descriptive statistics information includes the Mean, Median, Maximum, Minimum, and Standard Deviation of each of the research variables including RORWA, Capital Adequacy Ratio (CAR), Earning Assets to Total Assets Ratio (EATAR), Cost Revenue Ratio (CRR), Debt Coverage Ratio (DCR), Net Interest Margin (NIM) and Systematic Risk which are shown in Table 1.

Table 1
Descriptive statistics of Variables

Description / Variable	RORWA	CAR	DCR	CRR	EATAR	NIM	SM
Mean	-0.016646	-0.017312	0.830621	1.096920	0.649180	-0.082278	0.025374
Median	0.005100	0.064441	0.527183	1.096920	0.701488	0.000237	0.012714
Maximum	0.096430	1.027467	8.265261	4.954128	0.941812	0.088696	0.134867
Minimum	-0.846553	-3.973062	0.004809	0.057489	0.098125	-1.541448	0.000000
Std. Dev.	0.122602	0.482056	1.030535	0.539821	0.175271	0.254276	0.027555
Jarque-Bera	4901.954	11919.86	2603.526	3696.543	38.74054	1842.698	87.03705
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	144	144	144	144	144	144	144

Source: Research Findings

To investigate which of the pooled or panel models is suitable for estimating the research regression models, the Fisher test is used. Fisher test was performed on the model mentioned in the research and it was found that according to the level of Probability which shows 0.0001, the level of Degree of Freedom which shows 15,112 and the level of Statistic which shows 3.51767 for this test, the panel model is suitable for estimating the research model.

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Table 2
Fisher Test

Effects Test	Statistic L	Freedom D	Prob
Cross-section F	3.51767	15,112	0.0001

Source: Research Findings

Hausman test is used to choose between fixed and random effects patterns. Based on the Probability level of Hausman test which shows 0.261 with a Degree of Freedom 7, the Random effects model is accepted.

Table 3
Hausman Test

Test Summary	Statistic L	Freedom D	Prob
Cross-section Random	1.115842	7	0.261

Source: Research Findings

Each of the six independent variables mentioned in the study was examined in unit root tests called ADF–Fisher Chi-Square test. The results indicated that the research variables are stationary.

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Table 4
Stationary Test

Variables	Stationary Test	Prob
CAR	ADF – Fisher Chi-Square	0.001
EATAR		0.012
CRR		0.000
NIM		0.002
DCR		0.000
SM		0.022

Source: Research Findings

Table 5
Final Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.071473	0.013435	-5.320023	0.0000
CAR	0.149026	0.016841	8.849138	0.0000
EATAR	0.040453	0.017695	2.286112	0.0241
CRR	0.016486	0.005322	3.097502	0.0025
NIM	0.05993	0.016238	3.690792	0.0003
DCR	0.001497	0.000867	1.726035	0.0871
SM	0.61766	0.182147	3.390994	0.0010

Source: Research Findings

Table 6
Effects Specification

Statistics	
R-squared	0.844777
Adjusted R-squared	0.815673
S.E. of regression	0.034890
F-statistic	29.02594
Prob.(F-statistic)	0.000000
Mean dependent var	0.020914
S.D. dependent var	0.086427
Sum squared resid	0.136339
Durbin-Watson stat	1.166110

Source: Research Findings

R-squared is a number between 0% and 100%, indicating that the higher the value, the independent variables explain better the variability of the dependent variable. Table 6 shows R-squared is 84% which is an appropriate result.

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According to the results in table 5, which show that the probability level of the Capital Adequacy Ratio (CAR) is less than the confidence level of 0.05, this variable can affect the Return on Risk-Weighted Assets (RORWA) of banks, which due to its positive coefficient, this relationship is direct. In fact, as the Capital Adequacy Ratio increases, the Return on Risk-Weighted Assets (RORWA) increases, and vice versa. Given the Capital Adequacy Ratio (CAR) equation, it is clear that the actions of bank managers to reduce Risk Weighted Assets (RWA), such as the sale of tangible assets that the bank does not use specifically, lead to an increase in the Return on Risk-Weighted Assets (RORWA) and improve the performance of the bank.

Table 5 shows the probability level of the Earning Assets to Total Assets Ratio (EATAR) is less than the confidence level of 0.05, so this variable affects the Return on Risk-Weighted Assets (RORWA) and this relationship is direct because the coefficient of this variable is positive. This means that if the ratio of the Earning Assets to Total Assets Ratio (EATAR) increases, the Return on Risk-Weighted Assets (RORWA) increases, and vice versa. As the name implies, if bank managers seek to increase the Return on Risk-Weighted Assets (RORWA) index and improve performance, they can achieve their goal by increasing the bank's earning assets by taking measures such as purchasing assets from which they can earn income.

The same result is true for the effect of Cost Revenue Ratio (CRR). Since the probability level of the Cost Revenue Ratio (CRR) is less than the confidence level of 0.05, this variable affects the Return on Risk-Weighted Assets (RORWA) of banks, which due to its positive coefficient, this relationship is direct.

The results also show that the probability level of Net Interest Margin (NIM) and Systematic Risk is less than the confidence level of 0.05, so these variables affect the Return on Risk-Weighted Assets (RORWA) and these relationships are direct. This means that the way to increase the Return on Risk-Weighted Assets (RORWA) index and improve the bank's performance is to increase operating revenue or reduce operating costs (according to the equation of variables). The interesting point is that the Debt Coverage Ratio (DCR) does not affect the Return on Risk-Weighted Assets (RORWA) due to the confidence level of 0.05 .It means that, based on the conditions and data of this study, we cannot find any evidence of the effect of liquidity quality on RORWA in commercial banks.

In other words, there is a kind of statistical relationship between health indicators in banks and RORWA. Commercial banks can improve their Return on Risk-Weighted Asset ratio by improving banking health indicators

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including Capital Adequacy Ratio, Asset Quality, Management Quality, Earning Quality, and Market Risk Sensitivity, although based on the regression results Liquidity Quality could not affect RORWA. For more details about the liquidity quality and its statistical relationship with RORWA, it can be asserted that based on our selected proxy for this index and also the confidence level in this research (95%), liquidity quality cannot affect RORWA ratio. If we change the confidence level to about 90% or alter the related proxy, the result will probably be changed.

It means that observing the health indicators, spontaneously leads to improving profitability in banks. The other important aspect of this result is the dependent variable. Because of the nature of RORWA ratio, it could not represent misinformation like other similar ratios mentioned in the second and third sections of this study. This significant distinction is well developed in the first paragraph of the following part.

6 Conclusion and Suggestions

In this study, it was determined which of the banking health indices affects RORWA. The importance of this research finding is of two views. First, RORWA is a risk-adjusted performance indicator in banks and at the same time is more accurate than other risk-adjusted indicators like RAROC or RORAC, because the denominator of this ratio is never negative, while when return and capital are negative in a bank, latter ratios will be positive, which is a huge misinformation. Second, contemporary indices for CAMELS indicators were chosen which have been introduced in previous sections.

To make a comparison between the result of this study and previous similar studies, it should be mentioned that in a paper written by Abdollahi Poor et al in 2020, while measuring the Risk-Adjusted Return on Capital (RAROC) ratio, as risk-adjusted performance indicators, based on the proposed model, it became clear that banks accepted in the Iran Stock Market are not in a suitable position in terms of this index. This Study said that Capital Adequacy ratio, Management Quality, Earnings Quality, and Liquidity Quality affect the RAROC. In other words, by amelioration the mentioned indices, RAROC index will be improved. On the other hand, Asset Quality and Sensitivity to Market Risk have no important impact on RAROC. However, Examining the effect of six banking health indicators on the Return on Risk-Weighted Assets (RORWA), which has tried to use less-common indicators and variables in this study, shows us that the Capital Adequacy Ratio (used for Capital Adequacy), Earning Assets to Total Assets Ratio (used for Asset Quality), Cost Revenue Ratio (used for Management Quality), Net Interest Margin

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(used for Earning Quality) and Systematic Risk (used for Market Risk Sensitivity) have a direct impact on RORWA improvements, but Debt Coverage Ratio (used for Liquidity Quality) has no effect on this index, given the confidence level of 0.05.

It can be concluded that banks' managers by observing and keeping the CAMELS indexes at proper levels, not only will succeed to meet supervisory obligations but also could improve profitability by high quality. This high-quality income is derived from the characteristics of the RORWA and its intrinsic risk-adjusted nature.

For upcoming research, it is highly recommended to expand the factors affecting RORWA like macroeconomic indices. Also, researchers who may have access to the financial statements of other commercial banks can add those new data to run the model again. Also, dividing banks into large-scale, medium-sized and small ones could bring up new results. Moreover, this research has been done for commercial banks; Future research could shed light on other types of banks in Iran in an aspect of investigating the factors affecting RORWA. For example, financial statements of some state banks have been recently published for the first time, which could be used in the following studies. Finally, the model in this research ran for Iranian banks, as an emerging market, it seems that the result for other countries can be rather different. So we propose to do this research in other countries as well.

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