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## ACCOUNTING, CORPORATE GOVERNANCE | RESEARCH ARTICLE - REPLICATION STUDY

# Board governance mechanisms and liquidity creation: Empirical evidence from GCC banking sector

ALI K.A. Mousa<sup>1\*</sup>, Nor Laili Hassan<sup>1</sup> and Kashan Pirzada<sup>2</sup>

**Abstract:** While various board governance mechanisms, such as board independence, expertise, diversity, and committee structures, play a crucial role in overseeing and guiding bank operations, the extent of their impact on liquidity creation as the preeminent function of the GCC banking sector remains unclear and unexplored. To fill this gap, therefore, this study examines the impact of board governance attributes on liquidity creation in the GCC banking sector. In addition, this study investigates the moderating effect of government ownership on the association between board governance features and bank liquidity creation. To accomplish the objectives of our study, a sample of 68 listed banks over the period of 2010–2021 in the GCC region were employed, and feasible generalized least squares (FGLS) regression was used. The findings indicate that board governance mechanisms in terms of independence, foreign directors, education level, meetings, and board size play a positive role in enhancing bank liquidity creation, whereas the presence of female board members does not affect liquidity creation. Moreover, the supplementary analyses and endogeneity tests provide further validation for the primary regression results, thereby confirming the robustness of the findings. The study's findings are among the earliest empirical evidence of the effect of board governance attributes on liquidity creation in the GCC banking sector.

**Subjects:** Corporate Finance; Financial Accounting; Corporate Governance;

**Keywords:** liquidity creation; corporate governance; agency theory; board attributes; GCC

### 1. Introduction

Liquidity creation is a fundamental function of banks, whereby they transform short-term liquid liabilities into long-term illiquid assets, thus providing essential financial intermediation services to the economy (Berger & Bouwman, 2009). It involves banks utilizing their ability to attract deposits and other funding sources to extend loans and finance investments which promote economic growth and development (Berger & Bouwman, 2009; Deep & Schaefer, 2005). Liquidity creation is crucial as it ensures the smooth functioning of financial markets, facilitates credit availability, fosters monetary policy implementation, and supports investment activities (Andreou et al., 2016; Berger & Bouwman, 2009; Diamond & Dybvig, 1983). Additionally, liquidity creation helps support financial stability by ensuring that depositors have access to their funds when needed and by



providing a buffer against financial shocks (Berger & Sedunov, 2017). Nonetheless, according to Berger et al. (2016), the presence of asymmetric information resulting from financial intermediation leads to imbalances in withdrawal flows and compels banks to prematurely sell illiquid assets, thereby impacting the ability of the banking industry to create liquidity. Thus, Insufficient governance mechanisms and oversight can limit the effectiveness of liquidity creation strategies in banks, potentially leading to liquidity constraints and pose systemic risks to the real economy (Mousa et al., 2022).

In this context, the agency theory implies that boards with specific features (i.e., independence, foreign directors, gender diversity, educational background, meeting frequency, and size) and committee structures can help solve the issue of agency by limiting information asymmetry and moral hazard, leading to better oversight of managers' opportunistic decision-making in regards to prudent liquidity creation (Diamond & Dybvig, 1983). The board's internal controls ensure transparency and accountability for liquidity-related activities, which fosters confidence among shareholders, regulators, and depositors in the bank's liquidity creation practices and ability to meet obligations (Gupta & Mahakud, 2021). It has been suggested that fostering board independence and diversity in the boardroom enhances the advisory capabilities of bank management, leading to the expansion of their customer base through increased lending activities, which in turn has an impact on liquidity creation (Delis et al., 2009; Díaz & Huang, 2017; Sadeghi, 2020; Safiullah et al., 2020). Besides that, directors with a strong understanding of liquidity risk, financial markets, and banking operations can provide valuable insights and guidance to enhance liquidity creation and address liquidity-related challenges (King et al., 2016; Safiullah et al., 2020). According to Khan and Rehman (2020), with effective governance mechanisms, including regular meetings, discussions, and independent assessments, the board can identify potential liquidity challenges, facilitate access to funding sources, and take necessary actions to maintain liquidity adequacy. Hence, board characteristics serve as crucial internal governance mechanisms that wield influence over liquidity creation within the banking sector. At the same time, prior research has predominantly focused on investigating the link between the creation of bank liquidity and corporate governance structures in advanced economies like Western European countries (Yeddou & Pourroy, 2020) and the United States (Díaz & Huang, 2017; Huang et al., 2018). Conversely, limited attention has been given to exploring the association between governance structures and the liquidity creation of banks in developing countries, where variations in internal governance practices and ownership structures exist. Recognizing the significance of economic and social factors in diverse countries, it becomes essential to consider these aspects when examining liquidity creation. Therefore, the goal of this study is to investigate how internal governance affects the creation of bank liquidity in the Gulf Cooperation Council (GCC) of Kuwait, Bahrain, Oman, Qatar, and the United Arab Emirates (UAE), as well as the Kingdom of Saudi Arabia (KSA). These countries share notable similarities and characteristics that unite them under a common framework (Al-Magharem et al., 2019).

In the GCC nations, corporate governance is still an infant concept, but great progress has been achieved in improving governance procedures (Musleh Alsartawi, 2019). The composition of the GCC bank board aligns with the OECD principles, which mandate that a majority (at least 50%) of directors should be non-executives, that the CEO and chairman roles should be separated, and that at least one-third of the board members must be independent (Shehata, 2015). However, it is worth noting that the independence and impartiality of some GCC bank board members may be compromised due to their close associations with major shareholders or related parties, potentially impacting their ability to provide objective oversight (Shehata, 2015). The GCC region also faces challenges in developing and implementing robust succession plans, resulting in a dearth of qualified candidates and potential disruptions in board governance (Chazi et al., 2018). Furthermore, Grassa (2016) revealed that GCC bank boards have a higher representation of foreign directors, reflecting the diversity of the labor force with over 200 nationalities present in the region, where foreigners comprise a significant proportion (60% to 90%) of the workforce. Additionally, the participation of women on the boards of GCC banks remains low due to cultural and traditional norms that restrict their involvement in decision-making or leadership positions (Abou-El-Sood,

2019). Prior research (Abou-El-Sood, 2019; Bajrei et al., 2018; Ben Zeineb & Mensi, 2018; Chazi et al., 2018; Grassa, 2016; Musleh Alsartawi, 2019) have provided evidence of the negative consequences associated with these characteristics, including their adverse impact on the diversification of investments, creditworthiness, profitability, and disclosure quality within the GCC banking industry. Hence, these qualities raise concerns and queries surrounding their influence on liquidity creation, which is what drove this study's focus on the association between liquidity creation and board traits.

Additionally, the concentration of government ownership poses a prevalent challenge within the financial system of the GCC countries, with instances such as the government's ownership ranging from 13% to 52% in the UAE and Kuwait, respectively. In Saudi Arabia, the state holds approximately 35% ownership in the banking industry, while both government and quasi-government institutions possess 53% of the industry. Similarly, in Oman, 30% of total ownership is attributed to the government, and quasi-government entities own 49%. In Qatar and Bahrain, the government's stake in the banking industry stands at around 20% (Al-Khouri et al., 2019). Hence, significant government ownership can impede the implementation of internal governance as an efficient monitoring mechanism, potentially exerting influence to prioritize governmental objectives over shareholder interests. Nonetheless, Al-Khouri et al. (2019) revealed that GCC banks with substantial government ownership demonstrate enhanced liquidity provision due to government protection, instilling greater confidence among regional investors. Therefore, comprehending the impact of government ownership on the connection between liquidity creation and board attributes in the GCC banking sector holds significant importance.

The primary impetus behind this study lies in recognizing the paramount importance of internal governance in the banking industry. It aims to address the dearth of research on the influence of bank governance on liquidity creation, an area that previous research has identified as underdiagnosed, particularly in developing countries. Notably, prior research from the GCC region (Abou-El-Sood, 2019; Bajrei et al., 2018; Ben Zeineb & Mensi, 2018; Chazi et al., 2018; Grassa, 2016; Musleh Alsartawi, 2019) have predominantly concentrated on the link between bank governance and risk-taking or financial performance, while only a handful of studies have explored the relationship between corporate governance and liquidity creation. Thus, this study contributes to the existing body of knowledge by investigating various dimensions of board characteristics, including education level, foreign directors, independence, board size, gender diversity, and government ownership, which have received limited scrutiny in prior studies. Specifically, the analysis of board gender diversity is crucial due to the low representation of females on GCC bank boards (Abou-El-Sood, 2019) and the inadequate research on their impact on liquidity creation in the banking sector. Similarly, the study explores the connection between foreign directors' participation and liquidity creation, a significant feature of GCC bank boards that has garnered limited attention in regional studies on banking governance. Furthermore, the study underlines the association between board structure, specifically independence, and the creation of liquidity, an area that has been extensively explored in relation to bank risk-taking, financial disclosure quality, and performance but not in the context of liquidity creation. Additionally, the examination of education level as a factor influencing liquidity creation is rare, particularly within the GCC banking context. In light of the ambiguous results from previous studies regarding bank governance, this research also examines the potential moderating influence of government ownership on the association between liquidity creation and board characteristics within the GCC banking sector.

In pursuit of the research objectives, this study analyzed data from 68 commercial banks in GCC countries spanning from 2006 to 2012 to explore the connection between board governance attributes and liquidity creation, along with the moderating influence of government ownership in this nexus. The findings indicated a significant and positive correlation between all board characteristics, except gender diversity, and the enhancement of liquidity creation within the GCC banking sector. Additionally, the study emphasized that while government ownership does moderate this relationship, its impact is limited. This study makes theoretical contributions by

employing the agency and resource dependency theories to elucidate the relationship between the variables under investigation and liquidity creation. From a practical standpoint, the findings of this study hold significant importance for various stakeholders, including regulators, bank management, the government, creditors, depositors, and potential investors. The insights generated from this research will assist policymakers in formulating strategies to attract foreign direct investment in a way that positively impacts the GCC banking industry.

The organization of this paper is as follows: Section 2 provides a literature review and develops the hypotheses, while Section 4 describes the research methodology. The findings are presented and discussed in Section 5, and finally, Section 6 presents the conclusion.

## 2. Literature review and hypothesis development

### 2.1. Liquidity creation

Banks play a crucial role in the economy by primarily engaging in liquidity creation. Liquidity creation involves financing “long-term illiquid assets” using “short-term liquid obligations” on the balance sheet, aiming to fulfill daily liquidity requirements and support investment objectives (Deep & Schaefer, 2005; Diamond & Dybvig, 1983). Furthermore, banks also generate liquidity through “off-balance sheet activities”, such as offering “standby letters of credit” and “loan commitments” to their clients (Berger & Bouwman, 2009). This function allows banks to convert public deposits into productive investments that contribute to economic growth (Berger et al., 2016; Huang et al., 2018). However, it is important to note that the pursuit of increased bank liquidity carries risks and may constrain their ability to provide liquidity (Berger & Sedunov, 2017). The risk arises when depositors, primarily due to “asymmetric information”, simultaneously and significantly demand their deposits, leading to a liquidity crisis (Andreou et al., 2016). Hence, while optimizing liquidity creation is crucial, it should not be pursued to the point of maximization. Two seminal studies have significantly contributed to the empirical measurement of liquidity creation. The initial effort by Deep and Schaefer (2005) aimed to quantify bank liquidity transformation, but it had limitations as it did not encompass all balance sheet items and excluded off-balance sheet transactions, rendering it less comprehensive (Berger & Bouwman, 2009). Subsequently, Berger and Bouwman (2009) addressed this gap by introducing four empirical metrics of bank liquidity: “cat-nonfat”, “cat-fat”, “mat-nonfat”, and “mat-fat”. These measures vary in terms of classifying bank activities based on category or maturity and considering the inclusion or exclusion of “off-balance sheet activities”. The pioneering work of Berger and Bouwman’s (2009) had generated significant interest in studying the role of banks as liquidity creators. Consequently, recent studies including Andreou et al. (2016), Díaz and Huang (2017), Huang et al. (2018), Shah et al. (2018), Safiullah et al. (2020), and Yeddou and Pourroy (2020) had investigated the factors influencing liquidity creation.

### 2.2. Corporate governance and liquidity creation

Over the past two decades, corporate governance has gained significant attention from policymakers, driven by the growing impact of the financial markets (Harkin et al., 2020) and the recognition of its crucial role in enhancing business value and efficiency (Karkowska & Acedański, 2020). Furthermore, the necessity for robust governance structures in privatized organizations has become urgent, as highlighted by the global financial crises (Dong et al., 2017). While banks are financial institutions subject to core corporate governance standards, they possess distinctive features that set them apart from non-financial firms, as identified by Vallascas et al. (2017). Specifically, banks have a larger number of stakeholders and operate in a more obscure and complicated business environment. The opacity of banking operations poses challenges for diffuse shareholders and debt holders to effectively monitor banks, rendering them more susceptible to systemic risks that may not be immediately visible to executives or other outside stakeholders (Acharya & Naqvi, 2012). This systemic risk stems from banks’ functions as suppliers of liquidity, as demandable debt (deposits) enables them to offer liquidity protection against anomalous disturbances (Berger et al., 2016). Additionally, “moral hazard and option values” associated

with banks' "limited liability" lead them to rely excessively on leverage to generate loans and create liquidity, giving rise to conflicts of interest between debtors and shareholders (Andreou et al., 2016). As a result of their role as liquidity providers and the prudential concerns associated with banking oversight, banks need slightly distinct governance standards compared to other businesses (Díaz & Huang, 2017).

Despite extensive research on banking governance focusing on risk-taking and financial performance (e.g., Arnaboldi et al., 2020; Dong et al., 2017; Farag & Mallin, 2017; Harkin et al., 2020; Karkowska & Acedański, 2020; Khan & Rehman, 2020; Rose, 2017; Vallascas et al., 2017), the examination of corporate governance's impact on liquidity creation is still nascent and primarily concentrated in developed countries. Nonetheless, due to banks' critical role as liquidity providers to the economy, little research has attempted to look at how bank governance is related to bank liquidity creation. For instance, Delis et al. (2009) investigated the link between board-specific characteristics and liquidity in the banking sector across ten OECD countries. Their study focused on two board attributes: board size and independence. The findings revealed negative associations between board size and liquidity, as well as a U-shaped relationship between board independence and liquidity. Nevertheless, this study had a concise scope and lacked comprehensive analysis to deepen our understanding of the interplay between bank liquidity and board structure.

To bridge the research gap in bank governance and extend the body of empirical research on the creation of bank liquidity, Díaz and Huang (2017) conducted a study examining the impact of governance practices on the creation of liquidity in the United States banking industry prior to, during, and following the credit crunch of 2008. The findings of the study revealed that improved governance practices are associated with reduced liquidity creation both before and after a financial crisis, while governance has a favorable and statistically significant impact on liquidity creation during a financial crisis. Specifically, "the analysis highlighted that higher score in key governance categories such as compensation incentives, audit committee characteristics, and ownership categories had distinct effects on liquidity creation during the financial crisis compared to the periods before and after the crisis". Additionally, the analysis indicated that these categories are particularly relevant and positively impactful for large banks.

In a similar context, Safiullah et al. (2020) conducted a study to explore the influence of regular board governance and "Shariah supervisory board" (SSB) on liquidity creation across a sample of 110 banks, taking into account the distinct governance structures of Islamic and conventional banks. The findings of the study indicated that improved governance of the SSB enhances the "on-balance sheet" liquidity creation of Islamic banks while reducing their "off-balance sheet" liquidity creation. By analyzing the impact of various SSB characteristics, the study revealed that the education level, meeting participation, and representation of female members on the SSB have greater significance in relation to liquidity creation compared to the size of the SSB and the reputations of its members. Moreover, the study introduced the concept of "management capacity measurement as a mechanism through which board governance influences liquidity creation. Consequently, the study concluded that both traditional boards of conventional banks and SSBs of Islamic banks" play a role in enhancing liquidity creation by improving managerial capabilities.

Examining the relationship between ownership structure and liquidity creation, Yeddou and Pourroy (2020) conducted a comprehensive investigation across 17 Western European countries from 2004 to 2018. Their study aimed to determine the impact of commercial bank ownership concentration on liquidity creation. The findings of the study indicated that higher ownership concentration is associated with increased liquidity creation, as it aligns with the interests of shareholders who benefit from value generation. Additionally, the study highlighted that the level of risk appetite exhibited by a bank is strongly influenced by the type of major owner it has, which in turn affects the quantity of liquidity created. In summary, Yeddou and Pourroy (2020) had demonstrated the significant role of ownership structure in shaping liquidity creation in the banking sector.

Prior empirical analyses focusing on bank governance in the GCC region have been limited, with a majority of them primarily examining risk-taking and performance aspects (Abou-El-Sood, 2019; Al-Magharem et al., 2019; Bajrei et al., 2018; Ben Zeineb & Mensi, 2018; Chazi et al., 2018; Musleh Alsartawi, 2019). However, the dynamics of these interactions are influenced by the operational environment of banks, leading to contrasting findings. While some studies suggest a positive relationship between governance practices and bank productivity indicators including efficiency, risk-taking, credit growth, and performance (Abou-El-Sood, 2019; Al-Magharem et al., 2019; Ben Zeineb & Mensi, 2018; Chazi et al., 2018), others argue that the impact of governance practices is insignificant (Bajrei et al., 2018; Musleh Alsartawi, 2019). These studies underscore the need for a balance among three key forces within bank corporate governance: ownership power, director power, and institutional shareholder power. The empirical evidence regarding the impact of corporate governance on liquidity creation in the GCC banking sector is still far from straightforward. Nonetheless, Al-Khouri et al. (2019) conducted a study using the Deep and Schaefer (2005) approach to measure liquidity creation in GCC banks. Their findings revealed that GCC banks had a significantly higher ability to convert liquid deposits into illiquid assets compared to US banks. Moreover, the study identified several factors including bank competition, size, capital, government ownership, governance practices, and inflation, that were associated with liquidity creation. Abidi et al. (2022) findings highlight that the board composition and meetings contribute to reduced systemic risk in the banking sector, with a notable influence of government shareholders in moderating this relationship, providing significant contributions to governance and corporate finance literature. Overall, these studies have examined regulatory environments, governance codes, and specific provisions related to board composition, independence, expertise, and committees, providing insights into the governance landscape and its potential impact on liquidity creation within the GCC banking sector.

Based on the preceding, the current study is inspired by the paucity of research examining the relationship between bank governance and liquidity creation, particularly in emerging economies such as the GCC region, “which is defined as a bank-based economy”. This aligns with the perspectives of Díaz and Huang (2017) and Safiullah et al. (2020) who emphasized the nascent nature of the relationship between board governance characteristics and liquidity creation. In response, this study adopts a comprehensive approach by considering various mechanistic attributes of board governance, such as independence, foreign directors, gender diversity, educational background, and meeting size, and their potential impact on bank liquidity creation. Additionally, the study extends beyond prior research by examining the moderating effect of government ownership on the association between board characteristics and liquidity creation in the GCC banking sector. To the best of the researchers’ knowledge, these characteristics distinguish this study from previous research on liquidity creation, particularly within the GCC region. The subsequent sections of the paper provide a detailed discussion of the relevant literature pertaining to these attributes.

### 2.2.1. Board independence

An independent board is typically composed of directors who are not affiliated with the bank’s management or major shareholders (Musleh Alsartawi, 2019). In accordance with the agency theory, independent directors can provide unbiased viewpoints and challenge management’s proposals, ensuring that decisions related to liquidity creation are made in the best interest of the bank and its stakeholders. This can help safeguard the bank’s financial stability and ensure that liquidity resources are allocated in a manner that balances the interests of various stakeholders, including depositors, shareholders, and creditors (Fama & Jensen, 1983). In line with that, Karkowska and Acedański (2020) claimed that independent members play a crucial role in overseeing the bank’s risk management practices, which can help ensure that the bank has appropriate risk management frameworks in place to support liquidity creation while maintaining prudent risk levels. The resource dependency argument, meanwhile, asserts that the inclusion of independent outside members on the board provides linkages to the bank with the outside world due to their credentials, experience, position, and contacts, which can help the bank consider different

approaches to liquidity creation, explore innovative strategies, and assess potential risks and opportunities more thoroughly (Ingley & Van Der Walt, 2001). Moreover, Moussa's study provides evidence supporting the advantageous effect of director independence on the banking industry's creditworthiness and its contribution to promoting liquidity creation by establishing financial reserves. These independent directors play a crucial role in enhancing the advisory capacity of bank management, which in turn facilitates the expansion of the customer base and fosters liquidity creation (Díaz & Huang, 2017; Safiullah et al., 2020).

On the other hand, Harkin et al. (2020) argued that a substantial presence of independent members might place undue constraints on banks, thus preventing them from taking advantage of valuable investment opportunities. Similarly, Wasiu et al. (2020) found that the significant presence of independent members restricts financing operations and has a detrimental effect on liquidity. Despite the conflicting findings, most prior studies have shown that independent directors have a favorable impact on the creation of bank liquidity. The inclusion of independent members on the board is anticipated to improve oversight procedures and reduce agency costs, positively improving the generation of liquidity. Based on these considerations, the following hypothesis is proposed:

**H1:** There is a positive relationship between board independence and bank liquidity creation.

### 2.2.2. Board nationality

According to the resource dependency theory, foreign directors often have extensive networks and connections in their home countries or international markets, which can provide access to funding sources, interbank markets, or other financial institutions, thereby facilitating the bank's access to liquidity and enabling enhanced liquidity creation opportunities (Mousa et al., 2022). Foreign directors contribute to the independence of the board as their diverse ethnicities or cultural backgrounds are associated with robust risk oversight, outstanding management practices, and high operational efficiency (Arnaboldi et al., 2020; Boussaada et al., 2018). These traits improve the efficiency and effectiveness of banking decisions and ultimately boost financial institution success (Al-Juaidi, 2021). Prior research (Boussaada et al., 2018; Moussa, 2019) revealed that having foreign directors improves bank creditworthiness through building liquidity buffers, which may also improve liquidity provision. Contrarily, Khan and Rehman (2020) posited that an overrepresentation of foreign directors might exert excessive control over managerial decisions, leading to potential constraints on banks' capacity to pursue value-enhancing initiatives and limiting their willingness to undertake upside risk. These dynamics, in turn, may have adverse implications for bank liquidity. Despite the lack of a definitive consensus in the existing empirical literature regarding the impact of foreign directors on liquidity creation, it is hypothesized, drawing on the resource dependency theory, that the knowledge and cultural diversity brought by foreign directors can enhance the overall effectiveness of the board. This, in turn, is expected to positively influence decision-making processes and facilitate liquidity creation.

**H2:** There is a positive relationship between foreign directors and bank liquidity creation.

### 2.2.3. Gender diversity

In accordance with the principles of the agency theory, board diversity is advocated to prevent the concentration of power and decision-making authority in the hands of a single individual or a select few. Pirzada et al. (2016) and Farag and Mallin (2017) suggested that the presence of female directors brings diverse perspectives, skills, and experiences to the boardroom, enhancing the effectiveness and efficiency of bank governance. According to Abou-El-Sood (2019), women may have a heightened sensitivity to risk, in which their risk-awareness can contribute to a more balanced approach to liquidity creation, considering both short-term needs and long-term sustainability. This finding is consistent with the study conducted by Dong et al. (2017), which highlights



the positive impact of higher gender diversity on reducing excessive risk and improving the quality of loans in banks. Similarly, Safiullah et al. (2020) emphasized that female presence on boards fosters an environment of open dialogue and constructive debate, which positively influences decision-making processes and supports effective liquidity creation practices. Sabeeh Ullah and Kamal (2017), on the other hand, claimed that female directors may exhibit higher risk aversion in competitive environments, potentially slowing decision-making processes and adversely affecting liquidity creation. However, most previous studies emphasized the importance of gender diversity as a corporate governance mechanism, enhancing board independence, improving decision-making quality, enhancing the supervisory role of the board, and ultimately facilitating greater liquidity creation. Based on these findings, we propose the following hypothesis:

**H3:** There is a positive relationship between gender diversity and bank liquidity creation.

#### 2.2.4. Board education level

Directors with a high educational background are valuable to their company as they have good cognitive ability, which will equip them with effective solutions for complex decision-making tasks (Certo, 2003). Thus, better knowledge enables banks to enhance investment decisions and improve bank performance (King et al., 2016). Further, board members with a higher level of education may possess the knowledge and skills to assess the bank's competitive positioning, identify growth opportunities, and align liquidity creation strategies with the bank's long-term goals. Consistent with that, previous studies (Díaz & Huang, 2017; Safiullah et al., 2020) revealed that higher-educated CEOs could provide better advisory and oversight services by combining technological and banking knowledge, resulting in a larger client base and increased liquidity creation.

In contrast, Berger et al. (2014) and Farag and Mallin (2017) argued that executives with high degrees are more risk-averse compared to low-educated CEOs since they employ effective project appraisal methodologies and depend more on the CAPM to estimate the cost of capital in the banking industry. Thus, the large share of educated directors is more likely to underestimate investment opportunities and limit banks' ability to engage in value-adding activities, which could have a negative influence on liquidity creation. Despite the presence of conflicting findings, most of the previous studies mainly support the positive impact of educated directors on bank liquidity creation. It is anticipated that directors with better education will deliver skills enabling the board to manage complex banking activities and achieve successful performance outcomes, which ultimately improves liquidity creation. As a result, the following hypothesis is proposed:

**H4:** There is a positive relationship between directors' education level and bank liquidity creation.

#### 2.2.5. Board meeting

The number of board meetings per year, according to Vafeas (1999), is a crucial factor in determining the board's overall effectiveness and plays a critical role in the governance and decision-making process of a bank, including those related to liquidity creation. In line with this, Karkowska and Acedański (2020) indicated that board meetings serve as a platform for sharing relevant information with directors about the bank's liquidity position, performance, and market conditions, where management provides updates on liquidity metrics, funding sources, and potential risks. This information equips directors with the necessary knowledge to make informed decisions about bank strategies. According to Gupta and Mahakud (2021), board meetings foster collaboration and engagement among directors, management, and other stakeholders involved in bank strategies through engaging in open discussions, sharing diverse perspectives, and challenging assumptions. In their research, Safiullah et al. (2020) emphasized that board meetings foster a collaborative environment that enhances decision-making, encourages innovation, and optimizes liquidity creation procedures in banks. Conversely, Khan and Rehman (2020) and Musleh Alsartawi (2019) argued that an increase in the frequency of board meetings may result in higher monitoring

costs. They posited that more frequent meetings could lead to stricter managerial control, potentially limiting the bank's ability to engage in value-creating activities and adversely affecting bank liquidity. However, the latter viewpoint appears less convincing, as the number of board meetings plays a crucial role in the overall effectiveness of the board. It facilitates the flow of knowledge and information among directors regarding bank activities, thereby promoting improved liquidity creation. Based on these considerations, we propose the following hypothesis:

**H5:** There is a positive relationship between board meetings and bank liquidity creation.

#### 2.2.6. Board size

Two contrasting perspectives exist regarding the influence of board size on liquidity creation in the banking industry. One viewpoint suggests that a larger board size enhances liquidity creation by providing a diverse range of perspectives, expertise, and knowledge. This increased diversity and collective decision-making ability can lead to more robust risk management practices and better liquidity outcomes (Díaz & Huang, 2017). Moreover, recent studies by Wasiu et al. (2020) and VU et al. (2020) contend that a larger board of directors can enhance a bank's regulatory and value-creating capabilities, consequently leading to improved bank performance. They posit that a larger board size provides banks with the capacity to engage in increased lending activities and generate greater liquidity. On the contrary, proponents of the agency theory assert that an excessively large board poses challenges in terms of coordination and communication. They argue that ensuring all directors have access to pertinent information and effectively participate in discussions becomes arduous, potentially exacerbating agency conflicts (Jensen, 1993). Consistent with prior research (Delis et al., 2009; Sadeghi, 2020; Safiullah et al., 2020), the existing literature has demonstrated that larger board sizes have been associated with weakened decision-making and hindered bank lending activity, thus exerting a negative influence on liquidity creation. While these studies argue that larger boards can enhance monitoring and oversight functions, the potential benefit may be counterbalanced by the challenges of decision-making in a larger group and reduced efficiency in addressing strategic issues, ultimately impeding the process of liquidity creation. Nevertheless, based on the above, we propose the following hypothesis:

**H6:** There is a positive relationship between board size and bank liquidity creation.

#### 2.2.7. Government ownership

This study seeks to explore how the influence of the independent variables (education level, foreign directors, independence, board meetings, gender diversity, and board size) on liquidity creation may vary depending on the extent of government ownership in the banking sector. Previous research by Bajrei et al. (2018) and Al-Khoury et al. (2019) underscored the continued dominance of state-owned banks in GCC countries, emphasizing their significant role in stabilizing the banking sector and the broader economy. While citizens technically hold co-ownership status in state-owned banks, in the MENA region, including GCC countries, they typically lack any substantial influence over the management of state-owned banks (Lassoued et al., 2018). Hence, the key agency challenge in GCC banks lies in the potential exploitation of minority shareholders by controlling entities such as the state, who may prioritize their interests over those of broader stakeholders (Khanchel et al., 2023). This lack of genuine ownership rights precludes the owner from exercising direct control, resulting in governance mechanisms that may not effectively safeguard the interests of all shareholders and could ultimately impact the liquidity creation dynamics of the GCC banking sector (Mousa et al., 2022).

The moderating role of government ownership in shaping the relationship between board governance attributes and bank liquidity creation can be illuminated through the following perspectives: Firstly, scholars suggest that the presence of dominant government shareholders can potentially give rise to Type II agency problems, where these controlling entities may

prioritize their interests over those of minority shareholders (Andrei Shleifer et al., 1997; La Porta et al., 2002). In accordance with the entrenchment effect, government shareholders might lean towards safeguarding their own interests, possibly increasing the likelihood of political intervention in the bank's operations at the expense of minority shareholders (La Porta et al., 2002). This stems from the understanding that decision-making within government-owned banks may not solely revolve around financial considerations but also encompass the developmental and political objectives of the government (Andrei Shleifer et al., 1997; Fu et al., 2015). Consequently, when political considerations take precedence over sound governance principles, the impact of governance attributes on liquidity creation might diminish (Berger et al., 2016). Secondly, concentrated ownership within government ranks can serve to align the interests of stakeholders with the government's overarching economic and financial stability goals (Qian et al., 2015). In line with the alignment effect, the presence of government shareholders can actively foster robust governance practices, including independence, transparency, effective oversight, and diversity goals, all of which can facilitate liquidity creation as an integral component of broader economic and financial stability objectives (Mousa et al., 2022; Yeddou & Pourroy, 2020).

From the perspective of resource dependency theory, the inherent political ties of government-owned banks allow them to benefit from regulatory support and preferential treatment (Thuy et al., 2022). When government-owned banks receive regulatory support and preferential treatment, they are under increased scrutiny from regulators. To maintain this support and special treatment, these banks are often required to adhere to higher board governance standards (Thuy et al., 2022). Moreover, government shareholders can wield substantial influence over corporate governance mechanisms, especially by intervening in the director appointment process, to promote board diversity (Cong Phuong et al., 2020). Thus, robust board governance standards, including independence and diversity in terms of nation, gender, skills, education, and experience, are crucial for liquidity creation in banks (Díaz & Huang, 2017; Sadeghi, 2020; Safiullah et al., 2020).

There is a body of empirical research that has in-depth explored the moderating role that government ownership concentration plays. For instance, Ur Rehman et al. (2020) uncovered that banks with a significant degree of governmental ownership serve as positive moderators in the relationship between board independence and bank efficiency. Khanchel et al. (2023) found that state ownership can exacerbate the negative impact of politically connected directors on bank performance, indicating that state shareholders may prioritize political goals over maximizing bank performance, potentially leading to inefficiencies in governance. Gallego-Álvarez and Pucheta-Martínez (2022) asserted that the presence of state ownership amplifies the negative impact of board diversity, particularly concerning cultural diversity and specific skill sets, on corporate risk. Furthermore, Abuhijleh and Zaid (2023) demonstrated that political and government engagement enhances the positive effects of board size, board independence, and board meetings on corporate liquidity, as gauged by metrics like cash holdings. These studies collectively shed light on how government ownership can exert a significant moderating effect on various governance and financial aspects within organizations. Drawing on the insights provided by these researchers and considering the agency and resource dependency theories, this study proposes that government ownership could serve as a moderating variable in the relationship between board governance attributes and liquidity creation within the GCC banking industry. Consequently, the following hypothesis is put forward:

**H7:** Government ownership moderates the association between board governance attributes and liquidity creation.

### 3. Research methodology

#### 3.1. Data and sample

The sample for the study included all banks listed on GCC stock exchanges between 2010 and 2021. Commercial banks are selected as the unit of analysis in this study since the financial sector of the GCC is banking-based and domestically owned, whilst this timeframe is chosen because the majority of GCC countries adopted their full corporate governance code after 2009 (Abidi et al., 2022; Shehata, 2015). Consequently, non-bank entities such as insurance and financing institutions were excluded from the analysis due to their unique characteristics which distinguish them from traditional banks, including their distinct approaches to liquidity, accounting policies, managerial structures, and auditing procedures. The sample selection process adhered to the following criteria: inclusion of banks with complete and relevant data, exclusion of banks that underwent mergers or acquisitions during the study period, and exclusion of banks with branches in multiple GCC countries to prevent duplication of data. Based on these criteria, the final sample consisted of 816 bank-year observations after excluding the missing data and delisting banks.

In order to ensure the credibility and dependability of the data, it is essential to provide a clear explanation of the data source and the methodology employed in the data collection process. Following the work of Ali et al. (2022) and Alaoui Mdaghri and Oubdi (2022), data related to banks' specific variables are taken from the Fitch-Connect database, whereas board governance data were manually collected from the banks' annual reports. All annual reports were downloaded from the GCC stock exchange website. Moreover, following Alaoui Mdaghri and Oubdi (2022), we obtained data related to macroeconomic variables from the World Bank database. It is important to note that using data from the Fitch-Connect database has three primary advantages: i) it is well acknowledged that credit rating organizations like Fitch and researchers use it in their studies (Ali et al., 2022), ii) it contains roughly 90% of the assets held by banks in an economy, and iii) it offers data in accordance with international reporting and accounting standards.

#### 3.2. Variables measurement

In this study, we employ liquidity creation as the dependent variable to investigate its relationship with the independent variables such as board characteristics. To measure liquidity creation, the study refers to Berger and Bouwman (2009) classification of bank activities into illiquid, semiliquid, and liquid categories based on loans' characteristics and the inclusion or exclusion of off-balance sheet activities. Due to data limitations, the study focuses specifically on the "cat-nonfat" assessment of liquidity creation proposed by Berger and Bouwman (2009), which considers loans by category and excludes off-balance sheet items. This measurement aligns with the choices of Ali et al. (2022) and Alaoui Mdaghri and Oubdi (2022). In line with this, Berger and Bouwman (2009) asserted that among the four liquidity measures examined, their preference lies with the "cat-nonfat" indicator. They argued that using maturities relative to categories as indicators does not effectively capture the time, cost, and ease with which banks obtain liquid funds from their obligations, particularly considering the role of securitization in banks' funding sources.

Given the data constraints, the study employs a three-stage approach based on Berger and Bouwman (2009) methodology to construct liquidity measurements. In the first stage, assets, bank equity, and liabilities are categorized as illiquid, semiliquid, or liquid based on factors such as cost, ease, and time required to obtain liquid funds. The second stage involves assigning weights to the categorized items, as presented in Table 1, drawing on the financial intermediation theory which highlights that banks generate liquidity by holding illiquid assets and providing liquid funds to the public. In the third stage, the categorized and weighted bank transactions are combined to form the liquidity creation measure, following Berger and Bouwman (2009) approach. This involves multiplying the dollar quantities of relevant bank activities by the corresponding weights of +1/2, -1/2, or 0, and summing the weighted dollar amounts to determine the total dollar value of liquidity creation at an individual bank. A higher liquidity creation ratio indicates a greater conversion of liquid liabilities into illiquid assets by banks. A ratio of zero signifies no liquidity creation,

**Table 1. Balance sheets weighting used to calculate the liquidity creation indicator**

Assets	Liquidity Level	Weights
Cash and due from banks	Liquid	-0.5
Interbank loans	Semiliquid	0
All securities (regardless maturity)	Liquid	-0.5
Commercial and industrial loans	Illiquid	0.5
Consumer loans	Semiliquid	0
Other loans and lease financing receivables	Illiquid	0.5
Governments and foreign loans	Semiliquid	0
Real estate loans	Semiliquid	0
Fixed assets	Illiquid	0.5
Other assets	Illiquid	0.5
Customer acceptances	Semiliquid	0
<i>Liabilities &amp; equity</i>		
Demand deposits	Liquid	0.5
Saving deposits	Liquid	0.5
Time deposits	Semiliquid	0
Other term deposits	Semiliquid	0
Short-term borrowings	Liquid	0.5
Other short-term liabilities	Liquid	0.5
Long-term borrowings	Semiliquid	0
Other long-term liabilities	Semiliquid	0
Equity	Illiquid	-0.5

Source: Berger and Bouwman (2009).

while a negative ratio suggests the use of equity or illiquid liabilities to finance liquid assets, resulting in a loss of liquidity for banks. The liquidity creation (LC) metric, according to Berger and Bouwman (2009), is calculated as follows:

$$LC = \frac{(\frac{1}{2} * ILA + 0 * SLA - \frac{1}{2} * LA) + (\frac{1}{2} * LL + 0 * SLL - \frac{1}{2} * ILL - \frac{1}{2} * EQ)}{TA}$$

Where ILA stands for “illiquid assets”, which refers to assets and loans that cannot be sold quickly without incurring a major loss, such as commercial and industrial loans, other loans, fixed assets, and other assets. SLA is an abbreviation for semiliquid assets, which refers to real estate loans, consumer loans, loans to depositories, and loans to government institutions that are generally easy to securitize or otherwise dispose of due to their large and transparent counterparties. LA stands for liquid assets, which include cash and dues from bank and all securities (regardless of maturity). LL stands for liquid liabilities, which are funds that clients can withdraw without penalty, such as savings deposits, transaction deposits, and trading liabilities. SLL stands for semiliquid liabilities, which encompass any deposits that can be withdrawn with a little more effort or with a penalty, such as time deposits regardless of maturity (due to data limitations, other borrowed money is excluded). ILL indicates illiquid liability which includes long-term liabilities, such as subordinated debt, that cannot be withdrawn quickly or easily. EQ denotes equity which is viewed as an illiquid liability due to its long-term maturity. Even though equities are easily bought and sold, investors get their funds from the stock exchange rather than the bank; hence, the stock exchange, not the bank, creates liquidity (Berger & Bouwman, 2009). Lastly, stands for total assets.

Independent variables, also known as predictors, are variables that have a positive or negative effect on the dependent variable. In this study, the characteristics of board governance, specifically board independence, board nationality, gender diversity, board education level, board meetings, and board size, serve as independent variables. Board independence (IND) is determined by calculating the ratio of independent board members to the total number of board members (Fayad et al., 2022); board nationality (FOD) is evaluated by examining the proportion of foreign national directors among the total number of directors on the board (Al-Juaidi, 2021); board gender diversity (FEM) is assessed based on the proportion of female directors serving on the board (Abou-El-Sood, 2019); board educational background (BFIEXP) is measured by considering the proportion of board members holding qualifications in accounting and finance (Fayad et al., 2022); board meetings are quantified by counting the number of meetings conducted by the board of directors during the accounting year (Hassan et al., 2022); board size (BSIZE) is represented by the total number of directors comprising the bank board (El-Charani et al., 2023); and government ownership, which serves as a moderator in this study, is measured as the aggregate percentage owned by government or semi-government institutions holding 5% or more of the ordinary shares (Al-Khoury et al., 2019). A comprehensive overview of the definitions and measurements of all the variables is presented in Table 2.

### 3.3. Empirical model

To test the study hypothesis, we use the following two regression models for the sample: Model 1 examines the relationship between the board governance attributes namely board independence, board nationality, board educational background, gender diversity, board meetings, and board size, with liquidity creation. Model 2 examines the moderating effect of government ownership on the association between board governance mechanisms and bank liquidity creation. In our analysis, we control for both bank-specific variables and macroeconomic conditions that may influence liquidity creation. To control bank characteristics, we include bank credit risk, which is measured as the ratio of non-performing loans to total loans. Non-performing loans restrict a bank's funds, thereby reducing the available liquidity for further lending and potentially impacting liquidity creation (Alaoui Mdaghri & Oubdi, 2022). Additionally, we incorporate the equity ratio, calculated as the ratio of total equity to total assets, to account for equity levels (Sahyouni & Wang, 2019). Bank size is determined by taking the logarithm of total assets (Ali et al., 2022), while bank performance is captured through the return on assets (ROA) measure, enabling control for managerial performance (Sahyouni & Wang, 2019). Moreover, we consider family ownership as an important factor, represented by the aggregate percentage owned by the family that holds 5% or more of the ordinary shares (Yeddou & Pourroy, 2020). To address macroeconomic conditions during the sample period, we introduce a dummy variable to capture the effect of COVID-19. This variable takes a value of 1 if the fiscal year ended on or after 31 December 2019, and 0 otherwise (Viverita et al., 2022). Additionally, we incorporate the inflation rate, measured as the consumer price index (CPI), to control for economic conditions (Alaoui Mdaghri & Oubdi, 2022).

To assess the presence of heteroscedasticity, we conducted the Breusch-Pagan/Cook-Weisberg test, of which result indicated its existence in our analysis. Furthermore, the Wooldridge test was employed to identify potential autocorrelation within the research model, and the results confirmed the presence of this issue. To address these econometric challenges, we employed the feasible generalized least squares (FGLS) estimator, known for providing more reliable parameter estimates and unbiased standard errors in the presence of autocorrelation and heteroscedasticity (Bajary et al., 2023; Ghaleb et al., 2020; Reed & Ye, 2011; Zhang et al., 2021). Additionally, to mitigate the influence of outliers, we applied winsorization to all variables exhibiting extreme values at both the top and bottom 1% and 5% thresholds. This procedure aids in reducing the potential distortions caused by outliers in our analysis.

$$LC_{it} = \beta_0 + \beta_1 IND_{it} + \beta_2 FOD_{it} + \beta_3 BFIEXP_{it} + \beta_4 FEM_{it} + \beta_5 MEETING_{it} + \beta_6 BSIZE_{it} + \beta_7 BSIZ_{it} + \beta_8 ROA_{it} + \beta_9 CAP_{it} + \beta_{10} CRRISK_{it} + \beta_{11} INF_{it} + \beta_{12} FAMOWN_{it} + \beta_{13} COVID_{19it} + \varepsilon_{it} \quad (1)$$

**Table 2. Variables description and measurement**

Variable name	Acronym	Variable description
Liquidity Creation	LC	Liquidity created on the balance sheet based on category ( <i>Cat-non-Fat</i> ) following Berger and Bouwman (2009).
<b>IVs</b>		
Board Independence	IND	The proportion of independent non-executive directors on the board.
Board Nationality	FOD	The proportion of foreign national directors on the board.
Gender Diversity	FEM	The proportion of female directors on the board.
Board Education Background	BFIEXP	The proportion of board members with high qualifications in accounting or finance, including those who are members of accounting professional bodies.
Board Meetings	MEETING	Total number of board meetings in a fiscal year
Board Size	BSIZE	Total number of board members.
<b>CVs</b>		
Bank Size	BSIZ	Bank size is measured by the log of total assets.
Performance	ROA	Return on assets: Net income divided by total assets.
Bank capitalization	CAP	Total equity divided by total Assets.
Credit Risk	CRRISK	Non-performing loan/total loans
Inflation	INF	Measured by consumer price index (CPI)
Family ownership	FAMOWN	Percentage of 5% or more of the ordinary shares held by the family ownership.
Government ownership	GOVOWN	The aggregate percentage owned by the government or semi-government institution that owns 5% or more of the ordinary shares
COVID-19	COVID19	Dummy variable, 1 if the fiscal year ended on or after 31 December 2019; 0 otherwise.

$$\begin{aligned}
 LC_{it} = & \beta_0 + \beta_1 IND_{it} + \beta_2 FOD_{it} + \beta_3 BFIEXP_{it} + \beta_4 FEM_{it} + \beta_5 MEETING_{it} + \beta_6 BSIZE_{it} + \beta_7 GOVOWN_{it} \\
 & + \beta_8 IND * GOVOWN_{it} + \beta_9 FOD * GOVOWN_{it} + \beta_{10} BFIEXP * GOVOWN_{it} + \beta_{11} FEM * GOVOWN_{it} \\
 & + \beta_{12} MEETING * GOVOWN_{it} + \beta_{13} BSIZE * GOVOWN_{it} + \beta_{14} BSIZ_{it} + \beta_{15} ROA_{it} + \beta_{16} CAP_{it} \\
 & + \beta_{17} CRRISK_{it} + \beta_{18} INF_{it} + \beta_{19} FAMOWN_{it} + \beta_{20} COVID_{19}_{it} + \epsilon_{it}
 \end{aligned} \tag{2}$$

#### 4. Empirical results

##### 4.1. Descriptive statistics

Table 3. Regarding the dependent variables, the mean value of liquidity created by GCC banks over the sample period is 21.4% with a standard deviation of 16.28%, which suggests that 21.4% of the bank’s total assets are allocated to on-balance sheet activities that contribute to liquidity creation. Such figure is relatively similar to the GCC bank results of Ali et al. (2022) and Alshammari (2021), and close to those of MENA banks found by Alaoui Mdaghri and Oubdi (2022). The liquidity creation

of the GCC banks ranges between -57.5% and 58.3%, which means that some banks during the sample period create liquidity and sometimes destroy it. The negative liquidity creation of a few banks shows that they did not play their role in creating liquidity but instead hoarded it in their own hands, causing funds to remain idle in the banking system instead of flowing to the real economy, or that these banks were in their establishment stage and their ability to grant loans and expand the customer base was limited.

Moving to board characteristics, the board independence (IND) proportion in GCC banks varies from 0.125 to 0.909, with an average value of approximately 46.3%. This finding aligns with the mean reported by El-Chaarani et al. (2023) and is similar to that observed by Nomran and Haron (2019). The average proportion suggests that GCC banks are generally compliant with the GCC corporate governance code, which mandates a minimum of 33% independent directors on the board. The participation of foreign directors on GCC bank boards has an average value of 25.1%, ranging from 0% to 100%. This indicates the presence of nationality diversity in Gulf banks due to foreign investments, as noted by Gafrej and Boujelbéne (2021) and Al-Juaidi (2021). With regards to the education level of board members, the average proportion of directors with qualifications in accounting and finance (BFIEXP) is 0.422. The range spans from a minimum of 0.111 to a maximum of 0.889, indicating that, on average, 42.3% of the directors hold advanced degrees such as PhDs, master's degrees, or MBAs. These findings are consistent with those reported by Issa et al. (2022). Gender diversity on GCC bank board's shows a clear male dominance, with several boards being predominantly composed of male members. This observation is supported by the minimum value of 0, as documented by Abou-El-Sood (2019) and Issa et al. (2022). The average participation of women on GCC bank boards is very low, at 0.033, with a maximum value of 0.033. In terms of board meetings, the average number of annual board meetings is 7.59, with a median of 7. The range varies from a minimum of 4 meetings to a maximum of 23 meetings, indicating a high frequency of board meetings. This finding aligns with the high number of meetings reported by Hassan et al. (2022), which can be attributed to the increased frequency of meetings in 2020 due to the pandemic. Finally, the board size (BSZ) in GCC banks ranges from a minimum of 6 members to a maximum of 15 members with an average of approximately nine members. This

**Table 3. Descriptive statistics for all variables**

Variable	Mean	Std. Dev.	Median	Min	Max	Skewness	Kurtosis
LC	.214	.162	.225	-.575	.582	-.987	5.48
IND	.463	.150	.444	.125	.909	.634	3.20
FOD	.251	.252	.181	0	1	.959	3.17
BFIEXP	.422	.165	.428	.111	.888	.305	2.73
FEM	.033	.061	0	0	.3	1.77	5.58
MEETING	7.59	2.86	7	4	23	2.01	8.02
BSIZE	9.48	1.60	9	6	15	.236	2.82
BSIZ	7.20	.857	7.22	5.07	9.03	-.030	2.14
ROA	.011	.009	.011	-.030	.034	-1.32	7.40
CAP	.130	.040	.121	.076	.238	1.05	3.80
CRRISK	.061	.048	.046	.008	.182	1.12	3.37
INF	.017	.018	.0197	-.0254	.058	-.460	2.95
FAMOWN	.045	.085	0	0	.371	2.26	7.82
GOVOWN	0.259	0.213	0.2	0	0.972	1.12	4.100
COVID19	.166	.372	0	0	1	1.78	4.2

Note: LC = liquidity creation, IND = Board Independence, FOD = Board Nationality, BFIEXP = Board Educational Background, FEM = Board Gender Diversity, MEETING = Board Meetings, BSIZE = Board Size, BSIZ = Bank Size, ROA = Return on Assets, CAP = Bank Capital Ratio, CRRISK = Credit Risk, INF = Inflation, GOVOWN = Government Ownership, FAMOWN = Family ownership, COVID-19 = Covid\_19.



average value is consistent with the mean reported by El-Chaarani et al. (2023) and close to that of Hassan et al. (2022). The average board size closely aligns with the optimal number of members required for the effective functioning of the board.

In terms of control variables, Table 3 shows that the average mean value of bank size (BSIZ) is 7.2, with a median of 7.23, ranging from 5.07 to 9.03. There is a large variation between the maximum and minimum values of ROA, with the mean being low (1.13%), perhaps due to the high competition in the banking industry. As seen in this table, the averages of CAP and CRRISK are 0.130 and 0.061, respectively, and the average of these two variables is higher than the median, implying a highly skewed distribution to the right. Table 3 also exhibits that the mean of inflation is 0.017, the mean of family ownership is 0.045, and the mean of COVID-19 size is 0.166. These figures are in parallel with that of earlier studies (Ali et al., 2022; El-Chaarani et al., 2023; Hassan et al., 2022; Issa et al., 2022).

The correlation matrix among the study variables is presented in Table 4. To investigate links between the variables and determine whether the correlation of the variables can lead to estimation issues, a Pearson correlation test was carried out. The results show that the correlation coefficients are less than 0.6, indicating no serious correlation among the variables in the statistical model, aligning with the guidelines proposed by Hair et al. (2014). Further, a variance inflation factor (VIF) was conducted for each independent variable with VIF values below 10, which means that multicollinearity is not an issue. These results are consistent with that of Gujarati and Porter (2009) and Shahzad et al. (2023), who stated that “the presence of perfect correlation problem is absent if all the matrix values are not more than 0.80 and the variance inflation factor (VIF) is less than 10”.

#### **4.2. Regression analysis**

Table 5 exhibits the results based on the FGLS regression for the research model. The results indicate that both models fit at a significance level of 1 percent with (Prob > chi2 = 0.0000), whereas Wald chi2 = 1046.578 and 1079.902 for Model 1 and Model 2, respectively. With regards to the hypotheses formulated, we observe the following:

First, evidence from Model 1 of Table 5 supports Hypothesis H1 that board independence (IND) and liquidity creation have a positive and statistically significant association ( $b = 0.091$  and  $p < 0.01$ ). Thus, the results support our previous expectation that the presence of independent directors on the GCC bank board would enhance liquidity creation. This finding is consistent with the resource dependency and agency theories as well as the findings of previous studies which revealed that the existence of independent members can boost investor confidence in the bank's governance, particularly in its approach to liquidity creation. This confidence can attract and retain investors, improve access to capital markets, and facilitate the bank's ability to generate and deploy liquidity effectively (Díaz & Huang, 2017; Safiullah et al., 2020).

Second, the coefficient of the number of foreign directors is positive (0.035) and significant ( $p < 0.05$ ), suggesting that the presence of foreign board members improves liquidity creation. Thus, our second hypothesis is consistent with the predictions of the resource dependency theory, which states that the diverse backgrounds of foreign directors can contribute to a broader understanding of international markets, regulatory environments, and risk management practices. This broader perspective can help shape more informed decisions on liquidity management strategies, potentially enhancing liquidity creation. Thus, earlier research (Boussaada et al., 2018; Lee & Chung, 2018; Moussa, 2019) claimed that the inclusion of foreign members increases a bank's quality of credit through establishing liquidity buffers, which in turn increases bank productivity, including the production of prudent liquidity.

Third, Table 5 also includes the findings on the impact of board education level on the creation of bank liquidity. Our findings validated hypothesis H3 by indicating that board education level has a favorable and statistically significant impact on the magnitude of liquidity creation ( $b = 0.131$ ,

**Table 4. Matrix of Pearson correlations**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) LC	1.000													
(2) IND	0.146***	1.000												
(3) FOD	-0.115***	0.246***	1.000											
(4) BFEXP	0.100***	0.589***	0.525***	1.000										
(5) FEM	0.103***	0.264***	0.332***	0.397***	1.000									
(6) MEETING	0.259***	0.073**	-0.201***	0.081**	0.178***	1.000								
(7) BSIZE	0.043	-0.049	0.204***	0.176***	0.256***	0.098***	1.000							
(8) BSIZ	0.281***	0.014	-0.251***	-0.215***	-0.154***	-0.159***	-0.054	1.000						
(9) ROA	0.132***	-0.196***	-0.254***	-0.221***	-0.217***	-0.133***	-0.038	0.419***	1.000					
(10) CAP	-0.490***	-0.209***	-0.121***	-0.140***	-0.158***	-0.159***	-0.136***	-0.199***	0.133***	1.000				
(11) CRRISK	-0.275***	-0.101***	0.271***	0.001	0.175***	-0.055	0.108***	-0.265***	-0.294***	-0.067*	1.000			
(12) INF	-0.039	-0.244***	-0.135***	-0.236***	-0.152***	0.005	0.000	-0.053	0.059*	0.070**	-0.039	1.000		
(13) FAMOW	0.024	-0.038	-0.072**	-0.077**	-0.022	-0.060*	0.288***	-0.005	0.063*	-0.038	0.004	0.005	1.000	
(14) COVID19	0.279***	0.419***	0.131***	0.376***	0.274***	0.250***	0.097***	0.088**	-0.212***	-0.173***	-0.082***	-0.199*	0.004	1.000

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

Note: LC = Liquidity creation, IND = Board Independence, FOD = Board Nationality, BFEXP = Board Educational Background, FEM = Board Gender Diversity, MEETING = Board Meetings, BSIZE = Board Size, BSIZ = Bank Size, ROA = Return on Assets, CAP = Bank Capital Ratio, CRRISK = Credit Risk, INF = Inflation, FAMOWN = Family ownership, COVID-19 = Covid\_19.

**Table 5. Regression analysis results using cross-sectional time-series (FGLS)**

LC	Coef.	t-value	p-value	Sig
IND	.091	4.54	0	***
FOD	.035	2.19	.029	**
BFIEXP	.131	6.63	0	***
FEM	.049	1.41	.16	
MEETING	.002	3.23	.001	***
BSIZE	.005	3.01	.003	***
BSIZ	.069	7.60	0	***
ROA	.564	3.08	.002	***
CAP	-.503	-6.77	0	***
CRRISK	-.05	-1.17	.24	
INF	.001	0.01	.991	
FAMOWN	.116	3.27	.001	***
COVID19	.015	3.71	0	***
COUNTRY: base BAH~N	0	.	.	
K.S. A	.033	1.62	.106	
KUWAIT	.238	17.56	0	***
OMAN	.122	7.50	0	***
QATAR	.112	5.15	0	***
U.A. E	.04	2.22	.026	**
Constant	-.471	-7.47	0	***
SD dependent var	0.163	Chi-square	1046.578	
Number of obs	816	Mean dependent var	0.214	
Wooldridge test for autocorrelation	F (1, 67)	137.078		
	Prob > F	0.0000		
Breusch-Pagan /Cook-Weisberg test for heteroskedasticity	chi2(1)	33.88		
	Prob > chi2	0.0000		

\*\*\*p<.01, \*\*p<.05, \*p<.1

Note: LC = liquidity creation, IND = Board Independence, FOD = Board Nationality, BFIEXP = Board Educational Background, FEM = Board Gender Diversity, MEETING = Board Meetings, BSIZE = Board Size, BSIZ = Bank Size, ROA = Return on Assets, CAP = Bank Capital Ratio, CRRISK = Credit Risk, INF = Inflation, FAMOWN = Family ownership, COVID-19 = Covid\_19.

p 0.01). This result suggests that board members with a higher level of education, particularly in finance or related fields, may possess a deeper understanding of financial concepts, instruments, and markets, which can enable them to make informed decisions regarding liquidity creation strategies, assess associated risks, and evaluate the effectiveness of the bank's liquidity management practices. Prior studies (Díaz & Huang, 2017; Safiullah et al., 2020) revealed that higher-educated CEOs could provide better advising and oversight services by combining technological and banking knowledge, resulting in a larger client base and increased liquidity creation. This confirms that boards benefit from a diverse range of educational backgrounds and experiences, ensuring a holistic perspective in liquidity creation decision-making.

Fourth, the number of female directors has a positive (0.049) but negligible ( $p > 0.10$ ) coefficient, indicating that the existence of female board members has no effect on liquidity creation. This result is contrary to the predictions of the agency and resource dependency theories, which argue

that women may offer unique insights, alternative approaches, and a different risk appetite when it comes to liquidity creation. This diversity of perspectives can enhance the board's ability to identify opportunities and assess risks, which can lead to better-informed decisions and more effective liquidity management practices. This finding also contradicts that of Ye et al. (2020) and Safiullah et al. (2020), but supports those of Khan and Rehman (2020) and Sanyaolu and Siyanbola (2020) who reported an insignificant relationship between board gender diversity and bank liquidity. Our results could be interpreted as an indication that, despite progress in recent years, women continue to be underrepresented on corporate boards, including in the banking sector, due to the tradition and culture governing the GGC region. When the number of female directors is small, their influence on board decisions, including those related to liquidity creation, may be diluted.

Fifth, in Table 5, we explored the nexus between board meetings and bank liquidity creation. Consistent with H4, we found that the frequent meetings of board members promote bank liquidity creation. The annual board meeting has a favorable and significant influence on liquidity creation at the 1% level ( $b=0.002$  and  $t=3.23$ ). As a result, H5 is supported and consistent with the assertions of the resource dependency and agency theories. This result is reinforced by Safiullah et al. (2020) findings, which proved the existence of a favorable relationship between regularly board meetings and bank liquidity creation. Board meetings serve as a platform for sharing relevant information with directors about the bank's liquidity position, performance, and market conditions. Management provides updates on liquidity metrics, funding sources, and potential risks, which equip directors with the necessary knowledge to make informed decisions about liquidity creation strategies.

Finally, Table 5 shows a significant positive relationship between board size and bank liquidity creation at the 1% level ( $b=0.005$  and  $t=3.01$ ), supporting Hypothesis 6. This outcome is consistent with the resource independence theory, which argues that a larger board may provide a wider range of skills, knowledge, and experience, and thus contribute to more comprehensive assessments of liquidity risks and the development of innovative liquidity creation strategies. Previous studies (Kusi et al., 2018; Majeed et al., 2020; VU et al., 2020) indicated that a larger board of directors promotes shareholder value maximization by encouraging banks to extend lending activities and hence create more liquidity. However, our result is in contrast with that of Safiullah et al. (2020) who found that larger board sizes complicate decision-making and collaboration among directors, potentially affecting the exploitation of valuable investment opportunities that create more liquidity.

In terms of the moderating effects of government ownership, the results from Model 2 in Table 6 indicate that government ownership plays a significant moderating role in the association between certain board governance mechanisms, such as gender diversity and meetings, with liquidity creation at 5% and 10% significance levels, respectively. However, the moderating impact of government ownership concentration on the link between board composition (independence, nationality, education level, size) and liquidity creation is found to be insignificant ( $p > 0.10$ ). One plausible explanation for the lack of significant moderating influence of government control on the relationship between board composition and liquidity creation, including independence, nationality, education level, and size, may be attributed to regulatory compliance measures in GCC countries. These countries have established regulatory frameworks that apply to all banks, including government-owned banks, which often stipulate specific requirements for board composition, such as the presence of independent directors and diverse expertise representation. Government-owned banks are generally mandated to adhere to these regulations, ensuring that the board composition aligns with the regulatory guidelines. Consequently, the influence of government ownership concentration on board composition may be restricted, and any potential impact on liquidity creation may not be directly linked to the level of ownership concentration.

Furthermore, the findings indicate that the presence of government shareholders in the banking industry positively moderates the relationship between gender diversity and liquidity creation,

**Table 6. Regression analysis results for the moderating variable**

LC	Coef.	t-value	p-value	Sig
IND	.102	3.55	0	***
FOD	.02	0.94	.348	
BFIEXP	.139	5.07	0	***
FEM	-.033	-0.68	.497	
MEETING	.003	3.64	0	***
BSIZE	.007	3.17	.002	***
GOVOWN	.161	1.74	.081	*
IND_GOV	-.069	-0.79	.428	
FOD_GOV	.051	0.75	.455	
BFEXP_GOV	-.032	-0.36	.717	
FEM_GOV	.398	2.41	.016	**
MEET_GOV	-.008	-1.89	.059	*
BSZ_GOV	-.011	-1.45	.146	
BSIZ	.074	7.71	0	***
ROA	.515	2.79	.005	***
CAP	-.503	-6.68	0	***
CRRISK	-.059	-1.36	.175	
INF	-.002	-0.04	.966	
FAMOWN	.109	2.97	.003	***
COVID19	.015	3.73	0	***
COUNTRY: base BAH~N	0	.	.	
K.S. A	.025	1.09	.276	
KUWAIT	.235	16.46	0	***
OMAN	.133	7.84	0	***
QATAR	.107	4.69	0	***
U.A. E	.041	2.17	.03	**
Constant	-.539	-7.81	0	***
<i>SD dependent var</i>	0.163	<i>Chi-square</i>	1079.902	
<i>Number of obs</i>	816	<i>Mean dependent var</i>	0.214	

\*\*\*p<.01, \*\*p<.05, \*p<.1

possibly due to their influence overboard appointments, leading to the appointment of more female directors to achieve diversity goals. The inclusion of female board members can bring diverse perspectives and skills, positively impacting liquidity creation through effective risk management and decision-making. On the other hand, the results also show that the interaction between government ownership and board meetings negatively moderates liquidity creation. This suggests that higher government ownership concentration may hinder or influence board meetings and decision-making processes, potentially driven by political and short-term considerations, which could have adverse effects on liquidity creation. These findings align with previous studies by Ur Rehman et al. (2020) and Fu et al. (2015), which also found that government involvement can strengthen the connections between board features, including diversity, independence, size, and meetings, with bank efficiency and risk-taking. Government shareholders often operate with specific objectives and mandates set by the government, such as promoting economic development, ensuring financial stability, or supporting certain sectors. These objectives can shape the board's priorities and influence decision-making related to liquidity creation.

With regards to the control variables, the results of both models show that bank size, ROA, and family ownership are positively and significantly associated with liquidity creation, suggesting that banks with a larger size, better performance, and family ownership are more likely to improve and enhance liquidity creation. These findings are in parallel to the results of previous studies (Alaoui Mdaghri & Oubdi, 2022; Ali et al., 2022; Safiullah et al., 2020; Sahyouni & Wang, 2019). In contrast, the results of both models show that there is a negative and significant relationship between bank capital and liquidity creation due to financial fragility, whereas there is no effect of credit risk on liquidity creation. In terms of macroeconomics, the COVID-19 pandemic has a positive and significant relationship with bank liquidity creation at a level of 1%, which contradicts the findings of Viverita et al. (2022) and Karim et al. (2021) who revealed that banks created less liquidity during the pandemic. Furthermore, the results of both models show that inflation does not have a significant relationship with GCC bank liquidity creation.

#### **4.3. Additional robustness checks**

##### **4.3.1. Endogeneity test**

Endogeneity is a serious issue in research because it undermines crucial assumptions necessary to establish causation and because it is impossible to forecast in advance both the direction and the magnitude of its bias (Antonakis et al., 2010). Previous investigations (Li, 2016; Zaefarian et al., 2017) indicate that endogeneity must be taken into account and corrected in research practices to avoid incorrect and skewed outcomes and the possibility of incorrectly inferring cause-and-effect correlations between concepts of interest. This issue could occur for a variety of reasons, including but not limited to the following: omission of variables, inaccurate measurements, biased samples, simultaneous causality, etc. (Zaefarian et al., 2017), whereby typically, in accounting literature, the issue stems from relationships between the independent variables and unobserved omitted variables (Li, 2016). For robustness purposes, we utilized the lagged dependent variable to correct the endogeneity problem. This approach is in line with the one used by Bajary et al. (2023). As reported in Table 7, board governance attributes in terms of independence, nationalism, education level, meetings, and size are positively associated with bank liquidity creation, which is identical to the results of the main analysis.

##### **4.4. Alternative regression estimation (OLS with robust standard errors)**

Our research models exhibit both autocorrelation and heteroscedasticity issues, as previously mentioned (Section 3.5). Although we used FGLS to control the estimates of the coefficients for autocorrelation and heteroscedasticity (Bajary et al., 2023; Ghaleb et al., 2020; Reed & Ye, 2011; Zhang et al., 2021), we also used OLS with robust standard errors to guarantee the robustness of the study's main findings, as recommended by Ghaleb et al. (2020). The results depicted in Table 8 show a significant relationship between board governance attributes and bank liquidity creation. These findings confirm the main results reported in Table 5, suggesting that board governance mechanisms play a potential role in improving liquidity creation in the GCC banking sector.

#### **5. Conclusions**

The critical role of banks as financial intermediaries in the economy and their ability to effectively create and manage liquidity are essential for maintaining financial stability and supporting economic growth. In this context, effective corporate governance acts as the fundamental framework that guides and regulates a bank's decision-making processes and operational activities (Farak & Mallin, 2017). A comprehensive examination reveals that strong internal governance ensures that the board of directors maintains control over the bank's operations and manages its assets and liabilities in a prudent manner, thereby promoting sound liquidity creation (Díaz & Huang, 2017; Sadeghi, 2020; Safiullah et al., 2020). However, despite its importance, the relationship between specific board governance characteristics and liquidity creation has received limited attention, particularly in emerging economies such as the GCC. Thus, the objective of this study is to empirically investigate liquidity creation by considering various board governance attributes,

**Table 7. Regression results of study model using DV lagged value**

L.LC	Coef.	t-value	p-value	Sig
IND	.074	3.60	0	***
FOD	.029	1.84	.065	*
BFIEXP	.105	5.20	0	***
FEM	.034	0.92	.356	
MEETING	.002	3.40	.001	***
BSIZE	.003	2.05	.041	**
BSIZ	.073	7.71	0	***
ROA	.448	2.30	.021	**
CAP	-.506	-6.15	0	***
CRRISK	-.066	-1.47	.143	
INF	-.093	-1.71	.086	*
FAMOWN	.124	3.40	.001	***
COVID19	.015	3.62	0	***
COUNTRY: base BAH~N	0	.	.	
K.S. A	.015	0.73	.468	
KUWAIT	.224	16.32	0	***
OMAN	.108	6.32	0	***
QATAR	.093	4.31	0	***
U.A. E	.018	0.97	.332	
Constant	-.469	-6.92	0	***
Mean dependent var	0.204	SD dependent var	0.162	
Number of obs	748	Chi-square	837.525	

\*\*\*p<.01, \*\*p<.05, \*p<.1

including independence, foreign directors, education level, gender diversity, board size, and board meetings. Furthermore, the study aims to explore the potential moderating effect of government ownership in this relationship.

We applied the feasible generalized least squares (FGLS) approach to a sample of 68 listed banks in the GCC countries over the 2010–2021 period to investigate the nature of the relationship between board governance attributes (e.g., independence, nationality, education level, gender diversity, meetings, and size) and liquidity creation. Our results indicate that bank liquidity creation is positively related to board independence, nationality, education level, meetings, and size. However, we could not establish support for any association between bank liquidity creation and the participation of female directors on GCC bank boards. Furthermore, it was found that the moderating effect of government ownership enhances the association between board attributes and bank liquidity creation. Our results are robust under the alternative regression model, which confirms that effective board governance improves the liquidity position of banks by guarding their cash resources and lines of credit. To control the endogeneity problem, we employed the lagged dependent variable, as the results supported the main regression results.

This study contributes to the existing literature by examining board attributes that have received limited research attention in relation to liquidity creation. While previous research primarily focused on the impact of board governance on bank performance, risk-taking, efficiency, asset quality, and credit risk, this study explores the influence of these attributes on liquidity creation, thus expanding our understanding of the subject. The findings of this research also provide

**Table 8. Regression results of study model using robust standard error**

LC	Coef.	Robust St. Err.	t-value	p-value	Sig
IND	-.113	.042	-2.66	.008	***
FOD	-.004	.022	-0.19	.846	
BFIEXP	.309	.037	8.28	0	***
FEM	.183	.068	2.70	.007	***
MEETING	-.003	.002	-1.70	.09	*
BSIZE	-.001	.003	-0.38	.703	
BSIZ	.004	.012	0.34	.737	
ROA	2.68	.723	3.70	0	***
CAP	-1.769	.148	-11.95	0	***
CRRISK	-.217	.114	-1.90	.058	*
INF	-.408	.219	-1.87	.062	*
FAMOWN	.249	.045	5.58	0	***
COVID19	.062	.012	5.26	0	***
COUNTRY: base BAH~N	0	.	.	.	
K.S. A	.157	.022	7.17	0	***
KUWAIT	.292	.016	18.64	0	***
OMAN	.124	.019	6.36	0	***
QATAR	.206	.021	9.79	0	***
U.A. E	.143	.019	7.48	0	***
Constant	.191	.096	2.00	.046	**
Mean dependent var	0.214	SD dependent var			0.163
R-squared	0.576	Number of obs			816
F-test	46.723	Prob > F			0.000
Akaike crit. (AIC)	-1309.064	Bayesian crit. (BIC)			-1219.680

\*\*\*p<.01, \*\*p<.05, \*p<.1

empirical evidence supporting the agency and resource dependency theories as determinants of corporate governance and its relationship with liquidity creation (Safiullah et al., 2020). Beyond its theoretical significance, this study holds practical implications for policymakers and investors in terms of board governance and liquidity creation. The results can guide bank management, regulators, GCC governments, and other stakeholders in formulating effective monetary and governance policies to enhance financial stability in the region. Thus, transparent, and effective liquidity creation practices, supported by robust governance mechanisms, enhance stakeholders' trust in the bank's ability to manage liquidity risks and fulfill their obligations. This confidence contributes to the bank's reputation, financial stability, and access to funding sources. Moreover, these findings may provide regulators and policymakers with insights that could prompt the introduction of incentives for banks to set voluntary diversity goals for their boards, including the implementation of specific quotas for female directors, aimed at strengthening their representation within the governing bodies of GCC banking institutions.

Nevertheless, this study has certain limitations. Firstly, it is worth noting that the study only examined a limited number of governance attributes out of the numerous factors that could potentially influence liquidity creation. Second, our study used a sample of listed banks from the GCC region, which is a developing country. Thus, the findings could not be generalized to listed banks from developed countries (e.g., the United States and the European Union). Third, using broad measurements of liquidity creation rather than the narrow measurements used in this study may result in different findings;



thereby, the validity of the evidence is subject to the measurements used in the current study. Therefore, it is recommended that future research expands the scope of analysis by incorporating alternative measures of liquidity creation and including additional governance variables to deepen the understanding of their impact. For instance, examining the influence of audit committees, risk committees, remuneration and nomination committees, regulatory compliance, various levels of concentrated ownership, and different ownership structures can provide a more comprehensive assessment of the role of board governance in liquidity creation. Additionally, conducting comparative studies across multiple countries, particularly within the emerging markets of Asia, can offer valuable insights into the contextual differences and similarities in the relationship between board governance and liquidity creation.

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#### References

- Abidi, I., Nsaibi, M., & Hussainey, K. (2022). Does ownership structure moderate the relationship between systemic risk and corporate governance? Evidence from Gulf cooperation council countries. *Journal of Risk and Financial Management*, 15(5), 216. <https://doi.org/10.3390/jrfm15050216>
- Abou-El-Sood, H. (2019). Corporate governance and risk taking: The role of board gender diversity. *Pacific Accounting Review*, 31(1), 19–42. <https://doi.org/10.1108/PAR-03-2017-0021>
- Abuhijleh, T. F. S., & Zaid, M. A. A. (2023). Do political connections shape the nexus between board attributes and corporate cash holdings? *EuroMed Journal of Business*, 18(1), 85–110. <https://doi.org/10.1108/EMJB-09-2021-0136>
- Acharya, V., & Naqvi, H. (2012). The seeds of a crisis: A theory of bank liquidity and risk taking over the business cycle. *Journal of Financial Economics*, 106(2), 349–366. <https://doi.org/10.1016/j.jfineco.2012.05.014>
- Alaoui Mdaghri, A., & Oubdi, L. (2022). Basel III liquidity regulatory framework and bank liquidity creation in MENA countries. *Journal of Financial Regulation & Compliance*, 30(2), 129–148. <https://doi.org/10.1108/JFRC-01-2021-0002>
- Ali, S., Yousaf, I., Chughtai, S., & Ali Shah, S. Z. (2022). Role of bank competition in determining liquidity creation: Evidence from GCC countries. *Journal of Applied Economics*, 25(1), 242–259. <https://doi.org/10.1080/15140326.2022.2043114>
- Al-Juaidi, O. E. M. (2021). Impact of characteristics of board of directors on Intellectual capital performance for banks listed in Gulf markets. *International Journal of Innovation, Creativity and Change*, 14(2), 2020. [www.ijcc.net](http://www.ijcc.net)
- Al-Khouri, R., Arouri, H., & Elliott, P. C. (2019). Market power and the role of banks as liquidity providers in GCC markets. *Cogent Economics & Finance*, 7(1), 1639878. <https://doi.org/10.1080/23322039.2019.1639878>
- Al-Magharem, A. A. S., Haat, M. H. C., Hashim, H. A., & Ismail, S. (2019). Corporate governance and loan loss provisions: A review. *Journal of Sustainability Science and Management*, 14(4), 228–241.
- Alshammari, T. (2021). The determinants of liquidity creation of conventional and Islamic banks. *International Journal of Accounting and Finance*, 11(1), 1. <https://doi.org/10.1504/ijaf.2021.10044662>
- Andrei Shleifer, Vishny, R. W., & Shleifer, A. (1997). A survey of corporate governance Andrei. *PhD proposal* 1(2), 737–783. *The Journal of Finance*, 52(2), 737–783. <https://doi.org/10.1111/j.1540-6261.1997.tb04820.x>
- Andreou, P. C., Philip, D., & Robejsek, P. (2016). Bank liquidity creation and risk-taking: Does managerial ability matter? *Journal of Business Finance & Accounting*, 43(1–2), 226–259. <https://doi.org/10.1111/jbfa.12169>
- Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly*, 21(6), 1086–1120. <https://doi.org/10.1016/j.leaqua.2010.10.010>
- Arnaboldi, F., Casu, B., Kalotychou, E., & Sarkisyan, A. (2020). The performance effects of board heterogeneity: What works for EU banks? *European Journal of Finance*, 26(10), 897–924. <https://doi.org/10.1080/1351847X.2018.1479719>
- Bajary, A. R., Shafie, R., & Ali, A. (2023). COVID-19 pandemic, internal audit function and audit report lag: Evidence from emerging economy. *Cogent Business & Management*, 10(1). <https://doi.org/10.1080/23311975.2023.2178360>
- Bajrei, S. S. S., Ismail, S., & Nor, S. M. (2018). Panel data analysis of ownership structure and board effectiveness influence on GCC bank performance. *Economic Annals-XXI*, 172(7–8), 4–8. <https://doi.org/10.21003/ea.V172-01>
- Ben Zeineb, G., & Mensi, S. (2018). Corporate governance, risk and efficiency: Evidence from GCC Islamic banks. *Managerial Finance*, 44(5), 551–569. <https://doi.org/10.1108/MF-05-2017-0186>
- Berger, A. N., & Bouwman, C. H. S. (2009). Bank liquidity creation. *The Review of Financial Studies*, 22(9), 3779–3837. <https://doi.org/10.1093/rfs/hhn104>
- Berger, A. N., Bouwman, C. H. S., Kick, T., & Schaeck, K. (2016). Bank liquidity creation following regulatory interventions and capital support. *Journal of Financial Intermediation*, 26, 115–141. <https://doi.org/10.1016/j.jfi.2016.01.001>
- Berger, A. N., Kick, T., & Schaeck, K. (2014). Executive board composition and bank risk taking. *Journal of Corporate Finance*, 28, 48–65. <https://doi.org/10.1016/j.jcorpfin.2013.11.006>
- Berger, A. N., & Sedunov, J. (2017). Bank liquidity creation and real economic output. *Journal of Banking and Finance*, 81, 1–19. <https://doi.org/10.1016/j.jbankfin.2017.04.005>

- Boussaada, R., Ammari, A., & Arfa, N. B. (2018). Board characteristics and MENA banks' credit risk: A fuzzy-set analysis. *Economics Bulletin*, 38(4), 2284–2303. [https://www.researchgate.net/publication/329360658\\_Board\\_characteristics\\_and\\_MENA\\_banks\\_%27\\_credit\\_risk\\_A\\_fuzzy-set\\_analysis](https://www.researchgate.net/publication/329360658_Board_characteristics_and_MENA_banks_%27_credit_risk_A_fuzzy-set_analysis)
- Certo, S. T. (2003). Influencing initial public offering investors with prestige: Signaling with board structures. *Academy of Management Review*, 28(3), 432–446. <https://doi.org/10.2307/30040731>
- Chazi, A., Khallaf, A., & Zantout, Z. (2018). Corporate governance and bank performance: Islamic versus non-Islamic banks in GCC countries. *Journal of Developing Areas*, 52(2), 109–126. <https://doi.org/10.1353/jda.2018.0025>
- Cong Phuong, N., Dinh Khoi Nguyen, T., & Phuoc Vu, H. (2020). Politics and institution of corporate governance in Vietnamese state-owned enterprises. *Managerial Auditing Journal*, 35(5), 667–684. <https://doi.org/10.1108/MAJ-02-2018-1810>
- Deep, A., & Schaefer, G. (2005). Are Banks Liquidity Transformers? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.556289>
- Delis, M. D., Gaganis, C., & Pasiouras, F. (2009). Bank liquidity and the board of directors. *MPPRA Repec Archive*, 1–23. <http://mpra.ub.uni-muenchen.de/18872/>
- Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy*, 24(1), 14–23. <https://doi.org/10.21034/qj.2412>
- Díaz, V., & Huang, Y. (2017). The role of governance on bank liquidity creation. *Journal of Banking and Finance*, 77, 137–156. <https://doi.org/10.1016/j.jbankfin.2017.01.003>
- Dong, Y., Girardone, C., & Kuo, J. M. (2017). Governance, efficiency and risk taking in Chinese banking. *The British Accounting Review*, 49(2), 211–229. <https://doi.org/10.1016/j.bar.2016.08.001>
- El-Chaarani, H., Abraham, R., Khalife, D., & Salameh-Ayanian, M. (2023). Corporate governance effects on bank profits in Gulf cooperation council countries during the pandemic. *International Journal of Financial Studies*, 11(1), 36. <https://doi.org/10.3390/ijfs11010036>
- Fama, E. F., & Jensen, M. C. (1983). Corporations and private property: A conference sponsored by the Hoover Institution. *Journal of Law & Economics*, 26(2), 301–325. <https://doi.org/10.1086/467037>
- Farag, H., & Mallin, C. (2017). Board diversity and financial fragility: Evidence from European banks. *International Review of Financial Analysis*, 49, 98–112. <https://doi.org/10.1016/j.irfa.2016.12.002>
- Fayad, A. A. S., Binti Mohd Ariff, A. H., & Ooi, S. C. (2022). Does board characteristics influence integrated reporting quality? Empirical evidence from an emerging market. *Cogent Economics & Finance*, 10(1), 0–23. <https://doi.org/10.1080/23322039.2022.2140907>
- Fu, Y., Lee, S. C., Xu, L., & Zurbrugg, R. (2015). The effectiveness of capital regulation on bank behavior in China. *International Review of Finance*, 15(3), 321–345. <https://doi.org/10.1111/irfi.12045>
- Gafrej, O., & Boujelbéne, M. (2021). The impact of performance, liquidity and credit risks on banking diversification in a context of financial stress. *International Journal of Islamic & Middle Eastern Finance & Management*, 15(1), 66–82. <https://doi.org/10.1108/IMEFM-09-2020-0488>
- Gallego-Álvarez, I., & Pucheta-Martínez, M. C. (2022). Sustainable development through the effect of board diversity and CEO duality on corporate risk: Does the state-owned enterprises matter? *Sustainable Development*, 30(6), 1462–1476. <https://doi.org/10.1002/sd.2321>
- Ghaleb, B. A. A., Kamardin, H., & Al-Qadasi, A. A. (2020). Internal audit function and real earnings management practices in an emerging market. *Meditari Accountancy Research*, 28(6), 1209–1230. <https://doi.org/10.1108/MEDAR-02-2020-0713>
- Grassa, R. (2016). Corporate governance and credit rating in Islamic banks: Does shariah governance matters? *Journal of Management & Governance*, 20(4), 875–906. Springer US <https://doi.org/10.1007/s10997-015-9322-4>
- Gujarati, D. N. & Porter, D. C. (2009). *Basic econometrics* (15th ed.). McGraw-Hill.
- Gupta, N., & Mahakud, J. (2021). Audit committee characteristics and bank performance: Evidence from India. *Managerial Auditing Journal*, 36(6), 813–855. <https://doi.org/10.1108/MAJ-04-2020-2622>
- Hair, J. F., Jr., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Overview of multivariate methods. *Neuromarketing in India: Understanding the Indian Consumer*. <https://doi.org/10.4324/9781351269360>
- Harkin, S. M., Mare, D. S., & Crook, J. N. (2020). Independence in bank governance structure: Empirical evidence of effects on bank risk and performance. *Research in International Business and Finance*, 52(November 2019), 101177. <https://doi.org/10.1016/j.ribaf.2019.101177>
- Hassan, M. K., Abu-Abbas, B., & Kamel, H. (2022). Tone, readability and financial risk: The case of GCC banks. *Journal of Accounting in Emerging Economies*, 12(4), 716–740. <https://doi.org/10.1108/JAEE-06-2021-0192>
- Huang, S. C., Da Chen, W., & Chen, Y. (2018). Bank liquidity creation and CEO optimism. *Journal of Financial Intermediation*, 36(March), 101–117. <https://doi.org/10.1016/j.jfi.2018.03.004>
- Ingle, C. B., & Van Der Walt, N. T. (2001). The strategic board: The changing role of directors in developing and maintaining corporate capability. *Corporate Governance an International Review*, 9(3), 174–185. <https://doi.org/10.1111/1467-8683.00245>
- Issa, A., Zaid, M. A. A., Hanaysha, J. R., & Gull, A. A. (2022). An examination of board diversity and corporate social responsibility disclosure: Evidence from banking sector in the Arabian Gulf countries. *International Journal of Accounting & Information Management*, 30(1), 22–46. <https://doi.org/10.1108/IJAIM-07-2021-0137>
- Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, 48(3), 831–880. <https://doi.org/10.1111/j.1540-6261.1993.tb04022.x>
- Karim, M. R., Shetu, S. A., & Razia, S. (2021). COVID-19, liquidity and financial health: Empirical evidence from South Asian economy. *Asian Journal of Economics and Banking*, 5(3), 307–323. <https://doi.org/10.1108/ajeb-03-2021-0033>
- Karkowska, R., & Acedański, J. (2020). The effect of corporate board attributes on bank stability. *Portuguese Economic Journal*, 19(2), 99–137. <https://doi.org/10.1007/s10258-019-00162-3>
- Khanchel, I., Lassoued, N., & Ferchichi, O. (2023). Are political connections a curse for banks of the MENA region? The moderating effect of ownership structure. *International Journal of Emerging Markets*. <https://doi.org/10.1108/IJOEM-03-2022-0480>
- Khan, J., & Rehman, S. U. (2020). Impact of corporate governance compliance and board attributes on operating liquidity in pre- and post-corporate governance reforms. *Corporate Governance (Bingley)*, 20(7), 1329–1347. <https://doi.org/10.1108/CG-04-2020-0156>

- King, T., Srivastav, A., & Williams, J. (2016). What's in an education? Implications of CEO education for bank performance. *Journal of Corporate Finance*, 37, 287–308. <https://doi.org/10.1016/j.jcorpfin.2016.01.003>
- Kusi, B. A., Gyeke-Dako, A., Agbloyor, E. K., & Darku, A. B. (2018). Does corporate governance structures promote shareholders or stakeholders value maximization? Evidence from African banks. *Corporate Governance (Bingley)*, 18(2), 270–288. <https://doi.org/10.1108/CG-09-2016-0177>
- La Porta, R., Lopez De Silanes, F., & Shleifer, A. (2002). Government ownership of banks. *The Journal of Finance*, 57(1), 265–301. <https://doi.org/10.1111/1540-6261.00422>
- Lassoued, N., Attia, M. B. R., & Sassi, H. (2018). Earnings management in Islamic and conventional banks: Does ownership structure matter? Evidence from the MENA region. *Journal of International Accounting, Auditing & Taxation*, 30(December), 85–105. <https://doi.org/10.1016/j.intaccudtax.2017.12.003>
- Lee, J., & Chung, K. H. (2018). Foreign ownership and stock market liquidity. *International Review of Economics & Finance*, 54, 311–325. <https://doi.org/10.1016/j.iref.2017.10.007>
- Li, F. (2016). Endogeneity in CEO power: A survey and experiment. *Investment Analysts Journal*, 45(3), 149–162. <https://doi.org/10.1080/10293523.2016.1151985>
- Majeed, M. K., Jun, J. C., Zia-Ur-Rehman, M., Mohsin, M., & Rafiq, M. Z. (2020). The board size and board composition impact on financial performance: An evidence from the Pakistani and Chinese's listed banking sector. *The Journal of Asian Finance, Economics & Business*, 7(4), 81–95. <https://doi.org/10.13106/JAFEB.2020.VOL7.NO4.81>
- Mousa, A. K. A., Hassan, N. L., & Pirzada, K. (2022). Board governance mechanisms and liquidity creation: A theoretical framework. *GATR Journal of Finance and Banking Review*, 7(2), 122–134. [https://doi.org/10.35609/jfbr.2022.7.2\(3\)](https://doi.org/10.35609/jfbr.2022.7.2(3))
- Moussa, F. B. (2019). The influence of internal corporate governance on bank credit risk: An empirical analysis for Tunisia. *Global Business Review*, 20(3), 640–667. <https://doi.org/10.1177/0972150919837078>
- Musleh Alstartawi, A. (2019). Board independence, frequency of meetings and performance. *Journal of Islamic Marketing*, 10(1), 290–303. <https://doi.org/10.1108/JIMA-01-2018-0017>
- Nomran, N. M., & Haron, R. (2019). *Dual board governance structure and multi-bank performance: A comparative analysis between Islamic banks in Southeast Asia and GCC countries*. Corporate Governance (Bingley). <https://doi.org/10.1108/CG-10-2018-0329>
- Pirzada, K., Mustapha, M. Z., & Alfian, E. (2016). The role of nomination committee in selecting female directors: A case of Malaysia. *Pertanika Journal of Social Sciences & Humanities*, 24(May), 105–118.
- Qian, X., Zhang, G., & Liu, H. (2015). Officials on boards and the prudential behavior of banks: Evidence from China's city commercial banks. *China Economic Review*, 32, 84–96. <https://doi.org/10.1016/j.chieco.2014.11.010>
- Reed, W. R., & Ye, H. (2011). Which panel data estimator should I use? *Applied Economics*, 43(8), 985–1000. <https://doi.org/10.1080/00036840802600087>
- Rose, C. (2017). The relationship between corporate governance characteristics and credit risk exposure in banks: Implications for financial regulation. *European Journal of Law and Economics*, 43(1), 167–194. <https://doi.org/10.1007/s10657-016-9535-2>
- Sadeghi, S. (2020). Corporate governance and liquidity creation: Evidence from Iranian banks 1 introduction. *Journal of Money and Economy*, 14(4), 441–452. [https://jme.mbri.ac.ir/files/site1/user\\_files\\_10c681/somysadeghi-A-10-254-1-5f69c36.pdf](https://jme.mbri.ac.ir/files/site1/user_files_10c681/somysadeghi-A-10-254-1-5f69c36.pdf)
- Safullah, M., Hassan, M. K., & Kabir, M. N. (2020). Corporate governance and liquidity creation nexus in Islamic banks—is managerial ability a channel? *Global Finance Journal*, 51, 100543. <https://doi.org/10.1016/j.gfj.2020.100543>
- Sahyouni, A., & Wang, M. (2019). Liquidity creation and bank performance: Evidence from MENA. *ISRA International Journal of Islamic Finance*, 11(1), 27–45. <https://doi.org/10.1108/IJIF-01-2018-0009>
- Sanyaolu, W., & Siyanbola, T. T. (2020). Corporate governance and liquidity management: Evidence from Nigerian deposit money banks. *Iranian Economic Review*. <https://doi.org/10.22059/ier.2020.76110>
- Shah, S. Q. A., Khan, I., Shah, S. S. A., & Tahir, M. (2018). Factors affecting liquidity of banks: Empirical evidence from the banking sector of Pakistan. *Colombo Business Journal*, 9(1), 01–18. <https://doi.org/10.4038/cbj.v9i1.20>
- Shahzad, K., Shah, S. Q. A., Lai, F.-W., Jan, A. A., Shah, S. A. A., & Shad, M. K. (2023). Exploring the nexus of corporate governance and intellectual capital efficiency: From the lens of profitability. *Quality & Quantity*, 57(3), 2447–2468. <https://doi.org/10.1007/s11135-022-01472-z>
- Shehata, N. F. (2015). Development of corporate governance codes in the GCC: An overview. *Corporate Governance (Bingley)*, 15(3), 315–338. <https://doi.org/10.1108/CG-11-2013-0124>
- Thuy, H. X., Khuong, N. V., Anh, L. H. T., & Quyen, P. N. (2022). Effect of corporate governance on corporate social responsibility in Vietnam: State-ownership as the moderating role. *Journal of Financial Reporting and Accounting*. <https://doi.org/10.1108/JFRA-10-2021-0367>
- Ullah, S., & Kamal, Y. (2017). Board characteristics, political connections, and corporate cash holdings: The role of firm size and political regime. *Business & Economic Review*, 9(1), 157–179. <https://doi.org/10.22547/ber/9.1.9>
- Ur Rehman, R., Zhang, J., Naseem, M. A., Ahmed, M. I., & Ali, R. (2020). Board independence and Chinese banking efficiency: A moderating role of ownership restructuring. *Eurasian Business Review*, 11(3), 517–536. <https://doi.org/10.1007/s40821-020-00155-9>
- Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics*, 53(1), 113–142. [https://doi.org/10.1016/S0304-405X\(99\)00018-5](https://doi.org/10.1016/S0304-405X(99)00018-5)
- Vallascas, F., Mollah, S., & Keasey, K. (2017). Does the impact of board independence on large bank risks change after the global financial crisis? *Journal of Corporate Finance*, 44(2016), 149–166. <https://doi.org/10.1016/j.jcorpfin.2017.03.011>
- Viverita, V., Bustaman, Y., & Danarsari, D. N. (2022). Liquidity creation by Islamic and conventional banks during Covid-19 pandemic. *Global Conference on Business and Social Sciences Proceeding*, 13(1), 1–1. [https://doi.org/10.35609/gcbssproceeding.2022.1\(64\)](https://doi.org/10.35609/gcbssproceeding.2022.1(64))
- VU, T. M. T., Van Truong, T., & Dinh, D. T. (2020). Determinants of liquidity in manufacturing firms. *The Journal of Asian Finance, Economics & Business*, 7(12), 11–19. <https://doi.org/10.13106/JAFEB.2020.VOL7.NO12.011>
- Wasiu, S., Tunji, S., & Okwuosa, I. (2020). Corporate governance and liquidity management: Evidence from Nigerian deposit money banks. *Iranian Economic Review*, 23(1), 199–208. <https://doi.org/10.22059/ier.2020.76110>
- Yeddou, N., & Pourroy, M. (2020). Bank liquidity creation: Does ownership structure matter? *The Quarterly*

- Review of Economics & Finance*, 78, 116–131. <https://doi.org/10.1016/j.qref.2020.01.003>
- Ye, J., Zhang, H., Cao, C., Wei, F., & Namunyak, M. (2020). Boardroom gender diversity on stock liquidity: Empirical evidence from Chinese A-share market. *Emerging Markets Finance & Trade*, 1–18. <https://doi.org/10.1080/1540496X.2019.1684892>
- Zaefarian, G., Kadile, V., Henneberg, S. C., & Leischnig, A. (2017). Endogeneity bias in marketing research: Problem, causes and remedies. *Industrial Marketing Management*, 65 (June), 39–46. <https://doi.org/10.1016/j.indmarman.2017.05.006>
- Zhang, X., Fu, Q., Lu, L., Wang, Q., & Zhang, S. (2021). Bank liquidity creation, network contagion and systemic risk: Evidence from Chinese listed banks. *Journal of Financial Stability*, 53, 100844. <https://doi.org/10.1016/j.jfs.2021.100844>