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The effect of capital and liquidity risks on financial performance: An empirical examination on banking industry

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ABSTRACT

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The present study's primary goal is to examine selected financial risks and financial performance of commercial banks listed on the Bahrain Bourse from 2014 to 2021. However, as independent factors, chosen financial hazards include capital risk, liquidity, and bank size as a control variable, while financial performance as a dependent variable is assessed by return on equity. The panel regression analysis of data technique was used to attain the study goal. Whereas the statistics for the banks were gathered from their annual financial reports. A fascinating conclusion was the discovery of strong correlations between capital risks, bank size, and financial performance. The findings also revealed a negligible link between liquidity concerns and financial success. Due to the limitations of the present study, several ideas for future research may be suggested, such as performing research on other financial hazards, other financial institutions, and other financial performance metrics that are not included in the current research.

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1. Introduction

Banks operate with a higher net profit compared with other sectors, where the financial sectors in the GCC region is the largest market-based national economy in western of Asia. The commercial bank performs an important role in the economy different from accepting deposits and giving loans they are also used to regulate the flow of fund in circulation by the government (Ali & Oudat, 2020; Alrabai, Al-Othman, Al-Dalabih, Taber, & Ali, 2022; Harban, Ali, & Oudat, 2021; Oudat & Ali, 2021). The primary goal of banks includes risk transfer and liquidity of financial assets. The health of the financial system is determined by the financial performance of the institution (Jawabreh et al., 2022; Shibly et al., 2021; Wang et al., 2021) which show the strength, weakness, liquidity also, profit earned for a period (Akinbo-Balogun, 2022). Risk management is the process of evaluating and projecting financial risk (Harban et al., 2021; Oudat & Ali, 2021). Financial risk faced by the institution results from changes that occur in the market (forces of demand and supply) and other external factors which are beyond the control of the institution (Adusei, 2022; Kesraoui et al., 2022). The credit risk occurs when the counterparty default in making payment in principal or interest or both at the agreed period leading to default risk which is a loss to the bank, in addition credit risk can also occur when customers' (borrowers) rating is deteriorating (Akinbo-Balogun, 2022; Ali & Oudat, 2020; Boateng, 2019; Harban et al., 2021; Oudat & Ali, 2021). Some of the major challenges faced by lots of companies are the financial risks (Adusei, 2022; Landi et al., 2022; Olivia et al., 2022), especially those on the stock market when the valuation of these companies depends on the market conditions (Harban et al., 2021). Financial risks are among the key challenges faced by many companies, where the value of companies depends on market conditions. Risk management arrives as an investor tries to identify the risk for investment losses, followed by reasonable efforts to investigate these possible risks on the financial results of a specific financial entity (i.e., bank) likely monetarily. This risk is calculated in relation to risk management (Harban et al., 2021; Mohammadnazar & Samimi, 2019; Oudat & Ali, 2021). The financial performance of the bank is one of the

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attributes that are used by investors to recognize equity investments to help them discover the bank's strengths and use the related financial performance knowledge to make a sound decision (Almagtome & Abbas, 2020). As part of the financial system, wise economic banks make a significant contribution to the development of a nation. Therefore, the financial performance of banks is crucial as it also boosts the living standards of people at large. There have been many studies done on performance on financial institutions such as banks. The findings of these studies indicate different outcomes on financial performance globally (Kioko et al., 2019). The success of the banks over the years is measured by return on asset and return on equity (Adusei, 2022; Ali & Oudat, 2020; Harban et al., 2021; Olivia et al., 2022; Paul & Musiega, 2020). Risk can yield pleasant or unfavorable outcomes depending on the degree of risk taken has a direct effect on the potential return (Wani & Ahmad, 2015).

2. Literature review

There has been a significant amount of empirical research in recent years on the impact of financial risk management on financial performance. The banking sector, the main player in the role of financial intermediation in developing countries, is at the heart of the financial system as per (Ali & Oudat, 2020; Harban et al., 2021; Oudat & Ali, 2021). Following the financial crisis, the creditors were strongly considered by the financial performance of their firms, thereby urging banking companies to understand the need for successful performance-enhancing measures while failing to define goals. Although there were exemplary banks which collapsed or were bailed out by governments during the crisis period (Harban et al., 2021). In this sense, while Equity Return (ROE) has been expansively used as metrics of financial efficiency, it is notable that the problem faced with ROE is that the calculation shortfall, which requires very high financial leverage, is likely to generate a higher ratio. However, the risk of collapse would be higher for banks with high financial levers (Quarshie & Djimatey, 2020). Thus, banking with a rising financial condition is more likely to lose its market share, especially during times of industry deflation (Wu et al., 2020). Thus, in recent years, a substantial number of (empirical) inquiries have been conducted in the issue of financial risk on financial performances (Ali & Oudat, 2020). Financial risk can be triggered by changes in interest rates, currency exchange rates, stock price fluctuations, default risk and liquidity differences that affect cash flows and thus their financial performance (FP) and competitive position in commodity markets (Ali & Oudat, 2020; Jawabreh et al., 2021; Saleh et al., 2021).

The remainder of the paper is structured as follows. First is the introduction to financial performance and banking in Bahrain, research issue, research objective, and the benefit of the research. The second part deals with the review of the literature of the most recent studies and hypotheses, followed by the study of testing techniques and data collection. The fourth section is devoted to the review of results. Conclusions on the key results are discussed in the final portion of the debate on the empirical findings.

2.1 Financial Performance (FP)

Financial performance is described as the financial condition in a certain period (Alrabei et al., 2022; Jawabreh et al., 2022) which is assessed using several indicators such as capital adequacy, liquidity, and profitability (Olivia et al., 2022). Financial performance can be influenced by internal factors, including cash flow, credit risk, operational risk, market risk, capital adequacy, and liquidity risk, and also by external factors, including inflation rate, exchange rate fluctuations, competition between banks or non-banks, and technological developments (Adusei, 2022). The financial performance (FP) of financial institutions can be assessed by explicit or implicit factors (Jawabreh et al., 2022; Shniekat et al., 2022; Thuneibat et al., 2022). Internal factors may be bank-specific determinants, while external factors may be industry-specific indicators and macro-economic predictors. Financial risks are a major challenge faced by many businesses, especially on the stock exchange, since they are dependent on market conditions (Ali & Oudat, 2020). This is attributed to the unexpected fluctuation in financial risks. In this regard, it is important to remember that a variety of risk forms impact the financial performance of the company adversely (Kioko et al., 2019). There are a variety of types of risk in the concept of financial risk. Financial risk emerges because of falls in the stock market due to asset volatility. It is also generally correlated with debt, with the probability that balancing obligations cannot be met (Al Nawaiseh et al., 2021; Alawamleh et al., 2021; Landi et al., 2022; Shibly et al., 2021; Wang et al., 2021).

2.2 Capital Risk and Bank Performance

Capital risk is described as the bank's capacity to cover volatile assets. It is measured as the difference between asset market prices and equity liabilities. Capital plays the most imperative role against any possible danger, particularly when protections are insufficient, then central banks have turned to raise capital banks to ensure that all stakeholders, especially depositors, have the margin of protection (Ali & Oudat, 2020; Harban et al., 2021; Kanga et al., 2020; Oudat & Ali, 2021). In the financial results of the listed Bahrain Bourse business banks analyzed the effect of risk on the funding (capital risks, exchange rate risk, other risk liquidity operational risks). In the five years between 2014 and 2018, 11 out of 18 banks were investigated in Bahrain. The findings showed that the efficiency of the bank's capital risk is substantially related (Ali & Oudat, 2020). Similarly, (Sukmadewi, 2020) has examined the effect on efficiency funding of 23 banking companies listed on the Indonesian stock exchange between 2016 and 2018 of the capital adequacy ratios as well as other ratios. The findings showed that the

equity ratio had a positive effect in terms of returns on assets on banks' profitability. In addition, Ahmad et al. (2019) examined 33 banks in Pakistan between 2008 and 2018, and studied the effect of risks on their results. The findings showed that capital adequacy has a positive effect on banks' profitability.

2.3 Liquidity Risk and Bank Performance

Liquidity risk defines the credit prices for these bank customers to meet the demands of the depositors to withdraw their money (Ali & Oudat, 2020; Harban et al., 2021; Kesraoui et al., 2022; Oudat & Ali, 2021). In other words, if a corporation does not have adequate resources to fulfill its contractual promises or expectations in a particular period, they risk being faced with the (Noor, 2019). Highest liquidity ratios thus are assumed to be stable for enterprises, although corporations are more likely to default at high debt-low liquidity levels (Adusei, 2022; Harban et al., 2021; Jihadi et al., 2021). This is because the low liquidity risk means that banks struggle to provide credit for income (Kesraoui et al., 2022). Therefore, if the bank did not have any adequate liquidity, its everyday activities would not be covered (Noor, 2019). Harban et al. (2021) analyzed the effect on financial performance of commercial banks listed on the Bahrain Exchange on the financial risk (capital risk, exchange rate risk, liquidity risk). The coverage of analysis in Bahrain from 2014 to 2018 for 11 of the 18 banks. Data obtained from the Bahrain Exchange stock database was based on the availability of data. The findings showed that liquidity risk was negligible. Juma and Atheru (2018) examined the impact of risk Liquidity, credit risks, foreign exchange risk interest rates risk on the return of 42 commercial banks assets to Kenya in 2010–2015 were, by comparison. The findings showed that liquidity risk has a considerable positive impact on banks' profitability. It is worth noting that liquidity can influence bank output in a country, while liquidity has little effect, or may even have a negative impact, in another country. The point is that the spatial background disparity will lead to the effects of these banks' disparities.

2.4 Bank Size and Financial Performance

The bank size is indicated by the total assets owned. Others showed that the size of the bank can moderate the effect of liquidity on the bank's financial performance (Ali & Oudat, 2020; Harban et al., 2021; Jekwam & Hermuningsih, 2018; Oudat & Ali, 2021). The bank size can be seen based on the total assets owned; the higher the amount of the assets owned by the bank, the greater the bank's financial ability. Size is thought to influence the profit earned by the bank, where the larger the bank size, the greater the profit earned by the bank. Large banks tend to gain high trust from customers because large banks have many assets and provide a wider range of financial services (Al-Alkawi, 2021). In addition, large-scale banks tend to minimize liquidity risk because banks can channel their credit effectively, thereby improving financial performance. The presence of a large bank size can strengthen the positive effect of liquidity risk on financial performance (Alsammarrace et al., 2019).

2.5 Research Framework

Fig. 1 explains the relationships between financial risks (independent variables) and financial performance (dependent variables):

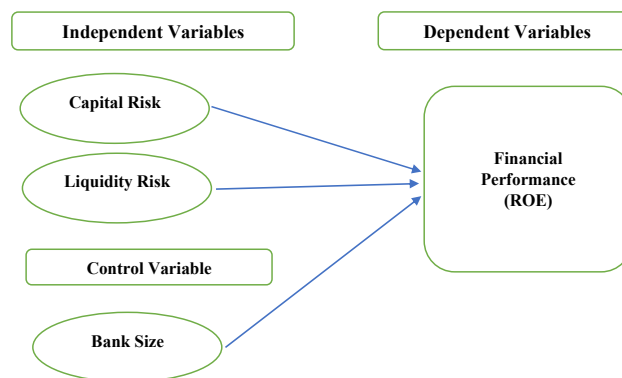


Fig. 1. The proposed method

3. Research Methodology

3.1 Research Sample and Data Collection

The key aim of current research is to evaluate the financial risk performance of Bahrain-listed commercial banks. However, there is a research population of all commercial banks listed in Bahrain Bourse covering the period. The study period consisted of (2014-2021). The category of data is secondary data, extracted by each bank and Bahrain Bourse website from its yearly

report. Consequently, the Panel data regression was used to assess the existing study hypotheses. However, the regression in the panel data may be tested by different models (fixed-effects, pooled fewer squares and random effects) (Gujarati, Porter, & Gunasekar, 2012). The OLS is the suitable model for the present analysis, among other aspects, depending on the findings of both models. In addition, the diagnostic tests including multicollinearity, heteroscedasticity, autocorrelation ship and normality have been performed to ensure that the results are accurate to be tested.

3.2 Variable Measurement

The current study defined the variable measurements described by the following table, based on numerous previous studies carried out in fields (e.g., Al-Alkawi, 2021; Ali & Oudat, 2020; Harban et al., 2021; Noor, 2019; Oudat & Ali, 2021).

Table 1
Definition of the variables

Type of the variable	Variable	Operationalization	Measurement
Independent Variable	Capital Risk (CR)	The absence of the capital needed as the last financial fund and storage facility	bank's capital / risk - weighted assets
	Liquidity Risk (LR)	The potential for a bank not to satisfy short-term financial demands as needed.	Total loans / Total Deposits * 100
Dependent Variable	Return on Equity (ROE)	ROE illustrates how bank management successfully deploys shareholder capital.	Net income / shareholders' equity of the bank
Control Variable	Bank Size (BS)	The total assets of the period	Total assets

3.3 Research Model

In order to test the current study hypothesis, the following model will be used to analyze the multiple regression analysis approach appropriate for the data:

$$ROE_{it} = \alpha_0 + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 BS_{it} + \varepsilon_{it}$$

In which intercepts of α_0 , β_1 , β_2 , and β_3 : indicated the approximate i -bank factor at the time t ; ROE: indicating the equity return, $\beta_1 CR$: the credit danger; $\beta_2 LR$: and the liquidity risk; and $\beta_3 BS$: the size of the bank; and ε_{it} : the error word. However, the related mathematical procedures are used to assess and evaluate the interaction between the variable dependent and dependent. They are analytical, correlation and multiple regression statistics.

4. Empirical analysis

4.1 Descriptive Analysis

Table 2 shows the descriptive statistics of the variables. It contains a range, mean, minimum, maximum, standard deviation. The results show that the mean value of ROE is 0.090 with minimum of -0.175 and maximum of 0.151 as well as the standard deviation of 0.069, Moreover, the table results display that the mean value of capital risk is 0.127 with minimum of 0.079 and maximum of 0.173 as well as the standard deviation reached 0.022. Thus, it can be justified that these banks have realized that capital plays an imperative role against all probable risk, particularly in case of inadequate provisions, therefore, these banks have turned to raise banks' capital to assure a margin of safety for all stakeholders and particularly depositors. Therefore, the findings reveal that the mean value of liquidity risk is 0.079 with minimum of 0.028 and maximum of 0.453 as well as the standard deviation of 0.067, which shows that these banks have credit allocations to the balance of credit of those bank customers to satisfy depositors' requests to withdraw their money. This means that these banks can secure its daily operations and they are effective in assigning credits and in engendering profits. Meanwhile, the results also show that the mean value of Bank size is 3,722,398 BD, with minimum of 596,648.0 BD, while for maximum size of assets is 11,064,776.0 BD, as well as the standard deviation of 3220485.068. Thus, it is obvious that the amounts of total assets in the commotional banks is quite enough to secure banks from risks.

Table 2
Descriptive Statistics of Variables for Commercial Banks

	N	Minimum	Maximum	Mean	Std. Deviation
Return on Equity (ROE)	40	-0.175	0.151	0.09073	0.069106
Capital risk (CR)	40	0.079	0.173	0.12783	0.022124
Liquidity risk (LR)	40	0.028	0.453	0.07945	0.066630
Bank Size (BS)	40	596,648	11,064,776	3,722,398	3220485

4.2 Correlations Analysis

To investigate the interaction between variables and to show whether variables would create issues with predictions, a Pearson correlation test was conducted. Table 3 displays Pearson correlation coefficients among the research variables. Gujarati et al.

(2012) indicated that the high correlation coefficient does not fit the statistical analysis related to the multiple regression model if its value exceeds (80%). It is clear from Table 3 that the correlation coefficient between the independent variables ranged between (0.461- 0.058) and that it is suitable and good for conducting statistical analysis, and it is free from the problem of multiple correlation between the independent variables.

Table 3
Pearson Correlation Matrix for Commercial Banks

	Bank Size	Return on Equity	Capital risk	Liquidity risk
Bank Size	1			
Return on Equity	.461**	1		
Capital risk	.194	.402*	1	
Liquidity risk	.159	-.025	-.058	1

4.3 Regression Results

Table 4 demonstrates the findings of the financial risks on bank performance. For capital risk indicates that increasing by 1 % of the variable will increase 0.993% on ROE for commercial banks. It also shows a significant impact between capital risk and ROE ($P > 0.030$). It means that banks will be able to cover risky assets. In another meaning, banks with higher ratios of capital adequacy will cover potential losses as capital adequacy has a prime effect on return on equity. This result is supported with previous studies (Ahmad et al., 2019; Sukmadewi, 2020). Other results revealed a positive relationship between bank performance and capital adequacy (Ali & Oudat, 2020; Harban et al., 2021; Oudat & Ali, 2021). The first hypothesis is shown to have substantial association between capital risk and financial efficiency. In terms of liquidity risk, it shows the increment by 1% of it will decrease 0.075% on ROE for commercial banks. It shows insignificant impact for liquidity risk on ROE ($P > 0.610$) for commercial banks. This ensures that the banks have not ample capital to fulfill their liabilities or financial commitments in a given period. This is supported by a number of studies that have shown an insignificant association between liquidity risk and bank efficiency (Ali & Oudat, 2020; Harban et al., 2021). The second hypothesis is agreed since the correlation between the liquidity risk and financial results of commercial banks is negligible. In comparison, the bank size indicator suggests a 1% rise in the ROE by 8.807%, It also shows a significant impact between credit risk and ROE ($P > 0.007$). It means that banks will be able to secure risky assets. In another meaning, banks with higher bank size are able to create profits. This result is supported with previous studies (Al-Alkawi, 2021; Harban et al., 2021). The third hypothesis is shown to have a substantial association between Bank size and financial efficiency.

Table 4
Coefficients for the First Model (Commercial Banks)

	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	-0.063	0.058			-1.094	0.281
Capital risk	0.993	0.440	0.318		2.257	0.030
Liquidity risk	-0.075	0.145	-0.072		-0.515	0.610
Bank Size	8.807	0.000	0.410		2.882	0.007

5. Conclusion

The main purpose of the current research is to analyze selected financial risks and financial performance of commercial banks listed on Bahrain Bourse. Panel Regression analysis using panel data was applied in the current research to assess financial risks and results of five commercial banks listed on the financial sector of Bahrain Bourse for the period 2014-2021. In this article, the data were obtained from banks and Bourse locations. There were extremely significant relationships between capital risk and bank size and returns, and negligible relationships between liquidity risk and returns, for commercial banks. The current research primarily concerns only with bank results, but the focus is limited to commercial banks only. This study proposed that future studies should look at other financial risks, other financial institutions and other success indicators that are not covered in current research. This study paves the way for more detailed studies into controlling the liquidity risk and to extending the proposed model to incorporate other causes of liquidity risk. Further, the current study has focused primarily on profitability of the bank as a measure of the performance of the bank. Further research may take a broader view of the performance and can also include economic factors.

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