



The influence of chairman education and foreign directors on capital adequacy ratio: An empirical analysis

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Abstract

Objectives: Understanding the factors that influence the capital adequacy ratio (CAR) is important. This study aimed to investigate the relationship between various financial and non-financial factors, and the CAR of Kuwaiti banks. **Method:** The study used panel data analysis and multiple regression models to test the hypotheses and used a data sample of Kuwaiti banks containing 72 bank-year observations that covers eight years, 2013–2020. **Results:** The results showed that the education level of the chairman has a significant negative effect on CAR, while the presence of foreign individuals on the board of directors has a significant positive effect on CAR. **Conclusion:** The study provides a comprehensive analysis of the determinants of CAR and has implications for bank managers, regulators, and policymakers who seek to enhance bank stability and performance.

Keywords: capital adequacy ratio (CAR), determinations of CAR, non-financial factors, foreign board members, chairman education level

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تأثير مستوى التحصيل العلمي لرئيس مجلس الإدارة وعدد الأعضاء الأجانب على معدل كفاية رأس المال: دراسة تجريبية

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ملخص

الأهداف: تعتبر معرفة العوامل المؤثرة على معدل كفاية رأس المال أمراً مهماً. هدفت هذه الدراسة إلى بحث العلاقة بين العديد من العوامل المالية وغير المالية وتأثيرها على معدل كفاية رأس المال للبنوك الكويتية. **المنهج:** استعانت هذه الدراسة بتحليل البيانات المتعددة لاختبار الفرضيات، كما تم استخدام عينة من البيانات للبنوك الكويتية تحتوي على 72 ملاحظة تغطي ثمان سنوات، من 2013 إلى 2020. **النتائج:** أشارت النتائج إلى أن مستوى التحصيل العلمي لرئيس مجلس الإدارة له تأثير سلبي ملحوظ على معدل كفاية رأس المال، في حين أن وجود أعضاء أجانب (من جنسيات أخرى غير كويتية، عربية وغير عربية) في مجلس الإدارة له تأثير إيجابي كبير على هذا المعدل. **الخاتمة:** قدمت هذه الدراسة تحليلاً شاملاً لعوامل معدل كفاية رأس المال، كما تلقي الضوء على أهميتها لمديري البنوك والجهات التنظيمية والرقابية وصانعي السياسات الراغبين في تعزيز استقرار البنوك وأدائها.

الكلمات المفتاحية: نسبة كفاية رأس المال، عوامل تحديد نسبة كفاية رأس المال، العوامل غير المالية، أعضاء مجلس الإدارة الأجانب، مستوى التحصيل العلمي لرئيس مجلس الإدارة

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Introduction

A bank's capital in its simplest form is the amount of assets that the bank has no obligation to pay back to any entity (Khalifa, 2018). These assets ensure that the bank has enough liquidity to pay back its depositors and creditors in case losses occur. Capital adequacy ratio (CAR) is a key indicator of a bank's financial strength and stability, and it also reflects how much capital a bank has in relation to its risk-weighted assets (Ashraf et al., 2016). A higher CAR means that a bank has more cushion to absorb losses and is less likely to become insolvent. CAR is also influenced by various factors, such as the bank's size, profitability, asset quality, management quality, and governance structure (Hewaify & Alyousef, 2018). These factors may affect the bank's risk appetite, capital structure, and performance. Understanding the relationship between these factors and CAR is important for bank managers, regulators, and investors.

In this study, we examined the relationship between these factors and CAR for a sample of Kuwaiti banks containing 72 bank-year observations that covers eight years, 2013–2020. The study used panel data analysis and multiple regression models to test the hypotheses. It also explored the impact of non-financial factors, such as the education level of the chairman and the presence of foreign individuals on the board of directors, on CAR. The diversity of the members of the board of directors is an aspect of corporate governance that has received increasing attention in recent years. It may have implications for the bank's risk-taking behavior, decision-making process, and social responsibility. However, there are limited empirical evidence on the effect of leadership education level and the presence of foreign board members on CAR, especially in the context of Kuwait.

This study contributes to the existing literature in three main areas: firstly, there have been a scarcity of studies focusing on the determinants of CAR within the context of Kuwait's banking industry (Alajmi & Alqasem, 2015; Hewaidy & Alyousef, 2018). Secondly, by examining not only the internal factors specific to banks, but also the influence of board directors' attributes, this study aimed to contribute to the existing literature the effect of the financial and non-financial factors on the bank's CAR. The objective is to illuminate how management strategies and the traits of the board affect the CAR in banks. Lastly, the existing body of research presents a range of findings, some of which are conflicting, regarding the variables influencing the CAR. This study aimed to clarify these discrepancies.

Finally, this study has important implications for bank managers, regulators, and policymakers. It may help them understand the factors that affect CAR and design appropriate strategies to enhance bank stability and performance. It may also encourage banks to pay attention to the education level of its leadership and to promote diversity on the board of directors by including foreigners to foster a more inclusive and diverse banking sector.

Literature Review

1. Capital Structure and Adequacy of Banks

The combination of debt and equity used to finance an entity's total assets, known as capital structure, has garnered significant interest from researchers and was fundamentally introduced by Modigliani-Miller (Modigliani & Miller, 1958). Since then, researchers mainly focused on the optimal capital structure for the non-financing sector. Few studies have explored the capital structure of the banking sector, particularly in the developing countries (Bokhari et al., 2012). Studies

on capital structure of both non-financing and financing sectors are important since there are differences amongst them. Nguyen and Kayani (2013) found that banks generally do not use other forms of debt besides the deposits in their capital structure, while large firms in the non-financial sector prefer high debt ratio.

Since banks play a vital role in stabilizing the economy, studies have accepted the idea that capital structure and adequacy of banks need to be regulated (Santos, 2001). Capital adequacy ratio (CAR) is defined as the percentage ratio of a financial institution's primary capital to its assets (Asikhia & Sokefun, 2013). CAR ensures that banks have enough capital to absorb potential losses and is used as a measure of a bank's financial strength and stability (Asikhia & Sokefun, 2013). Basel (III) accord was introduced in 2010 to act as a safeguard towards banks' inclination to invest in high-risk assets and rectify the limitations of Basel (II). These new regulations and strict rulings aim to reassure the stability of banks, especially after the 2008 financial crisis, and to avoid the ineffectiveness and limitations of the previous two accords in terms of capital, leverage, and liquidity (Ashraf et al., 2016). Dowd (2017) has shown that bank regulators are increasingly relying on capital adequacy as a measure to maintain robustness in the face of future financial shocks. Moreover, previous literature has confirmed what capital buffer theory suggests, which is that banks will maintain a level of capital above the required minimum (Harkati et al., 2020). Additionally, as banks' capital increases, they will increase their risk and maintain their capital buffer. On the other hand, banks with low capital buffers will strive to increase their capital and decrease their risk to rebuild a suitable capital buffer (Jokipii & Milne, 2011).

2. Regulation Impact and Bank Behavior

Capital adequacy regulation is very important as Tirole (1994) and Dewatripont & Tirole (1994) had argued that it is largely justifiable in order to safeguard uninformed, inexperienced, and opportunistic depositors. Other studies also argued and empirically supported this claim. For example, Girardone et al. (2007) analyzed the effects of implementing Basel regulations on Italian banks and found that these rules aid in safeguarding depositors and reducing the risk of bank insolvency. Moreover, Joosen (2002) and Sarma & Nikaido (2007) also found similar results when examining Dutch banks and Indian banks, respectively.

The acceptance of the idea of regulating the capital structure of banks leads to studying and understanding the factors that urge banks to maintain a CAR above the required minimum. Rime (2001) examined this idea and suggested that regulatory pressure motivates banks to raise their capital. Similar studies conducted in both developed and developing countries suggested other factors that play a role in impacting a bank's CAR. For example, Barrios and Balanco (2003) examined Spanish banks and determined that market conditions have a greater impact on their capital adequacy levels than regulatory capital adequacy requirements. Additionally, Schaek and Cihak (2012) investigated the reasoning behind why banks maintain capital levels above regulatory requirements and found that competition amongst banks leads to a higher CAR.

Juca et al. (2012) found that the world's twenty largest banks and the largest twenty banks in Brazil maintain a minimum of 14% and 18% capital adequacy ratios, respectively, which is above the 8% requirement mandated by Basel at the time of conducting the study. Similarly, the Aljoman Center for Economic Consultancy (2015) in

Kuwait reported that all Kuwaiti banks maintain a higher CAR than required by both the Basel Accord and the Central Bank of Kuwait.

3. Empirical Findings on CAR Determinants

Factors mentioned in these previous studies, along with other factors, need to be investigated to better understand what drives bank managers to maintain a higher CAR than what is required by regulators. The literature on determinants of bank's CAR is mostly concerned with bank-specific factors such as size, management quality, asset quality, risk, profitability, and liquidity. Moreover, empirical results varied according to regional areas and method used. Polat and Al-khalaf (2014) analyzed the data of Saudi Arabian banks listed on the Saudi Arabian Stock Exchange from 2008 to 2012 using panel data and modelling techniques and found that return on assets (ROA) has a positive significance on CAR. Similarly, Al-Tamimi & Obeidat (2013) used multiple linear regression analysis and correlation coefficient to analyze the data of Jordanian banks listed on the Amman Stock Exchange from 2000 to 2008 and found that there is a statistical association between ROA and CAR. However, Return on equity (ROE) had an inverse relationship with CAR. Al-Tamimi and Obeidat (2013) also found a statistically strong positive relationship between ROA and CAR. However, Berger and Bonaccorsi (2006) and Dao and Nguyen (2020) found the opposite results in their studies, as both studies found that ROA is negatively associated with CAR.

Another study conducted by El-Ansary and Hafez (2015) analyzed the factors that influence Egyptian commercial banks' CAR. The study used 33 commercial operational banks in Egypt covering a period between 2003 and 2013 (before and after the global financial crisis). Before the financial crises, size, asset quality, and profitability

were identified as the most significant variables. After the financial crises, size, asset quality, liquidity, management quality, and credit risk emerged as the key factors explaining the variance in the CAR of Egyptian banks.

Hawalдар et al. (2017) analyzed both conventional and Islamic banks. The study was conducted on a data of seven commercial banks in Bahrain that included both conventional and Islamic banks for a period from 2001 to 2015. The study found that profitability and capital adequacy were significantly correlated amongst conventional banks and were less significant with Islamic banks.

In addition to Hawalдар et al. (2017), other studies have examined the determinants of CAR in Islamic banks. For instance, Abusharba et al. (2013) found that profitability and liquidity positively correlate with CAR in Indonesian Islamic banks. Furthermore, Karim et al. (2014) found positive relationships between CAR and the growth of deposits and loans in both Islamic and conventional banks. Alnajjar and Othman (2021) have also examined Islamic banks in some nations in the MENA region. The study used data from 18 Islamic banks in Qatar, Oman, Bahrain, Kuwait, United Arab Emirates, Saudi Arabia, and Jordan, for a period from 2017 to 2019. The results showed that all banks maintained a CAR above what Basel (III) mandates and that there is a significantly negative influence of CAR on both ROA and ROE.

As for studies in other regions, Dao and Nguyen (2020) carried out a study on 16 listed Vietnamese commercial banks for a period between 2010 and 2017. The study found that CAR had a positive relationship with ROA and a negative relationship with ROE and GDP growth rate. Surprisingly, the study did not find any significant relationship between CAR and bank size. However, Pham and

Nguyen (2017) showed that bank size did indeed have a negative effect on CAR, albeit insignificant. The results also showed that CAR had a negative relationship with ROE and a bank's liquidity.

A recent study by Ikue et al. (2022) investigated how bank performance and macroeconomic factors influence the capital adequacy of Nigerian banks between 2010 and 2019. It found that profitability positively impacts capital adequacy, while factors like loan-to-deposit ratio, inflation, and exchange rates negatively affect it. The study suggests that Nigerian banks should prioritize retaining profits over dividend payouts to strengthen their capital position. Additionally, a recent study investigating the impact of macroeconomic and control factors on the CAR of commercial banks in Vietnam emphasized the importance of compliance in maintaining capital adequacy during global crises, such as the COVID-19 outbreak (Tran, 2024). The study points out the necessity for governments in developing countries to ensure high national governance quality, like political stability and regulatory quality, to provide additional capital buffers against potential losses or bankruptcies.

Other studies conducted on Kuwaiti banks examined the factors that determine a bank's CAR. Alajmi and Alqasem (2015) found that ROA and bank size have a significant negative relationship with CAR, while the loan-to-deposit ratio has a significant positive relationship with CAR. The study also tested variables such as loans to assets, non-performing loans to total loans, dividend payout, and ROE, but these did not show a significant effect on CAR.

Another study that examined Kuwaiti banks was done by Hewaidy and Alyousef (2018). The study explored the idea of what factors influence a bank's capital structure besides the legal capital requirement. The study investigated the effect of bank-specific and

macroeconomic factors on a bank's CAR. The data used includes all banks in Kuwait listed on the Kuwait Stock Exchange from 2009 to 2016. The study revealed that bank size, asset quality, management quality, and liquidity significantly impact CAR. Ultimately, it suggests that CAR is more influenced by a bank's resource utilization efficiency than by any other bank characteristic or macroeconomic variable.

Research gaps: the previous studies showed that there are contradictory results regarding the relationship between CAR and factors such as ROA, ROE, and bank size. Some studies found positive relationships, while others found negative or insignificant relationships. The contradictory results indicate a gap in understanding the underlying causes of these discrepancies.

4. Board Characteristics and CAR

The preceding studies focused on bank-specific determinants. While some explored market and macroeconomic factors, only a small number of studies (Abobakr & Elgiziry, 2017; Berger et al., 2014; Christiansen et al., 2008) examined the characteristics of the board of directors, such as the level of education of the chairman and the diversification of the board, as determinants of a bank's CAR. The focus of our research is on the upper echelons theory, which posits that organizational outcomes such as strategic decisions and performance are partly influenced by the background characteristics of top executives, such as their age and education (Hambrick & Mason, 1984). Additionally, education is widely recognized as a conventional and valid factor in this theory.

Prior literature examined the influence of characteristics of the board of directors on banks' risk taking, which is a determinant of CAR. Christiansen et al. (2008) studied the qualification level and its

effect on risk taking. The study found that holders of higher education degrees tend to have more participation in stock market investment, which increases the bank risk taking. However, Berger et al. (2014) found that highly educated members of the board of directors, such as holding PhD degrees, lead to a decrease in portfolio risk, since they tend to apply better risk management techniques.

Abobakr and Elgiziry (2017) also studied board of directors' characteristics and its influence on risk taking. The study tested a sample of 27 Egyptian banks covering a period from 2006 to 2011. Some characteristics did have significant correlation with risk, such as board size, non-executive directors, CEO duality, and female board members. However, the study did not find a significant effect of board members with a PhD qualification on a bank's risk-taking. The study concluded that board members' qualification alone does not affect the bank's risk-taking, but more importantly how they take advantage of their knowledge and skills to enhance the bank's efficiency. Bathula (2008) conducted a study on education diversity and its relationship to firm performance, specifically examining the impact of board members with PhDs versus non-PhDs. The study analyzed a sample of boards of directors from 156 listed firms on the New Zealand Stock Exchange over a four-year period from 2004 to 2007. The results suggest that the presence of PhD-qualified board members has a negative association with firm performance despite their advanced research and analytical skills. This indicates that having PhD members on the board does not necessarily add value to the firm's performance.

When examining the diversification of board members, previous studies have found that having foreign members as part of the board of directors has a positive impact on the firm (Makkonen et al. 2018;

Ujunwa et al. 2013). Existing studies examined firms with foreign board members and found them more likely to be more creative and innovative than firms with solely national board members (Eulerich et al., 2013; Piekkari et al., 2015; van Veen et al., 2014). Oxelheim and Randøy (2003) studied companies based in Norway and Sweden and have found that companies with board of directors that include foreign members (specifically Anglo-American) have higher firm value and superior performance. The study suggests that having foreign board members signals a firm's willingness to improve its corporate governance, which enhances its reputation in the financial market.

Research gaps: while some studies have looked at the impact of board characteristics on CAR, there is a need for more comprehensive research that includes a wider range of board attributes, such as education diversity and international representation.

5. Research Focus

As discussed above, prior literature has provided different, and sometimes contradictory, results in their findings and conclusions when examining factors that have an effect on CAR. This study attempts to assist in settling the debate. Moreover, little research has been conducted on the Kuwait banking sector and CAR determinants (Alajmi & Alqasem, 2015; Hewaidy & Alyousef, 2018). This study extends the prior literature by not only examining bank-specific factors, but also the characteristics of the board of directors as factors that have an impact on CAR. The aim of this study is to shed light on banks' management strategies and board characteristics' effect on CAR.

Variables Definition and Hypothesis Development

In this section, we define the dependent variable (CAR) and the independent variables associated with it, then postulate our hypothesis. We have four independent variables that pertain to the

characteristics of the bank, namely, size, asset quality, management quality, and profitability, as well as two independent variables that capture characteristics of top executives, namely, the level of education of the chairman and the presence of foreign nationalities on the board of directors. First, we start with the dependent variable (CAR).

1. Capital Adequacy Ratio

The CAR measures a bank's capital as a percentage of its total assets, adjusted for loan loss provisions and risk-free assets. The Basel Committee mandates a minimum CAR to safeguard depositors and enhance the financial system's stability and efficiency (Mekonnen, 2015). Following the Basel standard, the Central Bank of Kuwait requires banks to annually increase their CAR by 0.5%.

Next, we define our independent variables and state our hypotheses. Six variables related to bank characteristics are tested, while macroeconomic variables are ignored, as they have been shown to have no impact on CAR in previous studies, such as Hewaidy and Alyousef (2018).

2. Bank Size

According to the existing literature, bank size is a significant factor in determining the capital adequacy ratio (CAR). Some studies have shown a positive relationship between bank size and CAR, while others have found a negative relationship. Specifically, El-Ansary and Hafez (2015), Mekonnen (2015), and Polat and Al-khalaf (2014) support a positive relationship, while Alajmi and Alqasem (2015), Bateni et al. (2014), and Hewaidy & Alyousef (2018) report a negative one. This study uses the natural logarithm of total assets as a proxy for bank size, and the following hypothesis is proposed and tested:

H1: There is a significant relationship between bank size and a bank's CAR.

3. Assets Quality (AQ)

Asset quality in the banking sector involves evaluating the credit risk of specific assets. Banks use this assessment to identify at-risk assets and estimate potential losses. A common indicator of asset quality is the loan loss reserve to total assets ratio. El-Ansary and Hafez (2015) identified this ratio as a key factor influencing the variation in CARs among Egyptian banks. Similarly, in Turkish banks, the loan loss reserve positively impacts the CAR.

The theoretical relationship between asset quality and CAR is grounded in the fundamental principles of risk management and regulatory compliance in banking. A higher CAR is supported by strong asset quality since it lowers risk-weighted assets and the requirement for significant loan loss provisions. Mokni and Rachdi (2014) found that banks with greater Non-Performing Loans (NPL) levels typically had lower CARs, suggesting that low asset quality has a detrimental effect on capital adequacy. Similarly, Berger and Bouwman (2013) showed that, in order for banks to achieve regulatory capital norms, they must maintain excellent asset quality due to capital adequacy requirements.

This study will utilize the loan loss reserve to examine the relationship between asset quality and CAR in Kuwaiti banks, with the following hypothesis proposed and tested:

H2: There is a significant relationship between Asset quality and a bank's CAR.

4. Management Quality (MQ)

Management quality is vital to a bank's performance, reflecting the management's ability to generate business and sustain profits. Strategic decision-making, efficient risk management, and

regulatory compliance in the banking industry form the foundation of the relationship between managerial quality and CAR. A greater CAR is a result of improved risk management techniques, strategic choices, and operational effectiveness that come from high-quality management. According to Berger and DeYoung's (1997) research, management effectiveness has a beneficial impact on bank stability and performance, suggesting that superior management enhances capital sufficiency. Mester (1997) also showed that increased capital sufficiency and improved asset quality are correlated with managerial efficiency, thus, emphasizing the importance of maintaining high management standards for banks' regulatory compliance and financial stability.

Various ratios are used to evaluate a bank's management quality, including the loan-to-deposit ratio. A high loan-to-deposit ratio indicates greater liquidity risk, necessitating higher capital levels. However, it also suggests higher profits, leading to increased capital through retained earnings and, consequently, a higher CAR (Shingjergji & Hyseni, 2015). Abusharba et al. (2013) found a positive and significant relationship between the loan-to-deposit ratio and CAR in Indonesian banks. Similar findings were reported by Alajmi and Alqasem (2015) for Kuwaiti banks and Bateni et al. (2014) for Iranian banks. This study uses the loan-to-deposit ratio to examine its impact on CAR.

H3: There is a significant relationship between management quality and a bank's CAR.

5. Profitability (ROA)

Previous research has commonly used profitability as a bank-specific determinant of CAR, with the most common indicator being ROA. The positive relationship between profitability and CAR has

been well established in previous studies. In this study, we use ROA as a measure of profitability.

Increased retained earnings, capital growth, and improved CAR are all correlated with high ROA. Studies by Athanasoglou et al. (2008) and Dietrich and Wanzenried (2011) provide empirical evidence in favor of this argument, indicating that prosperous banks typically have higher CARs. This emphasizes the importance of profitability in preserving both regulatory compliance and financial stability. Additional investigation into this correlation may yield additional understanding for the management of banks and the formulation of policy.

However, studies by Masood and Ansari (2016), Shingjergji and Hyseni (2015), and Hewaidy and Alyousef (2018) found no impact of ROA on a bank's CAR. In contrast, other studies, such as those by Mekonnen (2015), Polat and Al-Khalaf (2014), and Al-Tamimi and Obeidat (2013), identified a positive impact. This study seeks to explore the relationship between ROA and CAR and thus tests the following hypothesis:

H4: There is a significant relationship between profitability (ROA) and a bank's CAR.

6. Education

Corporate Governance Theory serves as the foundation for the relationship between bank executives' educational attainment and CAR. Executives who have higher educational attainment make better strategic decisions, manage risk, and comply with regulations, all of which improve CAR. This is corroborated by empirical data, as research conducted by Ghardallou et al. (2020) demonstrates a positive correlation between educated CEOs and improved performance and

profitability. This emphasizes how crucial executive education is to preserve both regulatory compliance and financial stability.

These variables measure the educational level of the chairman of the board and is categorized into three levels: a value of one is assigned if the chairman holds a bachelor's degree, a value of two if they hold a master's degree, and a value of three if they hold a PhD. According to Christiansen et al. (2008), individuals with higher education degrees tend to have greater participation in stock market investments, which can increase bank risk-taking. However, Berger et al. (2012) found that highly educated board members, including those with PhD degrees, can reduce portfolio risk by applying superior risk management techniques. And since CAR is an important measure of a bank's ability to meet unexpected losses, therefore risk. We postulate the following hypothesis:

H5: There is a significant relationship between chairman level of education and a bank's CAR.

7. Foreigner

The association between the presence of foreigners on the board of directors and CAR is grounded in Corporate Governance Theory. By introducing a wealth of foreign expertise, diverse viewpoints, and innovative risk management techniques, the inclusion of foreign directors can increase board diversity and improve the bank's CAR. This association is supported by previous studies showing a correlation between more diverse boards and enhanced financial success and stronger governance (Carter et. al, 2003; Adams & Ferreira 2009). This emphasizes how crucial board diversity is to preserve financial stability and regulatory compliance, especially the involvement of foreign directors.

The variable foreigner is measured as the percentage of non-Kuwaiti nationals serving at the board of directors to the total number of board members. While previous studies did not directly explore the relationship between the percentage of foreign board members and a bank's capital adequacy ratio (CAR), several studies have suggested that having foreign members can lead to better governance and overall firm performance (Makkonen et al. 2018, Oxelheim & Randøy, 2003, Ujunwa et al., 2012). Therefore, our study proposes that having foreign board members can indicate a bank's commitment to improving its corporate governance practices, which can enhance its reputation in the financial market. Based on this discussion, we hypothesize that:

H6: There is a significant relationship between the percentage of foreign board members and a bank's CAR.

Methodology

Data Collection

The data used for this study covers eight years (2013–2020) and includes all 10 banks listed on Kuwait's Stock Exchange (Boursa Kuwait) as follows: The National Bank of Kuwait, Gulf Bank, Commercial Bank of Kuwait, Al Ahli Bank of Kuwait, Kuwait International Bank, Burgan Bank, Kuwait Finance House, Boubayan Bank, Warba Bank, and Ahli United Bank.

Financial data for each bank was obtained from Bayanati Database (Institute of Banking Studies, 2021). Board characteristics data were collected from the annual reports provided by the bank's website. Our sample contains 72 bank-year observations in total as summarized in table 1.

Table 1*Data Distribution by Year*

Year	2013	2014	2015	2016	2017	2018	2019	2020	Total
Number of Observation	9	9	9	9	9	9	9	9	72

The following regression model was developed to test Hypotheses one through six:

$$CAR = a + b_1 Size + b_2 AQ + b_3 MQ + b_4 ROA + b_5 Education + b_6 Foreigner + e$$

Where:

CAR: the capital adequacy ratio (CAR) measures a bank's capital as a percentage of its total assets, adjusted for loan loss provisions and risk-free assets. This is the dependent variable.

Size: bank size is measured using the natural logarithm of total assets and is used to test Hypothesis 1 (H1).

AQ: asset quality (AQ) evaluates the credit risk associated with specific assets, measured by the loan loss reserve scaled by total assets. This is used to test Hypothesis 2 (H2).

MQ: management quality (MQ) serves as a proxy for the management's ability to generate business and maintain profits, measured by the loan-to-deposit ratio. This is used to test Hypothesis 3 (H3).

ROA: return on assets (ROA) is calculated as net profit divided by average total assets. We use two variables as proxies for profitability: *ROA* and return on equity (ROE), the latter measured as net profit divided by average total equity. Both variables are used to test Hypothesis 4 (H4)⁽¹⁾.

(1) Two proxies are used to measure bank profitability: ROA and ROE. Due to multicollinearity problem occurring between the two profitability measures (i.e., ROA & ROE), we utilized the ROA as measure for profitability. Results for ROE, not tabulated, show similar results.

Education: refers to the level of education of a chairman. It takes the value one if the chairman holds a bachelor’s degree, the value two if the chairman holds a master’s degree, and the value three if the chairman holds a PhD degree; and it is constructed to test H5.

Foreigner: measured as the percentage of non-Kuwaiti nationals serving at the board of director to the total number of board members; and it is constructed to test H6.

Research Results and Analysis

Descriptive Statistics

Table 2 presents descriptive statistics for the entire sample, covering both the dependent variable (CAR) and the six independent variables. The statistics include the mean, standard deviation, median, minimum, and maximum. For the total sample, the dependent variable (CAR) has a mean of 22.7% and a median of 12.6%, both exceeding the capital levels required by the Basel standards and the Central Bank of Kuwait. The CAR values range from a minimum of 6.6% to a maximum of 93%. Additionally, the descriptive statistics reveal differences between the mean and median values for “Size” in the total sample. Specifically, the mean “Size” is 7,747.18, while the median is 4,431.07. This discrepancy is not a concern, as using the natural logarithm of total assets in the regression equation will address this issue during hypothesis testing.

Table 2*Descriptive Statistics*

	<i>M</i>	<i>SD</i>	<i>Mdn</i>	<i>Min</i>	<i>Max</i>
CAR	0.23	0.34	0.13	0.07	0.93
Size	7,747.18	7,913.22	4,431.07	9.07	29,717.39
Asset quality	1.761	4.922	0.046	-0.032	17.035
Management quality	0.744	0.288	0.799	0.051	1.29
ROA	-0.01	0.157	0.009	-0.96	0.38
No. of foreigners	1.2	1.938	0	0	6
% of foreigners	0.243	0.147	0	0	0.75

Note. N = 72. CAR= the capital adequacy ratio; Size= bank size; ROA= return on assets; number of foreigners: number of non-Kuwaiti nationals serving in the board of directors.

For the remaining variables, the means and medians are approximately equal over the 8-year period for the entire sample. The only exception is the number of non-Kuwaiti nationals represented; therefore, we also report the percentage, which will be utilized in the statistical tests. The primary conclusion from this table is that the variables are not skewed, as indicated by the minimal differences between their medians and means.

As for the data distribution by the level of chairman education, the sample consists of 53 chairmen, distributed across different levels of education as follows:

- Bachelor's Degree: 24 chairmen, representing 45.3% of the total sample.
- Master's Degree: 23 chairmen, accounting for 43.4% of the total sample.
- PhD: 6 chairmen, making up 11.3% of the total sample.

This shows that the majority of chairmen hold either a Bachelor's or Master's degree, with a smaller proportion holding a PhD.

Empirical Results

Table 3 presents the results of the Pearson correlation two-tailed test. The findings indicate that bank size is significantly negatively correlated with CAR ($p < .001$), providing preliminary support for H1. No significant relationship is observed between CAR and the other variables. However, significant correlations among the independent variables suggest a potential multicollinearity issue. A VIF test for multicollinearity shows that all values are below 10, ruling out any multicollinearity problem (James et al., 2013). The result reported in Table 4 represents a univariate statistical test. The univariate test is utilized to provide preliminary results. However, the study requires the use of a multivariate statistical test to provide a clearer picture of the study's findings. Table 4 shows the results of the multivariate statistical test.

Table 3

Two-Tailed Pearson Correlation Matrix

	CAR	Size	AQ	MQ	ROA	Education	Foreigner
CAR	-						
Size	-.73***	-					
AQ	-.01	.00	-				
MQ	.02	-.17	-.85***	-			
ROA	-.05	-.78***	.15	-.15	-		
Education	-.15	.19	.20	-.19	.25*	-	
Foreigner	.04	.10	-.20*	.15	.15	.77***	-

Note. CAR= the capital adequacy ratio; Size= bank size; AQ= asset quality; MQ= management quality; ROA= return on assets.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4
Regression Results

$CAR = a + b_1 Size + b_2 AQ + b_3 MQ + b_4 ROA + b_5 Education + b_6 Forigner + e$							
	Constant	$b_1 Size$	$b_2 AQ$	$b_3 MQ$	$b_4 ROA$	$b_5 Education$	$b_6 Forigner$
Coefficient	3.30***	-0.41***	-0.06***	-1.63***	0.65***	-0.31**	0.88**
t-Value	6.62	-10.59	-3.34	-3.53	3.40	-2.58	2.62
P-Value	.00	.00	.00	.00	.00	.01	.01
	F-Value 21.04					Adj R-Sq 70%	

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4 reports the results for our regression model developed to tests H1 through H6. The results for all the postulated hypotheses are consistent with our predictions at a high level of significance ($p < .01$). The results indicate a significantly negative relationship between bank size and CAR, confirming our prediction (H1). This suggests that as a bank's size increases, its CAR decreases. According to Table 4, a one-unit increase in bank size results in a 0.41-unit decrease in CAR. This finding aligns with the trade-off theory, which posits that larger companies can access capital markets more easily and with lower transaction costs (Aktas et al., 2015). This result is consistent with previous studies (Alajmi & Alqasem, 2015; Bateni et al., 2014; Hewaidi & Alyousef, 2018; Juca et al., 2012; Romdhane, 2012), which also found that larger banks tend to have lower CARs compared to smaller banks. We believe that this study should settle the debate about the relationship between CAR and firm size.

AQ has a significant negative correlation with CAR ($p < .001$), indicating that as a bank's AQ ratio increases, its CAR decreases. The coefficient of AQ is -0.06, meaning a one-unit increase in AQ results in a 0.06-unit decrease in CAR. These results are consistent

with those of Hewaidi and Alyousef (2018), which was explained by the difference in the bank size as measured by total assets. Remember AQ is defined as loan loss reserve scaled by the total asset. This means that a large asset quality ratio is an indicator of large credit risk. Thus, high CAR is negatively associated with credit risk, confirming (H2).

The results provide strong evidence of the impact of management quality (MQ) on CAR, with a significantly negative correlation ($p < .001$), confirming (H3). The findings suggest that a higher MQ ratio reduces a bank's stability, as reflected by a lower CAR. A high loan-to-deposit ratio indicates higher liquidity risk, which is expected to negatively affect CAR. These results differ from those of Hewaidi and Alyousef (2018), Alajmi and Alqasem (2015), Bateni et al. (2014), and Abusharba et al. (2013). Previous studies suggest that CAR is used as a defense mechanism against liquidity risk. However, our results here indicate that AQ ratio is lowering the stability of banks as measured by CAR. Our findings suggest that a high loan-to-deposit ratio, which is an indicator of management quality, can imply that a bank is taking on more risk by lending more money than it has in deposits. This could lead to liquidity issues if too many loans default, which can negatively impact the stability of the bank as measured by the CAR.

Regarding bank profitability measured by ROA, the results indicate that there is a significant positive relationship between profitability and CAR. These results are different from the results revealed by Masood and Ansari (2016), Shingjergji and Hyseni (2015), and Hewaidi and Alyousef (2018) who found that ROA has no impact on a bank's CAR. This indicates that the model used in this study could identify the relationship between profitability and CAR, confirming our prediction in (H4).

As for education, we can see that the level of education is significantly negatively associated with CAR, confirming (H5). The results indicate that the more educated the chairman, the less the CAR found for that bank. Therefore, our findings align with Christiansen et al.'s (2008) research, which suggests that individuals with advanced educational degrees tend to exhibit greater involvement in stock market investments. This heightened participation in the stock market can lead to increased risk-taking by banks.

Regarding H6, our study indicates that the inclusion of foreign individuals on the board of directors has a positive correlation with CAR, which is consistent with previous research that suggests a favorable effect of foreign presence on firms. Banks exhibiting a higher CAR possess more significant capital to mitigate potential losses and have greater financial strength and stability than those with lower CAR. Therefore, our findings support our hypothesis (H6) that the presence of foreign individuals on the board of directors is positively linked to CAR.

Conclusion

This study found that all of the postulated hypotheses were consistent with their predictions at a high level of significance. A negative relationship between bank size and CAR supports the trade-off theory, suggesting that as the company's size increases, it can access capital markets more easily and with lower transaction costs. Asset quality ratio and management quality ratio were also negatively associated with CAR, while profitability (measured by ROA) was positively associated with CAR. Education level of the chairman was negatively associated with CAR, while the presence of foreign individuals on the board of directors had a positive correlation with CAR.

Finally, we can conclude that bank size, asset quality ratio, management quality ratio, level of education of the chairman, and presence of foreign individuals on the board of directors have significant relationships with the bank's CAR. On the other hand, bank profitability is positively associated with CAR.

We suggest that future studies consider more variables that may affect CAR, such as the bank's business model, operational efficiency, the regulatory environment, and more importantly, the impact of gender diversification⁽²⁾.

The industry and the profession should pay attention to the impact of education and foreign individuals on the board of directors on bank risk-taking behavior. It may be beneficial for banks to consider including foreign individuals on their board of directors and to pay attention to the educational background of their leadership. Moreover, banks should pay attention to maintaining asset quality and liquidity to ensure stability. Finally, the presence of female and gender diversification should be evaluated, and Kuwaiti banks should consider appointing more women to their boards of directors. This would not only promote gender diversity and equality, but also potentially improve the bank's overall financial performance and stability (Adams & Ferreira 2009).

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(2) Unfortunately, the presence of female on the board of directors in our sample is rare and cannot be statistically investigated.

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المجلة التربوية



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نشر:

- البحوث التربوية المحكمة
- مراجعات الكتب التربوية الحديثة
- محاضرات الحوار التربوي
- التقارير عن المؤتمرات التربوية
- وملخصات الرسائل الجامعية

تقبل البحوث باللغتين العربية والإنجليزية.
تنشر لأساتذة التربية والمختصين بها من مختلف الأقطار العربية والدول الأجنبية.

الاشتراكات:

في الكويت: ثلاثة دنانير للأفراد، وخمسة عشر ديناراً للمؤسسات.
في الدول العربية: أربعة دنانير للأفراد، وخمسة عشر ديناراً للمؤسسات.
في الدول الأجنبية: خمسة عشر دولاراً للأفراد، وستون دولاراً للمؤسسات.

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